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APPENDIX G

Section 20

February Outfall 006

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF30
 Task Order 313150010
 SDG No. Multi
 No. of Analyses 13

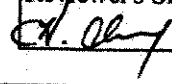
Laboratory Alta Analytical Perspective

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: March 18, 2005

Reviewer's Signature



ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Detects below the calibration range were qualified "J." False negative and false positives noted. Several transcription errors were noted.
COMMENTS ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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." In addition, Alta analyzed an additional calibration standard at concentrations below the level specified in the method. Not all results below the lower MCLs were flagged as estimated by the laboratory. These results were qualified as estimated, "J," by the reviewer. The laboratory also did not flag detects below the lower MCL for totals as estimated. 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. Total HpCDF in samples Outfall 001 and Outfall 010 had one of the components below the lower MCL but one within the MCL. Total HpCDF in these samples were qualified as estimated, "J."

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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT43
 Task Order 313150010
 SDG No. IOB0988, 0990, 0992

No. of Analyses 3

Laboratory Del Mar
 Reviewer P. Meeks
 Analysis/Method Metals

Date: 03/21/05
 Reviewer's Signature


ACTION ITEMS*

1. **Case Narrative Deficiencies**
2. **Out of Scope Analyses**
3. **Analyses Not Conducted**
4. **Missing Hardcopy Deliverables**
5. **Incorrect Hardcopy Deliverables**
6. **Deviations from Analysis Protocol, e.g.,**
 - Qualifications applied for detects below the reporting limit.
 - 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: METALS

SAMPLE DELIVERY GROUPS: IOB0988, IOB0990, & IOB0992

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#: IOB0988, IOB0990, IOB0992
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 21, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for 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.: Multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 003	Outfall 003	IOB0988-01	water	ILM04
Outfall 005	Outfall 005	IOB0990-01	water	ILM04
Outfall 006	Outfall 006	IOB0992-01	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 metals analyte list was changed per a memo from MWH personnel dated 02/17/05. Duplicate samples were submitted for all samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

2.4 BLANKS

Lead was not detected in the method blank or associated CCBs. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferences sulfur, phosphorus, carbon, and chloride, and antimony, selenium, thallium, and lead were not spiked into the ICSAB solution. The results for sodium and potassium were above the calibration range of the instrument in the ICSA and ICSAB analyses; however, as these analytes were not reported in the site sample, no qualifications were required. The result for aluminum was above the calibration range in the ICSA and was recovered below the control limit in the ICSAB analysis associated with Outfall 003 and Outfall 005; however, as aluminum was not reported for these samples, no qualifications were required. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B17099-BS1. The LCS result on the summary forms and in the raw data were within the laboratory-established ICP/MS control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 005 in association with the samples in these SDGs. The RPD was less than the control limit of 20%. No qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 005 in association with the samples in these SDGs. The recoveries were within the AMEC control limits of 75-125%. No qualifications were required.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Lead detected below the reporting limit in Outfall 003 and Outfall 005 was qualified as estimated, "J." No further qualifications were required.

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (951) 267-4867 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 576-8596 FAX (619) 576-8596
 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

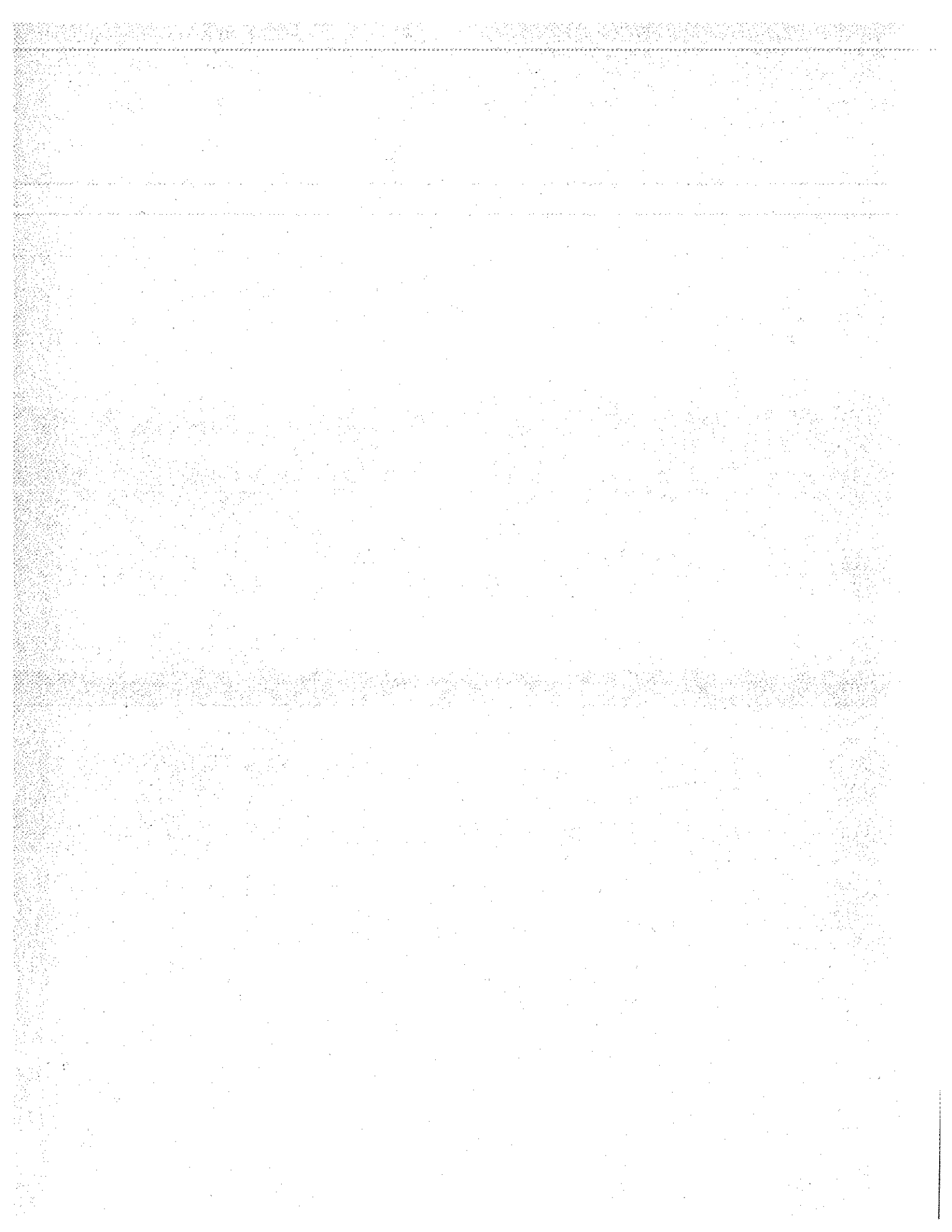
MWH-Pasadena/Boeing Project ID: Routine Outfall 006
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101 Report Number: IOB0992
 Attention: Bronwyn Kelly
 Sampled: 02/11/05
 Received: 02/11/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOB0992-01 (DRAFT: Outfall 006 - Water)													
Reporting Units: ug/l													
Lead	EPA 200.8	5B17098	0.13	1.0	2.5	1	02/17/05	02/18/05	<table border="1"> <tr> <td>Raw Qual</td> <td>Qual code</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Raw Qual	Qual code		
Raw Qual	Qual code												

AMEC VALIDATED
LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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

LABORATORY REPORT

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

Project: Routine Outfall 006

Sampled: 02/11/05
Received: 02/11/05
Issued: 03/23/05 18:23

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 4 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

SAMPLE CROSS REFERENCE

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

LABORATORY ID
IOB0992-01

CLIENT ID
Outfall 006

MATRIX
Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 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 006

Report Number: IOB0992

Sampled: 02/11/05
 Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0992-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B17098	0.18	2.0	ND	1	02/17/05	02/18/05	
Cadmium	EPA 200.8	5B17098	0.015	1.0	0.098	1	02/17/05	02/18/05	J
Copper	EPA 200.8	5B17098	0.49	2.0	4.7	1	02/17/05	02/18/05	
Lead	EPA 200.8	5B17098	0.13	1.0	2.5	1	02/17/05	02/18/05	
Mercury	EPA 245.1	5B15070	0.063	0.20	0.18	1	02/15/05	02/15/05	J

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 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 006

Report Number: IOB0992

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: IOB0992-01 (Outfall 006 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B11120	0.26	0.50	2.2	1	02/11/05	02/12/05	
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	0.40	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B16097	0.94	5.0	ND	1	02/16/05	02/16/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	1.3	1	02/11/05	02/12/05	
Total Dissolved Solids	SM2540C	5B16118	10	10	100	1	02/16/05	02/16/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	100	1	02/17/05	02/17/05	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 006 Report Number: IOB0992	Sampled: 02/11/05 Received: 02/11/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 006 (IOB0992-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/11/2005 10:15	02/11/2005 18:15	02/11/2005 23:00	02/12/2005 05:15

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 006 Report Number: IOB0992	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	Data Limit	Qualifiers
Batch: 5B15070 Extracted: 02/15/05											
Blank Analyzed: 02/15/2005 (5B15070-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 02/15/2005 (5B15070-BS1)											
Mercury	8.18	0.20	0.063	ug/l	8.00		102	85-115			
Matrix Spike Analyzed: 02/15/2005 (5B15070-MS1)											
						Source: IOB1088-01					
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15070-MSD1)											
						Source: IOB1088-01					
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130	0	20	
Batch: 5B17098 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17098-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 02/17/2005 (5B17098-BS1)											
Antimony	87.4	2.0	0.18	ug/l	80.0		109	85-115			
Cadmium	75.2	1.0	0.015	ug/l	80.0		94	85-115			
Copper	85.2	2.0	0.49	ug/l	80.0		106	85-115			
Lead	86.3	1.0	0.13	ug/l	80.0		108	85-115			
Matrix Spike Analyzed: 02/17/2005 (5B17098-MS1)											
						Source: IOB0960-01					
Antimony	87.5	2.0	0.18	ug/l	80.0	ND	109	70-130			
Cadmium	71.6	1.0	0.015	ug/l	80.0	0.031	89	70-130			
Copper	93.8	2.0	0.49	ug/l	80.0	15	98	70-130			
Lead	80.5	1.0	0.13	ug/l	80.0	0.21	100	70-130			

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

Project ID: Routine Outfall 006

Report Number: IOB0992

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	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17098 Extracted: 02/17/05											
Matrix Spike Analyzed: 02/17/2005 (5B17098-MS2)						Source: IOB1052-01					
Antimony	92.7	2.0	0.18	ug/l	80.0	ND	116	70-130			
Cadmium	72.4	1.0	0.015	ug/l	80.0	0.24	90	70-130			
Copper	80.9	2.0	0.49	ug/l	80.0	6.0	94	70-130			
Lead	78.8	1.0	0.13	ug/l	80.0	ND	98	70-130			
Matrix Spike Dup Analyzed: 02/17/2005 (5B17098-MSD1)						Source: IOB0960-01					
Antimony	86.6	2.0	0.18	ug/l	80.0	ND	108	70-130	1	20	
Cadmium	71.5	1.0	0.015	ug/l	80.0	0.031	89	70-130	0	20	
Copper	93.3	2.0	0.49	ug/l	80.0	15	98	70-130	1	20	
Lead	83.5	1.0	0.13	ug/l	80.0	0.21	104	70-130	4	20	

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 Project Manager



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

Project ID: Routine Outfall 006

Report Number: IOB0992

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 Limit	Data Qualifiers
Batch: 5B11120 Extracted: 02/11/05										
Blank Analyzed: 02/11/2005 (5B11120-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 02/11/2005 (5B11120-BS1)										
Chloride	4.84	0.50	0.26	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		
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
Sulfate	39.3	0.50	0.18	mg/l	10.0	29	103	80-120	2	20
Batch: 5B16097 Extracted: 02/16/05										
Blank Analyzed: 02/16/2005 (5B16097-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 02/16/2005 (5B16097-BS1) M-NR1										
Oil & Grease	16.2	5.0	0.94	mg/l	20.0		81	65-120		
LCS Dup Analyzed: 02/16/2005 (5B16097-BSD1)										
Oil & Grease	18.3	5.0	0.94	mg/l	20.0		92	65-120	12	20

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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: Routine Outfall 006

Report Number: IOB0992

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 Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B16118 Extracted: 02/16/05										
Blank Analyzed: 02/16/2005 (5B16118-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 02/16/2005 (5B16118-BS1)										
Total Dissolved Solids	1050	10	10	mg/l	1000		105 90-110			
Duplicate Analyzed: 02/16/2005 (5B16118-DUP1)										
Total Dissolved Solids	756	10	10	mg/l		Source: IOB1205-06 750		1	10	
Batch: 5B17069 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17069-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 02/17/2005 (5B17069-BS1)										
Total Suspended Solids	977	10	10	mg/l	1000		98 85-115			
Duplicate Analyzed: 02/17/2005 (5B17069-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOB0990-01 ND			10	

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

Project ID: Routine Outfall 006

Report Number: IOB0992

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
IOB0992-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOB0992-01	Antimony-200.8	Antimony	ug/l	0.084	2.0	6.00
IOB0992-01	Cadmium-200.8	Cadmium	ug/l	0.098	1.0	4.00
IOB0992-01	Chloride - 300.0	Chloride	mg/l	2.20	0.50	150
IOB0992-01	Copper-200.8	Copper	ug/l	4.70	2.0	14
IOB0992-01	Mercury - 245.1	Mercury	ug/l	0.18	0.20	0.20
IOB0992-01	Nitrogen, NO ₃ +NO ₂ -N	Nitrate/Nitrite-N	mg/l	0.40	0.26	10.00
IOB0992-01	Sulfate-300.0	Sulfate	mg/l	1.30	0.50	250
IOB0992-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	100	10	850

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 006

Report Number: IOB0992

Sampled: 02/11/05

Received: 02/11/05

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.
- 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.

IOB0992 <Page 10 of 11>



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IOB0992

Sampled: 02/11/05
 Received: 02/11/05

Certification Summary

Del Mar Analytical, Irvine

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

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

Subcontracted Laboratories

Alta Analytical Perspectives

Analysis Performed: 1613-Dioxin-HR
 Samples: IOB0992-01
 Analysis Performed: EDD + Level 4
 Samples: IOB0992-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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CHAIN OF CUSTODY FORM

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Annual Outfall 006 Stormwater at FSDF-2		Project Manager: Bronwyn Kelly Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Field readings: Temp = 54.0 pH = 6.9 Comments																
Sampler: Paloch		Analyses Required		Cyanide Acute Toxicity SVOCs - PP Medium 226 & 228 Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90) (905.) Total Combined Pesticides/PCBs - PP VOCs A+A+2CVE VOCs (624), NPDES + PP TDS, TSS Perchlorate Cl-, SO4, NO3+NO2-N, Oil & Grease (EPA 413.1) TCDD (and all congeners) Al, + PP Sb, Cd, Cu, Pb, Hg, B, V, Total Recoverable Metals:		Analyze for Total Combined RA-226 & RA-228 only if Gross Alpha/Beta > 15pCi/L																
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	AI, + PP	Oil & Grease (EPA 413.1)	TCDD (and all congeners)	Cl-, SO4, NO3+NO2-N, Perchlorate	TDS, TSS	VOCs (624), NPDES + PP	VOCs A+A+2CVE	Pesticides/PCBs - PP	Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90) (905.) Total Combined	Medium 226 & 228	SVOCs - PP	Acute Toxicity	Cyanide			
Outfall 006	W	1L Poly	1	2-11-05 7:15	HNO3	1A	X															
Outfall 006-Dup	W	1L Poly	1		HNO3	1B	X															
Outfall 006	W	1L Amber	2		None	2A, 2B			X													
Outfall 006	W	1L Amber	2		HCl	3A, 3B		X														
Outfall 006	W	Poly-500 ml	2		None	4A, 4B		X														
Outfall 006	W	Poly-500 ml	2		None	5A, 5B				X												
Outfall 006	W	VOAs	3		HCl	6A, 6B, 6C					X											
Outfall 006	W	VOA	3		None	7A, 7B, 7C						X										
Outfall 006	W	1L Amber	2		None	8A, 8B								X								
Outfall 006	W	1 Gal Poly VOAs	2		None	9A, 9B, 9C									X							
Outfall 006	W	1L Amber	2		None	10A, 10B																
Outfall 006	W	1 Gal Poly	1		None	11A																
Outfall 006	W	500ml Poly	1		NaOH	12																
Trip Blanks	W	VOA	3		None	13A, 13B, 13C																
Trip Blank	W	VOAs	3		HCl	14A, 14B, 14C						X										
Relinquished By				Date/Time:	Received By		Date/Time:		Received By		Date/Time:		Received By		Date/Time:		Turn around Time: (check)		Sample Integrity (Check)		On Ice	
Relinquished By				2-11-05 1412	J. DeLong		2/11/05 1425		J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		24 Hours		Intact		20	
Relinquished By				2-11-05 1815	J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		48 Hours		Intact		20	
Relinquished By				2-11-05 1815	J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		72 Hours		Intact		20	
Relinquished By				2-11-05 1815	J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		J. DeLong		2/11/05 1815		Perchlorate Only 72 Hours		Intact		20	


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 McIlvanna / 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) New 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, 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.
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, 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.
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, 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.

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, 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.
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, 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.
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, Pcs/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
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March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 006
Sampled: 02/11/05
Del Mar Analytical Number: IOB0992

Dear Ms. Kelly:

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

MWH ID	Del Mar ID	Alta ID
Outfall 006	IOB0992-01	P5072 2989 010

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

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager


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

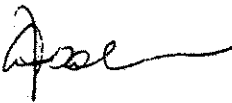
2714 EXCHANGE DRIVE
 WILMINGTON
 NORTH CAROLINA 28405
 TEL: 910-794-1613 FAX 910-794-3919

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: IOB0992-01

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:	1.02 L	Sample ID:	P5072_2989_010	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	2.87			67.7	78.6	
1,2,3,7,8-PeCDD	ND	3.14			66.7	83.9	
1,2,3,4,7,8-HxCDD	ND	6.91			70.2	85.8	
1,2,3,6,7,8-HxCDD	ND	5.98			72.5	85.8	
1,2,3,7,8,9-HxCDD	ND	7.12			69.9	85.8	
1,2,3,4,6,7,8-HpCDD	ND	10.8			60	70	
OCDD	70.2	11.8			45.8	70	
2,3,7,8-TCDF	ND	2.58			67.5	78.6	
1,2,3,7,8-PeCDF	ND	4.02			73.9	81.3	
2,3,4,7,8-PeCDF	ND	3.97			68.3	81.3	
1,2,3,4,7,8-HxCDF	ND	1.55			70.8	85.8	
1,2,3,6,7,8-HxCDF	ND	1.42			79.5	85.8	
2,3,4,6,7,8-HxCDF	ND	1.91			69.9	85.8	
1,2,3,7,8,9-HxCDF	ND	2.81			64.2	85.8	
1,2,3,4,6,7,8-HpCDF	ND	4.35			57	70	
1,2,3,4,7,8,9-HpCDF	ND	7.3			55.4	70	
OCDF	ND	7.69			48.7	70	
Totals & TEQs							
TCDDs	ND	2.87			 <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	3.14					
HxCDDs	ND	6.35					
HpCDDs	ND	10.8					
TCDFs	ND	2.58					
PeCDFs	0.456	3.99					
HxCDFs	ND	1.85					
HpCDFs	ND	5.69					
Total PCDD/Fs	70.7		70.7				


Checkcode: 3928

AAP 2005 Rev. B

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	2.6			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	0.764			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	
1,2,3,4,7,8,9-HpCDF	ND	2.67			65.1	69.8	
OCDF	ND	11.1			67.2	69.8	
Totals & TEQs							
TCDDs	ND	1.65			 ALTA ANALYTICAL PERSPECTIVES 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	1.55					
HxCDDs	ND	2.59					
HpCDDs	ND	1.98					
TCDFs	ND	1.04					
PeCDFs	ND	1.94					
HxCDFs	ND	0.974					
HpCDFs	ND	2.19					
Total PCDD/Fs	0		0				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer: *[Signature]*
 Date: 03.11.05

Sample Summary
 Part 1



Method 1613

Analyte	Q_2889_MS 001	IOB1001-01	IOB0983-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1008-01	IOB1002-01	IOB0982-01	IOB1004-01	IOB0988-01	IOB0981-01
	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L
2,3,7,8-TCDF	(1.85)	(2.29)	(2.08)	(2.02)	(1.34)	(1.71)	(2.29)	(2.85)	(1.81)	(1.44)	(2.87)	(1.79)	(3.24)	(3.01)
1,2,3,7,8-PeCDD	(1.58)	(1.85)	(1.79)	(2.09)	(2.11)	(1.73)	(3.2)	(1.89)	(1.62)	(2.04)	(3.14)	(2.92)	(2.18)	(5.38)
1,2,3,4,7,8-HxCDD	(2.57)	(3.45)	(2.55)	(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)	(3.8)	(4.11)	(2.41)	8.47	(2.88)	(5.98)	(12)	(4.84)	(4.7)
1,2,3,4,6,7,8-HpCDD	(2.8)	(3.83)	(3.13)	(3.33)	(2.82)	(4.86)	(4.95)	(2.88)	5.27	(3.13)	(7.12)	(13.8)	(5.54)	(5.81)
OCDD	(1.98)	75.4	31.5	10	(9.38)	12.2	(5.34)	49.8	207	12.1	(10.8)	20.8	(3.18)	(9.5)
	(4.78)	883	287	134	70.4	157	58.1	471	2120	183	70.2	213	50.3	50
2,3,7,8-TCDF	(1.04)	(1.24)	(1.84)	(1.85)	(0.995)	(2.08)	(1.37)	(1.64)	(1.49)	(1.03)	(2.58)	(2.71)	(2.39)	(2.61)
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.75)	(1.44)	(2.33)	(1.84)	(3.71)	(1.98)	(2.35)	(2.11)	(4.02)	(2.52)	(2.98)	(2.48)
2,3,4,7,8-PeCDF	(1.98)	(1.88)	(2.8)	(1.48)	(2.42)	(1.89)	(3.88)	(2.03)	(2.31)	(1.95)	(3.97)	(2.53)	(3)	(2.48)
1,2,3,4,7,8-HxCDF	(0.812)	(0.867)	(0.9)	(0.785)	(0.843)	(1.38)	(1.47)	(1.47)	(0.97)	(0.815)	(1.55)	(5.66)	(1.62)	(1.13)
1,2,3,6,7,8-HxCDF	(0.784)	(0.843)	(0.827)	(0.706)	(0.871)	(1.31)	(1.3)	(1.51)	0.898	(0.78)	(1.42)	(8.24)	(1.33)	(1.18)
2,3,4,6,7,8-HxCDF	(1.01)	(1.12)	(1.04)	(0.933)	(1.12)	(1.88)	(1.73)	(1.5)	(1.1)	(0.99)	(1.91)	(8.23)	(2.03)	(1.48)
1,2,3,7,8-PeCDF	(1.42)	(1.67)	(1.58)	(1.47)	(1.73)	(2.41)	(2.59)	(2.85)	(1.7)	(1.51)	(2.51)	(12.4)	(2.74)	(2.05)
1,2,3,4,6,7,8-HpCDF	(1.78)	16.8	(1.89)	(4.87)	(1.9)	4.04	(3.28)	10.8	27.2	(1.89)	(4.35)	(3.42)	(2.09)	(3.28)
1,2,3,4,7,8-HpCDF	(2.67)	(3.46)	(2.95)	(7.47)	(3.25)	(2.53)	(4.59)	(2.68)	(4.43)	(2.59)	(7.3)	(5.48)	(3.04)	(4.88)
OCDF	(11.1)	155	(11)	(22.4)	(12.4)	(9.53)	(14.9)	34.9	67.1	(10.1)	(7.88)	(20.8)	(13.1)	(8.88)
Checkcode	3385	4361	4681	4985	5239	5527	5797	0087	0335	0812	3829	4355	4622	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: *[Signature]*

P5072 - Totals
Project ID: General Analytical HRMS

Sample Summary
Part 2



Method 1613

Analyte	0_2000_M5001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1000-01	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
Totals														
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	7.38	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	183	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	5.98	0	0	0	0
OCDF	0	155	0	0	0	0	0	34.9	87.1	0	0	0	0	0
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	159	79.9	197	56.4	848	2,500	182	70.7	256	62.6	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	56.4	863	2,630	193	70.7	256	62.6	50
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	42.2	1,330	381	215	128	238	119	891	2,840	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.8	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.8	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,180	338	200	119	214	119	595	2,450	211	144	348	109	114
Checkcode	3385	4361	4681	4985	5239	5527	5797	0067	0336	0612	3929	4355	4822	4900

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL
 [] = EMPC

Reviewer: *ASMAROS*
 Date:

P5072 - Others
Project ID: General Analytical HRMS

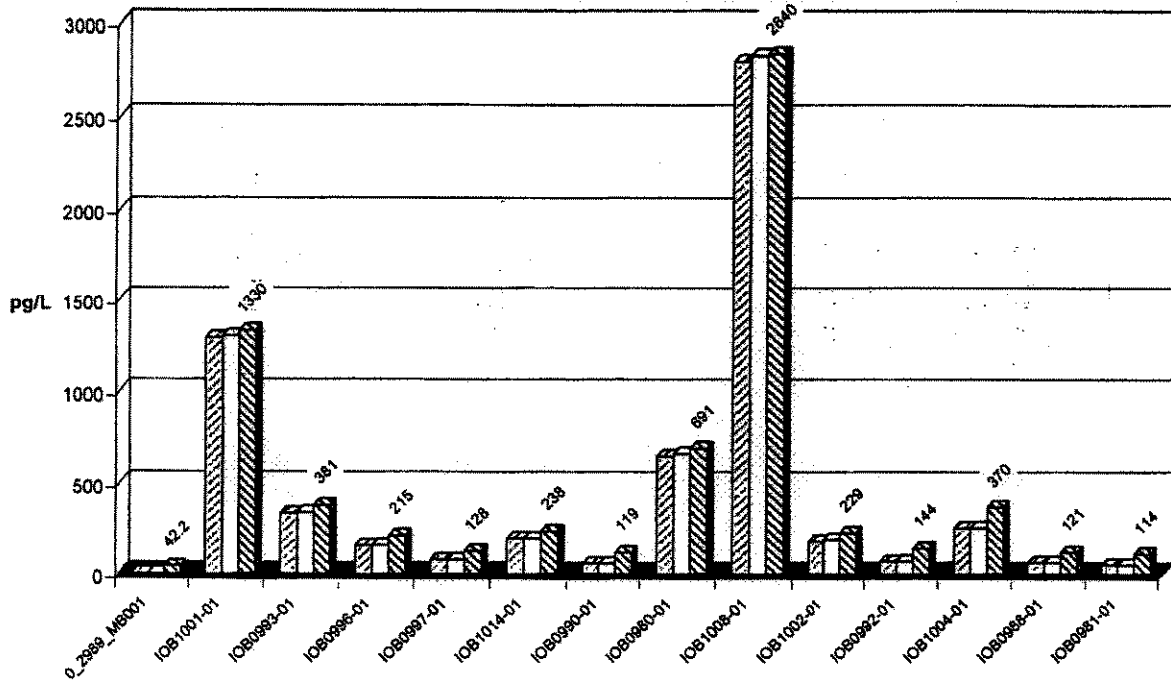
Sample Summary Part 3		ALTA ANALYTICAL PERSPECTIVES												Method 1613	
Analyte	0_2580_MB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0990-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0998-01	IOB0991-01	
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	
Other PCDD/Fs (ND=0, EMPC=0)															
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	33.6	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	6.53	0	0	0	0	0	
Other PeCDF	0	0	0.858	0	0	0.76	0.256	0	2.57	0	0.456	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	
Other PCDD/Fs (ND=0, EMPC=EMPC)															
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	6.57	0	0	0	0	8.88	47.7	0	0	0	0	0	
Other HpCDD	0	77.2	33.6	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	0.456	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	
Checkcode	3385	4361	4681	4985	5239	5527	5797	0087	0335	0612	3829	4355	4622	4900	

() = DL
 [] = EMPC

Reviewer: *DA*
 Date: 03/02/03

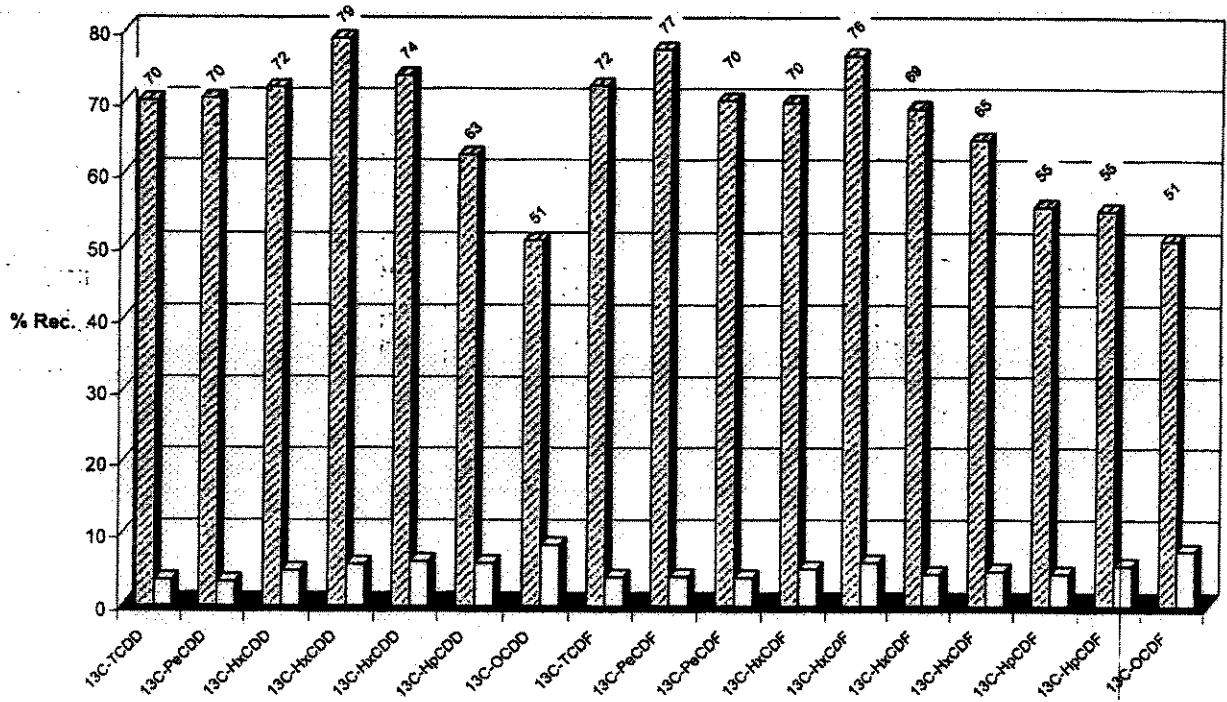
Totals
Project ID: General Analytical HRMS
P5072

□ Total PCDD/Fs (ND=0; EMPC=0)
 □ Total PCDD/Fs (ND=0; EMPC=EMPC)
 ▨ Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



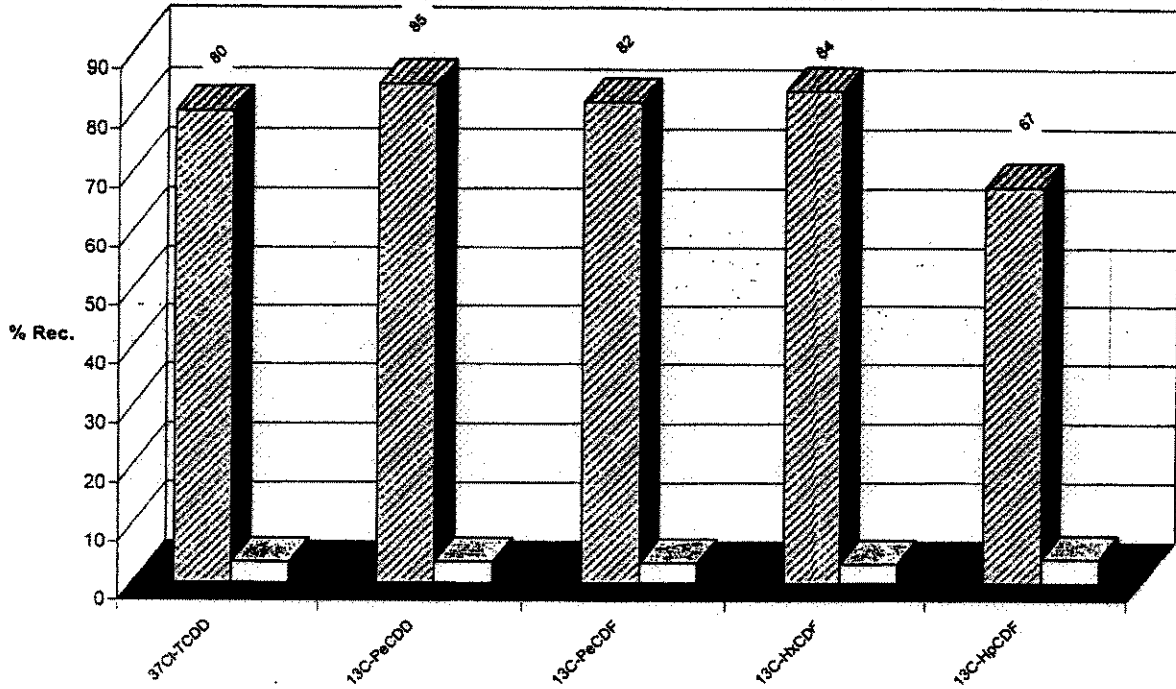
Mean Recoveries of Extraction Standards (N=14)
Project ID: General Analytical HRMS
P5072

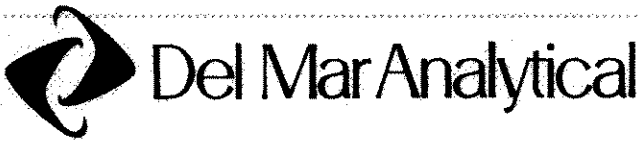
Mean Std. Dev.



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
 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 # IOB0992 107703

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: IOB0992-01 Water	Sampled: 02/11/05 10:15	
1613-Dioxin-HR	02/18/05 10:15	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 10:15	Excel EDD email to pm, Include Std logs for Lvl IV

107703001

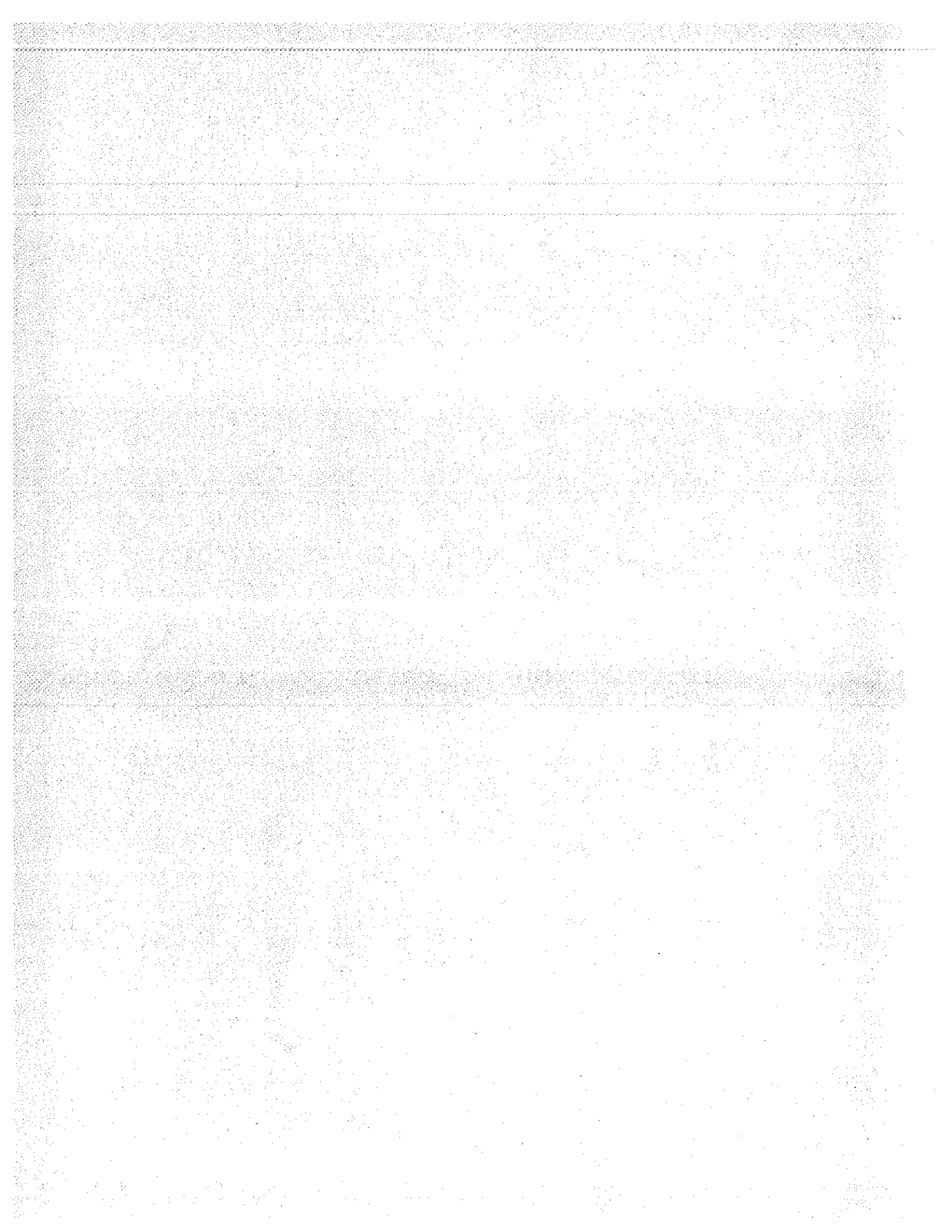
Containers Supplied:
 1 L Amber (IOB0992-01C)
 1 L Amber (IOB0992-01D)

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): 3

~~Released By _____ Date 2-14-05 Time 1700 Received By Bryant Fries Date 2-15-05 Time 9:00~~

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

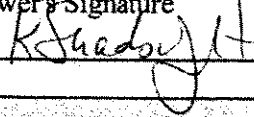


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF29
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 9, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple SDGs
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 9, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 001	IOB1560-01	25788-001	water	1613
Outfall 004	IOB1556-01	25786-001	water	1613
Outfall 005	IOB1557-01	25787-001	water	1613
Outfall 006	IOB1559-01	25784-001	water	1613
Outfall 009	IOB1574-01	25789-001	water	1613
Outfall 010	IOB1575-01	25785-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 0.8°C and 1.6°C ; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There were two initial calibrations, analyzed 08/30/04 and 10/04/04. The calibrations each consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6543-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 (6543-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 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. Compounds flagged by the laboratory with a "D" qualifier indicated possible diphenylether interference and were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.



EPA Method 1613

Sample ID: IOB1559-01

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOB1559
 Date Collected: 18-Feb-05
 Time Collected: 0900

Laboratory Data
 Lab Sample: 25784-001
 QC Batch No.: 6543
 Date Analyzed DB-5: 28-Feb-05
 Date Analyzed DB-225: NA

Sample Data
 Matrix: Aqueous
 Sample Size: 0.944 L

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.673			13C-2,3,7,8-TCDD	81.6	25 - 164	
1,2,3,7,8-PeCDD	ND	1.86			13C-1,2,3,7,8-PeCDD	76.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.29			13C-1,2,3,4,7,8-HxCDD	71.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.35			13C-1,2,3,6,7,8-HxCDD	74.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.29			13C-1,2,3,4,6,7,8-HpCDD	73.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	12.0			J	13C-OCDD	63.9	17 - 157	
OCDD	163				13C-2,3,7,8-TCDF	79.6	24 - 169	
2,3,7,8-TCDF	ND	1.08			13C-1,2,3,7,8-PeCDF	71.8	24 - 185	
1,2,3,7,8-PeCDF	ND	1.08			13C-2,3,4,7,8-PeCDF	73.8	21 - 178	
2,3,4,7,8-PeCDF	ND	1.04			13C-1,2,3,4,7,8-HxCDF	67.0	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.760			13C-1,2,3,6,7,8-HxCDF	66.4	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.741			13C-2,3,4,6,7,8-HxCDF	65.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.847			13C-1,2,3,7,8,9-HxCDF	69.3	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.29			13C-1,2,3,4,6,7,8-HpCDF	61.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	2.70			J	13C-1,2,3,4,7,8,9-HpCDF	70.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.03			13C-OCDF	64.4	17 - 157	
OCDF	8.59			J	CRS 37Cl-2,3,7,8-TCDD	93.9	35 - 197	

Footnotes

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

Totals

Total TCDD	ND	0.673		
Total PeCDD	ND	1.86		
Total HxCDD	ND	2.31		
Total HpCDD	27.6			
Total TCDF	ND	1.45		
Total PeCDF	ND	0.607		
Total HxCDF	1.10	1.93		
Total HpCDF	2.70	6.51		

Analysis: MS

Project 25784

Approved By: William J. Luksemburg 01-Mar-2005 16:44

ANALYSIS VALIDATED

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT68
 Task Order 313150010
 SDG No. IOB157, 59, 65

No. of Analyses 3

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

Date: 03/31/05

Reviewer's Signature



ACTION ITEMS^a

1. Case Narrative
 Deficiencies

2. Out of Scope
 Analyses

3. Analyses Not
 Conducted

4. Missing Hardcopy
 Deliverables

5. Incorrect Hardcopy
 Deliverables

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

- Holding Times
- GC/MS Tune/Inst. Performance
- Calibrations
- Blanks
- Surrogates
- Matrix Spike/Dup LCS
- Field QC
- Internal Standard Performance
- Compound Identification and Quantitation
- System Performance

Qualifications applied for:

- 1. Positive and negative CCB and method blank results
- 2. Reporting limit check standard recovery outliers
- 3. Detects below the reporting limit
- 4. Antimony MDL raised due to detects in the CCBs

COMMENTS^a

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1557, IOB1559, & IOB1565

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#: IOB1557, IOB1559,, IOB1565
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 31, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: Multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 005	Outfall 005	IOB1557-01	water	ILM04
Outfall 006	Outfall 006	IOB1559-01	water	ILM04
Outfall 011	Outfall 011	IOB1565-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. The reporting limit check standards for silver were recovered below the control limit at 51% and 54%; therefore nondetected silver in Outfall 005 (see section 2.4) and Outfall 006 was qualified as estimated, "UJ." The reporting limit check standard for arsenic associated with the analysis of Outfall 005 was recovered below the control limit at 61%; therefore, nondetected arsenic in Outfall 005 was qualified as estimated, "UJ." The reporting limit check standard for selenium associated with the analysis of Outfall 006 was recovered above the control limit at 133%; therefore, selenium detected in

Outfall 006 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

Silver was detected in a CCB bracketing Outfall 005 at 0.0017 mg/L; therefore, silver detected in Outfall 005 was qualified as estimated, "UJ." Silver was reported in a CCB bracketing Outfall 006 at 3.0 µg/L; therefore, nondetected silver in Outfall 006 was qualified as estimated, "UJ." Zinc was detected in method blank 5B24093-BLK1 at 0.0078 mg/L; therefore, zinc detected in Outfall 005 was qualified as estimated, "UJ."

Antimony was detected in every CCB in the analytical sequence in which Outfall 006 was analyzed. The detects ranged from 0.523 to 1.26 µg/L and antimony was detected in Outfall 006 at a concentration well below these values, 0.31 µg/L. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the antimony MDL for Outfall 006 to the highest level of interference reported, 1.3 µg/L and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper was detected above the reporting limit in the ICSA. The results for sodium and potassium were above the calibration range of the instrument in the ICSA and ICSAB analyses; however, as sodium and potassium were not reported in the site samples, no qualifications were required. Aluminum was recovered below the control limit in the ICSA at 78% and above the calibration range in the ICSAB analyses. As aluminum in the site samples was not reported from the ICP/MS analyses, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride.

ICSA and ICSAB analyses were included in the raw data for the ICP analyses, but were not run on the days the site samples were analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. In the ICSA analyses there were negative results for chromium and positive results for arsenic and zinc, the absolute values for which were above the applicable reporting limits. The validator reviewed the raw data for the site sample ICP analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the level of reported interferents were not high enough to cause matrix effects. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B24099-BS1 and the mercury LCS sample was identified as 5B22063-BS1. The ICP LCS samples were identified as 5B28119-BS1 and 5B24093-BS1.

The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

Scandium was recovered above the control limit in Outfall 006 and Outfall 011; 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 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

DATA VALIDATION REPORT

Project: NPDES
SDG No.: Multiple
Analysis: MET

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.: Multiple
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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP29
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 3

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method Pesticides

Date April 4, 2005

Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for %D continuing calibration outliers
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS^b	
Acceptable as reviewed.	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB1557, IOB1559,
IOB1565

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#: IOB1557, IOB1559, IOB1565
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: April 4, 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 005	Outfall 005	IOB1557-01	water	608
Outfall 006	Outfall 006	IOB1559-01	water	608
Outfall 011	Outfall 011	IOB1565-01	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 coolers were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There were two initial calibrations dated 02/12/05 and 02/22/05 associated with the pesticide analyses of the samples in these SDGs, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analyses of the samples in these SDGs which consisted of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242, Aroclor 1248, and Aroclor 1254 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

Of the continuing calibrations associated with the pesticide analyses for the samples in these SDGs there were several %D outliers. The %Ds for heptachlor, endrin, and 4,4'-DDD in the continuing calibration analyzed 02/23/05 (GC54) exceeded 15% on the primary channel; therefore, the aforementioned target compounds were qualified as estimated, "UJ," in samples Outfall 005 and Outfall 006. The remaining applicable %Ds were within the Method QC limit of $\pm 15\%$ for the remaining calibrations. Each of the PCB analyses for the samples in these SDGs were bracketed by two CCVs and the %Ds for Aroclor 1016 and Aroclor 1260 were $\leq 15\%$. 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 (5B22041-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 (5B22041-BS1/BSD1) were 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 the samples were within the laboratory-established. 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: Multiple
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. The water reporting limits were not adjusted for sample amounts on the result summaries; however, the dilution factors listed on the summaries reflected the sample volumes extracted. Results were reported in ug/L (ppb). No qualifications were required.



Del Mar Analytical

17451 Delian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-2287
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4567 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8586 FAX (619) 505-9889
 9830 South 51st St., Suite 5-170, Phoenix, AZ 85044 (480) 755-0043 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 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water) - cont.										
Reporting Units: ug/l										
Aldrin	EPA 608	5B22041	0.030	0.10	ND	0.962	02/22/05	02/23/05	U	
alpha-BHC	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
beta-BHC	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
delta-BHC	EPA 608	5B22041	0.020	0.20	ND	0.962	02/22/05	02/23/05	U	
gamma-BHC (Lindane)	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
Chlordane	EPA 608	5B22041	0.20	1.0	ND	0.962	02/22/05	02/23/05	U	
4,4'-DDD	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
4,4'-DDE	EPA 608	5B22041	0.020	0.10	ND	0.962	02/22/05	02/23/05	U	C
4,4'-DDT	EPA 608	5B22041	0.030	0.10	ND	0.962	02/22/05	02/23/05	U	
Dieldrin	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
Endosulfan I	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
Endosulfan II	EPA 608	5B22041	0.040	0.10	ND	0.962	02/22/05	02/23/05	U	
Endosulfan sulfate	EPA 608	5B22041	0.015	0.20	ND	0.962	02/22/05	02/23/05	U	
Endrin	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	U	
Endrin aldehyde	EPA 608	5B22041	0.045	0.10	ND	0.962	02/22/05	02/23/05	U	C
Endrin ketone	EPA 608	5B22041	0.020	0.10	ND	0.962	02/22/05	02/23/05	U	
Heptachlor	EPA 608	5B22041	0.030	0.10	ND	0.962	02/22/05	02/23/05	U	
Heptachlor epoxide	EPA 608	5B22041	0.020	0.10	ND	0.962	02/22/05	02/23/05	U	C
Methoxychlor	EPA 608	5B22041	0.035	0.10	ND	0.962	02/22/05	02/23/05	U	
Toxaphene	EPA 608	5B22041	1.5	5.0	ND	0.962	02/22/05	02/23/05	U	
Surrogate: Tetrachloro-m-xylene (35-120%)										43 %
Surrogate: Decachlorobiphenyl (45-120%)										62 %

AMEC VALIDATED
LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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 6484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8696 FAX (619) 505-9669
 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) 795-3620 FAX (702) 795-3621

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B22041	0.20	1.0	ND	0.962	02/22/05	02/23/05	Rev Qual Qual Code
Aroclor 1221	EPA 608	5B22041	0.10	1.0	ND	0.962	02/22/05	02/23/05	u
Aroclor 1232	EPA 608	5B22041	0.15	1.0	ND	0.962	02/22/05	02/23/05	↓
Aroclor 1242	EPA 608	5B22041	0.15	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1248	EPA 608	5B22041	0.25	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1254	EPA 608	5B22041	0.25	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1260	EPA 608	5B22041	0.40	1.0	ND	0.962	02/22/05	02/23/05	
Surrogate: Decachlorobiphenyl (45-120%)					61 %				

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 our 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 deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. (Note: Analyte may or may not be present).

Qualification Code Reference Table

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

***#** Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: RADIONUCLIDES

SAMPLE DELIVERY GROUPS:

IOB1556, IOB1557, IOB1559, IOB1570, IOB1571, IOB1576

Prepared by

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

Table 1. Sample identification

Client ID	Del Mar ID	Eberline ID	Matrix	COC Method
Outfall 004	IOB1556-01	8289-001	water	900.0, 905.0, 906.0
Outfall 005	IOB1557-01	8290-001	water	900.0, 905.0, 906.0
Outfall 006	IOB1559-01	8291-001	water	900.0, 905.0, 906.0
Outfall 018	IOB1570-01	8292-001	water	900.0, 905.0, 906.0
Outfall 003	IOB1571-01	8293-001	water	900.0, 905.0, 906.0
Outfall 003 Filtered	IOB1576-01	8294-001	water	900.0, 905.0, 906.0
Outfall 003 Unfiltered	IOB1576-02	8294-002	water	900.0, 905.0, 906.0
Outfall 003 Substrate	IOB1576-03	8295-001	solid	901.1

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOB1556, IOB1557, IOB1559, IOB1570, IOB1571, IOB1576
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Radionuclides
QC Level: Level IV
No. of Samples: 8
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 24, 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.

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All 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. The samples were noted to have been received intact and in good condition. All tritium samples were received unpreserved in glass containers. All gross alpha, gross beta, and strontium samples were preserved, except for the Outfall 003 samples in SDG IOB1556. Outfall 003 Filtered, was filtered by Eberline and then preserved. Outfall 003 Unfiltered was not preserved. According to the Los Angeles Water Quality Control Board (LARWQCB) guidance letter dated 01/12/05, unfiltered samples should not be preserved. No qualifications were required.

2.1.2 Chain of Custody

The original COCs were signed and dated by field and laboratory personnel. The transfer COCs were signed by personnel from both laboratories, except for the COC listing Outfall 003 in SDG IOB1571, which was not signed as received by Eberline. 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 preserved gross alpha, gross beta, and strontium samples were analyzed within 180 days of collection. The 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." 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 and Gross Beta

The initial calibration included with the data was performed in February 2003. The detector efficiencies for Outfall 006, Outfall 018, Outfall 003, Outfall 003 Filtered, and Outfall 003 Unfiltered were less than 20%; therefore, these results were qualified as estimated, "UJ," for nondetects and, "J," for detects. The remaining detector efficiencies were above 20%.

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.

Strontium-90

The initial calibrations were performed in June 1995. All strontium chemical yields were at least 80% and were considered acceptable. 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 a branch 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

Two blank spikes (8294-002 and 8295-002) were analyzed in association with the samples in these SDGs. All blank spike results were within the 3-sigma limits. No qualifications were necessary.

2.5 LABORATORY DUPLICATES

The laboratory performed duplicate analysis on Outfall 003 Filtered and Outfall 003 Substrate. All results were within the 3-sigma limits and all RPDs were $\leq 20\%$. No qualifications were necessary.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The laboratory performed matrix spike analyses on Outfall 003 Unfiltered for gross alpha, gross beta, and tritium. The recovery for gross alpha was above 3-sigma; however, as the recovery of 118% was considered acceptable, no qualifications were required. The remaining recoveries were within the 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>8291</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502212-01</u>	Contract <u>PROJECT# 10B1559</u>
Received Date <u>02/23/05</u>	Matrix <u>WATER</u>

Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Rev Qual	Qual Code
outfall 006 10B1559-01 PM 3/24/05		8291-001	02/18/05	03/08/05	GrossAlpha	3.92 ± 1.5	pCi/L	1.34	J	H
				03/08/05	Gross Beta	9.00 ± 1.6	pCi/L	1.82		
				03/12/05	H3	14.2 ± 150	pCi/L	259	U	
				03/12/05	Sr90	-0.081 ± 0.29	pCi/L	0.335	U	

AMEC VALIDATED

LEVEL IV

Certified by <u><i>[Signature]</i></u>
Report Date <u>03/15/05</u>
Page 1


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV46
 Task Order 313150010, 313150012
 SDG No. IOB1557, 1559, 1565

No. of Analyses 3

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Semivolatiles

Date: April 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** **Qualifications were required for calibration, LCS, and internal standard 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 _____

COMMENTS^b _____

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB1557, IOB1559,
IOB1565

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#: IOB1557, IOB1559, IOB1565
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 4, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for 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 005	Outfall 005	IOB1557-01	water	625
Outfall 006	Outfall 006	IOB1559-01	water	625
Outfall 011	Outfall 011	IOB1565-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The water samples were extracted within seven days of collection and analyzed within 40 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tunes met the criteria specified in Method 625, and the samples were analyzed within 12 hours of the DFTPP injection time. No qualifications were required.

2.3 CALIBRATION

The initial calibrations associated with this SDG were dated 02/24/05 and 02/25/05. For the initial calibration dated 02/25/05, the average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for all target compounds except for the r^2 value for benzoic acid. Benzoic acid was qualified as an estimated nondetect, "UJ," in samples Outfall 005 and Outfall 006. For the initial calibration dated 02/24/05, the average RRFs for were ≥ 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 analyses were analyzed 02/24/05 and 02/25/05. For the continuing calibration dated 02/25/05, the RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$, except for the %Ds for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol. 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol were qualified as estimated nondetects, "UJ," in samples Outfall 005 and Outfall 006. For the continuing calibration dated 02/24/05, the RRFs for all target compounds were ≥ 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 further qualifications were required.

2.4 BLANKS

Two method blanks (5B22042-BLK1 and 5B22043-BLK1) were extracted and analyzed with these SDGs. No target compounds were detected in the method blanks. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two blank spike/ blank spike duplicate pairs (5B22042-BS1/BSD1 and 5B22043- BS1/BSD1) were 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.

For the 5B22042-BS1/BSD1 pair, all percent recoveries and RPDs were within the laboratory QC limits except for the RPD for NDMA. Sample Outfall 011 had NDMA qualified as an estimated nondetect, "UJ."

For the 5B22043-BS1/BSD1 pair, all percent recoveries and RPDs were within the laboratory QC limits except for benzidine which was not recovered in the BSD and the RPD for benzidine. Samples Outfall 005 and Outfall 006 had benzidine 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 these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times except for the area counts for perylene-d12 for samples Outfall 005 and Outfall 006. Samples Outfall 005 and Outfall 006 had the target compounds associated with perylene-d12 qualified as estimated nondetects, "UJ." A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No further 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 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.



Del Mar Analytical

17451 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cobley Dr., Suite A, Colton, CA 92324 (909) 370-4067 FAX (949) 370-1046
 9454 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9689
 3830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 765-0043 FAX (480) 765-0851
 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 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B22043	4.3	10	ND	0.957	02/22/05	02/25/05	U
Acenaphthylene	EPA 625	5B22043	3.2	10	ND	0.957	02/22/05	02/25/05	U
Aniline	EPA 625	5B22043	2.9	10	ND	0.957	02/22/05	02/25/05	U
Anthracene	EPA 625	5B22043	3.2	10	ND	0.957	02/22/05	02/25/05	U
Benzidine	EPA 625	5B22043	5.2	20	ND	0.957	02/22/05	02/25/05	U
Benzoic acid	EPA 625	5B22043	2.6	20	ND	0.957	02/22/05	02/25/05	U
Benzo(a)anthracene	EPA 625	5B22043	3.7	10	ND	0.957	02/22/05	02/25/05	U
Benzo(b)fluoranthene	EPA 625	5B22043	2.7	10	ND	0.957	02/22/05	02/25/05	U
Benzo(k)fluoranthene	EPA 625	5B22043	3.4	10	ND	0.957	02/22/05	02/25/05	U
Benzo(g,h,i)perylene	EPA 625	5B22043	5.3	10	ND	0.957	02/22/05	02/25/05	U
Benzo(a)pyrene	EPA 625	5B22043	3.5	10	ND	0.957	02/22/05	02/25/05	U
Benzyl alcohol	EPA 625	5B22043	2.5	20	ND	0.957	02/22/05	02/25/05	U
Bis(2-chloroethoxy)methane	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05	U
Bis(2-chloroethyl)ether	EPA 625	5B22043	4.4	10	ND	0.957	02/22/05	02/25/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5B22043	4.6	10	ND	0.957	02/22/05	02/25/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5B22043	5.2	50	ND	0.957	02/22/05	02/25/05	U
4-Bromophenyl phenyl ether	EPA 625	5B22043	4.6	10	ND	0.957	02/22/05	02/25/05	U
Butyl benzyl phthalate	EPA 625	5B22043	3.5	20	ND	0.957	02/22/05	02/25/05	U
4-Chloroaniline	EPA 625	5B22043	6.0	10	ND	0.957	02/22/05	02/25/05	U
2-Chloronaphthalene	EPA 625	5B22043	4.0	10	ND	0.957	02/22/05	02/25/05	U
4-Chloro-3-methylphenol	EPA 625	5B22043	3.5	20	ND	0.957	02/22/05	02/25/05	U
2-Chlorophenol	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	U
4-Chlorophenyl phenyl ether	EPA 625	5B22043	3.0	10	ND	0.957	02/22/05	02/25/05	U
Chrysene	EPA 625	5B22043	2.8	10	ND	0.957	02/22/05	02/25/05	U
Dibenz(a,h)anthracene	EPA 625	5B22043	4.7	20	ND	0.957	02/22/05	02/25/05	U
Dibenzofuran	EPA 625	5B22043	2.6	10	ND	0.957	02/22/05	02/25/05	U
Di-n-butyl phthalate	EPA 625	5B22043	2.8	20	ND	0.957	02/22/05	02/25/05	U
1,3-Dichlorobenzene	EPA 625	5B22043	4.1	10	ND	0.957	02/22/05	02/25/05	U
1,4-Dichlorobenzene	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05	U
1,2-Dichlorobenzene	EPA 625	5B22043	4.5	10	ND	0.957	02/22/05	02/25/05	U
1,3-Dichlorobenzidine	EPA 625	5B22043	11	20	ND	0.957	02/22/05	02/25/05	U
1,4-Dichlorophenol	EPA 625	5B22043	4.1	10	ND	0.957	02/22/05	02/25/05	U
Diethyl phthalate	EPA 625	5B22043	3.1	10	ND	0.957	02/22/05	02/25/05	U
4-Dimethylphenol	EPA 625	5B22043	4.4	20	ND	0.957	02/22/05	02/25/05	U
Dimethyl phthalate	EPA 625	5B22043	3.6	10	ND	0.957	02/22/05	02/25/05	U
1,6-Dinitro-2-methylphenol	EPA 625	5B22043	5.1	20	ND	0.957	02/22/05	02/25/05	U
4-Dinitrophenol	EPA 625	5B22043	5.3	20	ND	0.957	02/22/05	02/25/05	U
4-Dinitrotoluene	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	U
6-Dinitrotoluene	EPA 625	5B22043	3.2	10	ND	0.957	02/22/05	02/25/05	U
n-octyl phthalate	EPA 625	5B22043	4.7	20	ND	0.957	02/22/05	02/25/05	U
fluoranthene	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	U

Handwritten notes and arrows in the right margin:
 - A vertical line with arrows pointing down, labeled 'U' at the top and 'J' further down.
 - 'QUA' and 'CODE' headers above the line.
 - 'U' and 'J' written in the 'Data Qualifiers' column.
 - '*5' written next to the 10th row.
 - 'I' written next to the 11th row.
 - 'J' and 'I' written next to the 16th row.
 - 'U' and 'J' written next to the 20th row.
 - 'U' and 'J' written next to the 21st row.

DRAFT REPORT
 DRAFT REPORT
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LEVEL IV



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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL CODE
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water) - cont.										
Reporting Units: ug/l										
Fluorene	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05		U
Hexachlorobenzene	EPA 625	5B22043	4.8	10	ND	0.957	02/22/05	02/25/05		
Hexachlorobutadiene	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05		
Hexachlorocyclopentadiene	EPA 625	5B22043	3.4	20	ND	0.957	02/22/05	02/25/05		
Hexachloroethane	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05		
Indeno(1,2,3-cd)pyrene	EPA 625	5B22043	5.4	20	ND	0.957	02/22/05	02/25/05		
Isophorone	EPA 625	5B22045	3.7	10	ND	0.957	02/22/05	02/25/05		J I
2-Methylnaphthalene	EPA 625	5B22043	3.0	10	ND	0.957	02/22/05	02/25/05		
2-Methylphenol	EPA 625	5B22043	3.7	10	ND	0.957	02/22/05	02/25/05		
4-Methylphenol	EPA 625	5B22043	3.8	10	ND	0.957	02/22/05	02/25/05		
Naphthalene	EPA 625	5B22043	4.5	10	ND	0.957	02/22/05	02/25/05		
2-Nitroaniline	EPA 625	5B22043	3.9	20	ND	0.957	02/22/05	02/25/05		
3-Nitroaniline	EPA 625	5B22043	4.5	20	ND	0.957	02/22/05	02/25/05		
4-Nitroaniline	EPA 625	5B22043	4.9	20	ND	0.957	02/22/05	02/25/05		
Nitrobenzene	EPA 625	5B22043	4.2	20	ND	0.957	02/22/05	02/25/05		
2-Nitrophenol	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05		
4-Nitrophenol	EPA 625	5B22043	6.6	20	ND	0.957	02/22/05	02/25/05		
N-Nitrosodiphenylamine	EPA 625	5B22043	4.0	10	ND	0.957	02/22/05	02/25/05		
N-Nitroso-di-n-propylamine	EPA 625	5B22043	3.6	10	ND	0.957	02/22/05	02/25/05		
Pentachlorophenol	EPA 625	5B22043	4.0	20	ND	0.957	02/22/05	02/25/05		
Phenanthrene	EPA 625	5B22043	3.3	10	ND	0.957	02/22/05	02/25/05		
Phenol	EPA 625	5B22043	4.0	10	ND	0.957	02/22/05	02/25/05		
Pyrene	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05		
1,2,4-Trichlorobenzene	EPA 625	5B22043	4.4	10	ND	0.957	02/22/05	02/25/05		
2,4,5-Trichlorophenol	EPA 625	5B22043	3.6	20	ND	0.957	02/22/05	02/25/05		
2,4,6-Trichlorophenol	EPA 625	5B22043	4.1	20	ND	0.957	02/22/05	02/25/05		
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B22043	5.0	20	ND	0.957	02/22/05	02/25/05		
N-Nitrosodimethylamine	EPA 625	5B22043	3.7	20	ND	0.957	02/22/05	02/25/05		
Surrogate: 2-Fluorophenol (35-120%)										66 %
Surrogate: Phenol-d6 (45-120%)										73 %
Surrogate: 2,4,6-Tribromophenol (50-125%)										82 %
Surrogate: Nitrobenzene-d5 (45-120%)										74 %
Surrogate: 2-Fluorobiphenyl (45-120%)										76 %
Surrogate: Terphenyl-d14 (45-135%)										124 %

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LEVEL IV

RAFT REPORT
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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 550 South Wadsworth Boulevard
 Suite 500
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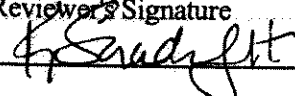
Package ID T711VO78
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 3

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method Volatiles by 624

Date April 4, 2005
 Reviewer's Signature


ACTION ITEMS^a

1. Case Narrative

Deficiencies

2. Out of Scope

Analyses

3. Analyses Not Conducted

4. Missing Hardcopy Deliverables

5. Incorrect Hardcopy Deliverables

6. Deviations from Analysis

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 assigned for the following:

* RRF values < 0.05

* Continuing calibration %D outliers

* Trip blank contamination

COMMENTS^b

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOC1557, IOC1559, &
IOC1565

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#: IOC1557, IOC1559, IOC1565
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: April 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, 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 005	Outfall 005	IOB1557-01	water	624
Trip Blank	Trip Blank	IOB1557-02	water	624
Outfall 006	Outfall 006	IOB1559-01	water	624
Trip Blank	Trip Blank	IOB1559-02	water	624
Outfall 001	Outfall 011	IOB1565-01	water	624
Trip Blank	Trip Blank	IOB1565-02	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°C . The samples were properly preserved. The COCs noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

Three initial calibrations dated 10/14/04 (acrolein and acrylonitrile only), 11/16/04, and 02/07/05 were associated with these SDGs. 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 all associated samples. The average RRFs were ≥ 0.05 for all remaining compounds listed on the sample result summaries. The %RSDs were $\leq 35\%$ for all target compounds listed on the sample result summaries. There were three continuing calibrations dated 02/19/05, 02/21/05, and 02/22/05 associated with the sample analyses in these SDGs. The RRF for acrolein was <0.05 in all the continuing calibrations; therefore, the nondetect results for acrolein were rejected, "R," in all associated samples. The remaining RRFs were ≥ 0.05 in the continuing calibrations. The %Ds for acrolein and 1,1,1-trichloroethane exceeded 20% in the continuing calibration analyzed 02/19/05; therefore, the nondetects for acrolein and 1,1,1-trichloroethane were qualified as estimated, "UJ," in samples Outfall 005 and Outfall 006, unless otherwise rejected (see above). No qualifications were required for the Trip blank. The %D for 2-chloroethyl vinyl ether exceeded 20% in the continuing

calibration dated 02/22/05; however, associated sample Trip Blank (IOB1557) was not qualified for %D calibration outliers. 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 (5B19020-BLK1, 5B21001-BLK1, and 5B22027-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 (5B19020-BS1, 5B21001-BS1, and 5B22027-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

There were no MS/MSD analyses associated with these SDGs. Evaluation of method accuracy was based on blank spike results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.8.1 Trip Blanks

Sample Trip Blank (IOB1557), Trip Blank (IOB1559), and Trip Blank (IOB1565) were the trip blanks associated with site samples Outfall 005, Outfall 006, and Outfall 011, respectively. Target compound methylene chloride was detected in Trip Blank (IOB1559) at 1.3ug/L and Outfall 006 at 1.3ug/L; therefore, the result for methylene chloride was qualified as a nondetect, "U," at the reporting limit in sample Outfall 006. It should also be noted that methylene chloride was reported

below the MDL in Trip Blank IOB1557. There were no other target compounds detected above the MDLs in the trip blanks. No further qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

There were no field duplicate samples associated with these SDGs.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed 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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1748 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3257
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4657 FAX (909) 370-1046
 9484 Chesapeake Dr., Suite 305, San Diego, CA 92123 (619) 505-8598 FAX (619) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 755-0043 FAX (480) 755-0851
 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 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water)									
Reporting Units: ng/l									
Benzene	EPA 624	5B19020	0.28	1.0	ND	1	02/19/05	02/19/05	u
Bromodichloromethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	u
Bromoform	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	u
Bromomethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	u
Carbon tetrachloride	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	u
Chlorobenzene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	u
Chloroethane	EPA 624	5B19020	0.33	5.0	ND	1	02/19/05	02/19/05	u
Chloroform	EPA 624	5B19020	0.33	2.0	ND	1	02/19/05	02/19/05	u
Chloromethane	EPA 624	5B19020	0.30	5.0	ND	1	02/19/05	02/19/05	u
Dibromochloromethane	EPA 624	5B19020	0.28	2.0	ND	1	02/19/05	02/19/05	u
1,2-Dichlorobenzene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	u
1,3-Dichlorobenzene	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	u
1,4-Dichlorobenzene	EPA 624	5B19020	0.37	2.0	ND	1	02/19/05	02/19/05	u
1,1-Dichloroethane	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	u
1,2-Dichloroethane	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	u
1,1-Dichloroethene	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	u
trans-1,2-Dichloroethene	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	u
1,2-Dichloropropane	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	u
cis-1,3-Dichloropropene	EPA 624	5B19020	0.22	2.0	ND	1	02/19/05	02/19/05	u
trans-1,3-Dichloropropene	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	u
Ethylbenzene	EPA 624	5B19020	0.25	2.0	ND	1	02/19/05	02/19/05	u
Methylene chloride	EPA 624	5B19020	0.48	5.0	ND	1	02/19/05	02/19/05	u
1,1,1,2-Tetrachloroethane	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	u
Tetrachloroethene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	u
Toluene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	u
1,1,1-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	u
1,1,2-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	u
Trichloroethene	EPA 624	5B19020	0.26	2.0	ND	1	02/19/05	02/19/05	u
Trichlorofluoromethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	u
Vinyl chloride	EPA 624	5B19020	0.26	0.50	ND	1	02/19/05	02/19/05	u
Xylenes, Total	EPA 624	5B19020	0.52	4.0	ND	1	02/19/05	02/19/05	u
Surrogate: Dibromofluoromethane (80-120%)					104%				
Surrogate: Toluene-d8 (80-120%)					104%				
Surrogate: 4-Bromofluorobenzene (80-120%)					98%				

Handwritten notes and arrows on the right side of the table, including 'u' and 'RT' markings.

AMEC VALIDATED

KS 2/18/05

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 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B19020	0.28	1.0	ND	1	02/19/05	02/19/05	u
Bromodichloromethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
Bromoform	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	
Bromomethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	
Carbon tetrachloride	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	
Chlorobenzene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	
Chloroethane	EPA 624	5B19020	0.33	5.0	ND	1	02/19/05	02/19/05	
Chloroform	EPA 624	5B19020	0.33	2.0	ND	1	02/19/05	02/19/05	
Chloromethane	EPA 624	5B19020	0.30	5.0	ND	1	02/19/05	02/19/05	
Dibromochloromethane	EPA 624	5B19020	0.28	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichlorobenzene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
1,3-Dichlorobenzene	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	
1,4-Dichlorobenzene	EPA 624	5B19020	0.37	2.0	ND	1	02/19/05	02/19/05	
1,1-Dichloroethane	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichloroethane	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	
1,1-Dichloroethene	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	
trans-1,2-Dichloroethene	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichloropropane	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	
cis-1,3-Dichloropropene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
trans-1,3-Dichloropropene	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	
Ethylbenzene	EPA 624	5B19020	0.25	2.0	ND	1	02/19/05	02/19/05	
Methylene chloride	EPA 624	5B19020	0.48	5.0	1.3	1	02/19/05	02/19/05	J
1,1,2,2-Tetrachloroethane	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	K
Tetrachloroethene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
Toluene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	
1,1,1-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
1,1,2-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
Trichloroethene	EPA 624	5B19020	0.26	2.0	ND	1	02/19/05	02/19/05	
Trichlorofluoromethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	
Vinyl chloride	EPA 624	5B19020	0.26	0.50	ND	1	02/19/05	02/19/05	
Xylenes, Total	EPA 624	5B19020	0.52	4.0	ND	1	02/19/05	02/19/05	
Surrogate: Dibromofluoromethane (80-120%)									161 %
Surrogate: Toluene-d8 (80-120%)									163 %
Surrogate: 4-Bromofluorobenzene (80-120%)									96 %

AMEC VALIDATED
LEVEL IV

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 9464 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 305-9689
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 2526 E. Sunset Rd., #3, Las Vegas, NV 89120 (702) 798-3520 FAX (702) 798-3521

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B19020	4.6	50	ND	1	02/19/05	02/19/05	R
Acrylonitrile	EPA 624	5B19020	5.1	50	ND	1	02/19/05	02/19/05	u
2-Chloroethyl vinyl ether	EPA 624	5B19020	1.3	5.0	ND	1	02/19/05	02/19/05	u
Surrogate: Dibromofluoromethane (80-120%)					104 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
Sample ID: IOB1559-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B19020	4.6	50	ND	1	02/19/05	02/19/05	R
Acrylonitrile	EPA 624	5B19020	5.1	50	ND	1	02/19/05	02/19/05	u
2-Chloroethyl vinyl ether	EPA 624	5B19020	1.3	5.0	ND	1	02/19/05	02/19/05	u
Surrogate: Dibromofluoromethane (80-120%)					101 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

AMEC VALIDATED

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 DATA SUBJECT TO CHANGE

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOB1557, IOB1559, & IOB1565

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 #: IOB1557, IOB1559, IOB1565
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 3
Reviewer: L. Jarusewic
Date of Review: April 1, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 300.0, 405.1, 335.2, 160.2, 350.2, 160.5, 120.1, 413.1, and 180.1. Standard Methods for the Examination of Water and Wastewater Method SM5540-C and SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 005	Outfall 005	IOB1557-01	Water	General Minerals
Outfall 006	Outfall 006	IOB1559-01	Water	General Minerals
Outfall 011	Outfall 011	IOB1565-01	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 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 28-day analytical holding time for ammonia, chloride, sulfate, oil and grease, and conductivity, the 14-day holding time for cyanide, the seven-day holding time for total suspended solids and total dissolved solids, the 48-hour holding time for turbidity, total settleable solids, nitrate/nitrite, surfactants, and biological oxygen demand were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . The initial and continuing calibration verification information was acceptable with recoveries within the control limits of 90-110%. 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. 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. The cyanide, chloride, nitrate/nitrite, and sulfate reporting limit check standards were recovered within the control limits of 70-130%. Calibration is not applicable to total suspended solids, total dissolved solids, total settleable solids, or oil and grease. No qualifications were required.

2.3 BLANKS

Cyanide was reported in method blank 5B22061-BLK1 at -0.0039 mg/L; therefore, nondetected cyanide in sample Outfall 005 was qualified as estimated, "UJ." Turbidity was detected in method blank 5B19043-BLK1 at 0.050 NTU; however, the method blank result was insufficient to qualify the sample Outfall 011 result. Sulfate was detected in a bracketing CCB associated with Outfall 011 at 0.33 mg/L; however, the CCB result was insufficient to qualify the sample 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 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 and oil and grease only) recoveries were within the laboratory-established control limits. The LCS is not applicable to turbidity, conductivity, or total 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 sample Outfall 005 for cyanide with an RPD within the control limits of $\leq 15\%$. No qualifications were required.

Laboratory duplicates were performed on samples Outfall 005 for total suspended solids and Outfall 011 for total dissolved solids and conductivity. RPDs were within method control limits and no qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were performed on sample Outfall 005 for cyanide with recoveries within the laboratory-established control limits. 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. 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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 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 006
 Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (DRAFT: Outfall 006 - Water) - cont.									
Reporting Units: mg/l									
Total Cyanide	EPA 335.2	5B23086	0.0022	0.0050	ND	1	02/23/05	02/23/05	U
Total Suspended Solids	EPA 160.2	5B23109	10	10	160	1	02/23/05	02/23/05	U

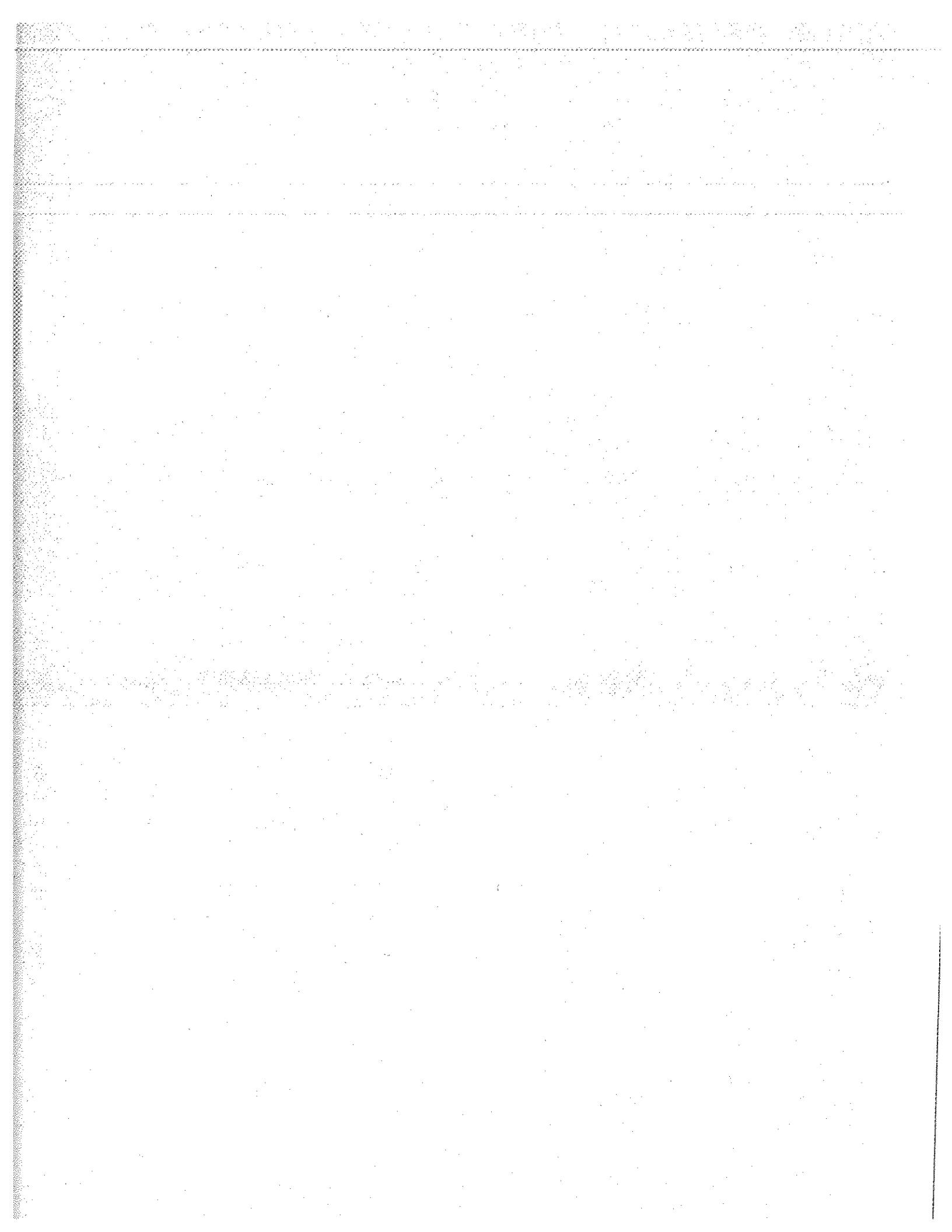
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AMEC VALIDATED

LEVEL IV

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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 006

Sampled: 02/18/05
 Received: 02/18/05
 Issued: 04/05/05 12:04

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

IOB1559-01
 IOB1559-02

CLIENT ID

Outfall 006
 Trip Blanks

MATRIX

Water
 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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
Received: 02/18/05

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 02/28/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B22043

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: 03/02/2005 08:43 AM

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



Del Mar Analytical

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B19020	4.6	50	ND	1	02/19/05	02/19/05	
Acrylonitrile	EPA 624	5B19020	5.1	50	ND	1	02/19/05	02/19/05	
2-Chloroethyl vinyl ether	EPA 624	5B19020	1.3	5.0	ND	1	02/19/05	02/19/05	
Surrogate: Dibromofluoromethane (80-120%)					104 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
Sample ID: IOB1559-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B19020	4.6	50	ND	1	02/19/05	02/19/05	
Acrylonitrile	EPA 624	5B19020	5.1	50	ND	1	02/19/05	02/19/05	
2-Chloroethyl vinyl ether	EPA 624	5B19020	1.3	5.0	ND	1	02/19/05	02/19/05	
Surrogate: Dibromofluoromethane (80-120%)					101 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B19020	0.28	1.0	ND	1	02/19/05	02/19/05	
Bromodichloromethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
Bromoform	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	
Bromomethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	
Carbon tetrachloride	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	
Chlorobenzene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	
Chloroethane	EPA 624	5B19020	0.33	5.0	ND	1	02/19/05	02/19/05	
Chloroform	EPA 624	5B19020	0.33	2.0	ND	1	02/19/05	02/19/05	
Chloromethane	EPA 624	5B19020	0.30	5.0	ND	1	02/19/05	02/19/05	
Dibromochloromethane	EPA 624	5B19020	0.28	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichlorobenzene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
1,3-Dichlorobenzene	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	
1,4-Dichlorobenzene	EPA 624	5B19020	0.37	2.0	ND	1	02/19/05	02/19/05	
1,1-Dichloroethane	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichloroethane	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	
1,1-Dichloroethene	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	
trans-1,2-Dichloroethene	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichloropropane	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	
cis-1,3-Dichloropropene	EPA 624	5B19020	0.22	2.0	ND	1	02/19/05	02/19/05	
trans-1,3-Dichloropropene	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	
Ethylbenzene	EPA 624	5B19020	0.25	2.0	ND	1	02/19/05	02/19/05	
Methylene chloride	EPA 624	5B19020	0.48	5.0	1.4	1	02/19/05	02/19/05	J
1,1,2,2-Tetrachloroethane	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	
Tetrachloroethene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
Toluene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	
1,1,1-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
1,1,2-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
Trichloroethene	EPA 624	5B19020	0.26	2.0	ND	1	02/19/05	02/19/05	
Trichlorofluoromethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	
Vinyl chloride	EPA 624	5B19020	0.26	0.50	ND	1	02/19/05	02/19/05	
Xylenes, Total	EPA 624	5B19020	0.52	4.0	ND	1	02/19/05	02/19/05	
Surrogate: Dibromofluoromethane (80-120%)					104 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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) 370-4687 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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B19020	0.28	1.0	ND	1	02/19/05	02/19/05	
Bromodichloromethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
Bromoform	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	
Bromomethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	
Carbon tetrachloride	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	
Chlorobenzene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	
Chloroethane	EPA 624	5B19020	0.33	5.0	ND	1	02/19/05	02/19/05	
Chloroform	EPA 624	5B19020	0.33	2.0	ND	1	02/19/05	02/19/05	
Chloromethane	EPA 624	5B19020	0.30	5.0	ND	1	02/19/05	02/19/05	
Dibromochloromethane	EPA 624	5B19020	0.28	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichlorobenzene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
1,3-Dichlorobenzene	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	
1,4-Dichlorobenzene	EPA 624	5B19020	0.37	2.0	ND	1	02/19/05	02/19/05	
1,1-Dichloroethane	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichloroethane	EPA 624	5B19020	0.28	0.50	ND	1	02/19/05	02/19/05	
1,1-Dichloroethene	EPA 624	5B19020	0.32	5.0	ND	1	02/19/05	02/19/05	
trans-1,2-Dichloroethene	EPA 624	5B19020	0.27	2.0	ND	1	02/19/05	02/19/05	
1,2-Dichloropropane	EPA 624	5B19020	0.35	2.0	ND	1	02/19/05	02/19/05	
cis-1,3-Dichloropropene	EPA 624	5B19020	0.22	2.0	ND	1	02/19/05	02/19/05	
trans-1,3-Dichloropropene	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	
Ethylbenzene	EPA 624	5B19020	0.25	2.0	ND	1	02/19/05	02/19/05	
Methylene chloride	EPA 624	5B19020	0.48	5.0	1.3	1	02/19/05	02/19/05	J
1,1,2,2-Tetrachloroethane	EPA 624	5B19020	0.24	2.0	ND	1	02/19/05	02/19/05	
Tetrachloroethene	EPA 624	5B19020	0.32	2.0	ND	1	02/19/05	02/19/05	
Toluene	EPA 624	5B19020	0.36	2.0	ND	1	02/19/05	02/19/05	
1,1,1-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
1,1,2-Trichloroethane	EPA 624	5B19020	0.30	2.0	ND	1	02/19/05	02/19/05	
Trichloroethene	EPA 624	5B19020	0.26	2.0	ND	1	02/19/05	02/19/05	
Trichlorofluoromethane	EPA 624	5B19020	0.34	5.0	ND	1	02/19/05	02/19/05	
Vinyl chloride	EPA 624	5B19020	0.26	0.50	ND	1	02/19/05	02/19/05	
Xylenes, Total	EPA 624	5B19020	0.52	4.0	ND	1	02/19/05	02/19/05	
Surrogate: Dibromofluoromethane (80-120%)					101 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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



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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B22043	4.3	10	ND	0.957	02/22/05	02/25/05	
Acenaphthylene	EPA 625	5B22043	3.2	10	ND	0.957	02/22/05	02/25/05	
Aniline	EPA 625	5B22043	2.9	10	ND	0.957	02/22/05	02/25/05	
Anthracene	EPA 625	5B22043	3.2	10	ND	0.957	02/22/05	02/25/05	
Benzidine	EPA 625	5B22043	5.2	20	ND	0.957	02/22/05	02/25/05	L2
Benzoic acid	EPA 625	5B22043	2.6	20	ND	0.957	02/22/05	02/25/05	
Benzo(a)anthracene	EPA 625	5B22043	3.7	10	ND	0.957	02/22/05	02/25/05	
Benzo(b)fluoranthene	EPA 625	5B22043	2.7	10	ND	0.957	02/22/05	02/25/05	
Benzo(k)fluoranthene	EPA 625	5B22043	3.4	10	ND	0.957	02/22/05	02/25/05	
Benzo(g,h,i)perylene	EPA 625	5B22043	5.3	10	ND	0.957	02/22/05	02/25/05	
Benzo(a)pyrene	EPA 625	5B22043	3.5	10	ND	0.957	02/22/05	02/25/05	
Benzyl alcohol	EPA 625	5B22043	2.5	20	ND	0.957	02/22/05	02/25/05	
Bis(2-chloroethoxy)methane	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05	
Bis(2-chloroethyl)ether	EPA 625	5B22043	4.4	10	ND	0.957	02/22/05	02/25/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B22043	4.6	10	ND	0.957	02/22/05	02/25/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B22043	5.2	50	ND	0.957	02/22/05	02/25/05	
4-Bromophenyl phenyl ether	EPA 625	5B22043	4.6	10	ND	0.957	02/22/05	02/25/05	
Butyl benzyl phthalate	EPA 625	5B22043	3.5	20	ND	0.957	02/22/05	02/25/05	
4-Chloroaniline	EPA 625	5B22043	6.0	10	ND	0.957	02/22/05	02/25/05	
2-Chloronaphthalene	EPA 625	5B22043	4.0	10	ND	0.957	02/22/05	02/25/05	
4-Chloro-3-methylphenol	EPA 625	5B22043	3.5	20	ND	0.957	02/22/05	02/25/05	
2-Chlorophenol	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	
4-Chlorophenyl phenyl ether	EPA 625	5B22043	3.0	10	ND	0.957	02/22/05	02/25/05	
Chrysene	EPA 625	5B22043	2.8	10	ND	0.957	02/22/05	02/25/05	
Dibenz(a,h)anthracene	EPA 625	5B22043	4.7	20	ND	0.957	02/22/05	02/25/05	
Dibenzofuran	EPA 625	5B22043	2.6	10	ND	0.957	02/22/05	02/25/05	
Di-n-butyl phthalate	EPA 625	5B22043	2.8	20	ND	0.957	02/22/05	02/25/05	
1,3-Dichlorobenzene	EPA 625	5B22043	4.1	10	ND	0.957	02/22/05	02/25/05	
1,4-Dichlorobenzene	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05	
1,2-Dichlorobenzene	EPA 625	5B22043	4.5	10	ND	0.957	02/22/05	02/25/05	
3,3-Dichlorobenzidine	EPA 625	5B22043	11	20	ND	0.957	02/22/05	02/25/05	
2,4-Dichlorophenol	EPA 625	5B22043	4.1	10	ND	0.957	02/22/05	02/25/05	
Diethyl phthalate	EPA 625	5B22043	3.1	10	ND	0.957	02/22/05	02/25/05	
2,4-Dimethylphenol	EPA 625	5B22043	4.4	20	ND	0.957	02/22/05	02/25/05	
Dimethyl phthalate	EPA 625	5B22043	3.6	10	ND	0.957	02/22/05	02/25/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B22043	5.1	20	ND	0.957	02/22/05	02/25/05	
2,4-Dinitrophenol	EPA 625	5B22043	5.3	20	ND	0.957	02/22/05	02/25/05	
2,4-Dinitrotoluene	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	
2,6-Dinitrotoluene	EPA 625	5B22043	3.2	10	ND	0.957	02/22/05	02/25/05	
Di-n-octyl phthalate	EPA 625	5B22043	4.7	20	ND	0.957	02/22/05	02/25/05	
Fluoranthene	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	

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

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: ug/l									
Fluorene	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05	
Hexachlorobenzene	EPA 625	5B22043	4.8	10	ND	0.957	02/22/05	02/25/05	
Hexachlorobutadiene	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	
Hexachlorocyclopentadiene	EPA 625	5B22043	3.4	20	ND	0.957	02/22/05	02/25/05	
Hexachloroethane	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B22043	5.4	20	ND	0.957	02/22/05	02/25/05	
Isophorone	EPA 625	5B22043	3.7	10	ND	0.957	02/22/05	02/25/05	
2-Methylnaphthalene	EPA 625	5B22043	3.0	10	ND	0.957	02/22/05	02/25/05	
2-Methylphenol	EPA 625	5B22043	3.7	10	ND	0.957	02/22/05	02/25/05	
4-Methylphenol	EPA 625	5B22043	3.8	10	ND	0.957	02/22/05	02/25/05	
Naphthalene	EPA 625	5B22043	4.5	10	ND	0.957	02/22/05	02/25/05	
2-Nitroaniline	EPA 625	5B22043	3.9	20	ND	0.957	02/22/05	02/25/05	
3-Nitroaniline	EPA 625	5B22043	4.5	20	ND	0.957	02/22/05	02/25/05	
4-Nitroaniline	EPA 625	5B22043	4.9	20	ND	0.957	02/22/05	02/25/05	
Nitrobenzene	EPA 625	5B22043	4.2	20	ND	0.957	02/22/05	02/25/05	
2-Nitrophenol	EPA 625	5B22043	4.2	10	ND	0.957	02/22/05	02/25/05	
4-Nitrophenol	EPA 625	5B22043	6.6	20	ND	0.957	02/22/05	02/25/05	
N-Nitrosodiphenylamine	EPA 625	5B22043	4.0	10	ND	0.957	02/22/05	02/25/05	
N-Nitroso-di-n-propylamine	EPA 625	5B22043	3.6	10	ND	0.957	02/22/05	02/25/05	
Pentachlorophenol	EPA 625	5B22043	4.0	20	ND	0.957	02/22/05	02/25/05	
Phenanthrene	EPA 625	5B22043	3.3	10	ND	0.957	02/22/05	02/25/05	
Phenol	EPA 625	5B22043	4.0	10	ND	0.957	02/22/05	02/25/05	
Pyrene	EPA 625	5B22043	3.9	10	ND	0.957	02/22/05	02/25/05	
1,2,4-Trichlorobenzene	EPA 625	5B22043	4.4	10	ND	0.957	02/22/05	02/25/05	
2,4,5-Trichlorophenol	EPA 625	5B22043	3.6	20	ND	0.957	02/22/05	02/25/05	
2,4,6-Trichlorophenol	EPA 625	5B22043	4.1	20	ND	0.957	02/22/05	02/25/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B22043	5.0	20	ND	0.957	02/22/05	02/25/05	
N-Nitrosodimethylamine	EPA 625	5B22043	3.7	20	ND	0.957	02/22/05	02/25/05	
Surrogate: 2-Fluorophenol (35-120%)					66 %				
Surrogate: Phenol-d6 (45-120%)					73 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					82 %				
Surrogate: Nitrobenzene-d5 (45-120%)					74 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					76 %				
Surrogate: Terphenyl-d14 (45-135%)					124 %				

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



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17461Derian 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) 505-8586 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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B22041	0.030	0.10	ND	0.962	02/22/05	02/23/05	
alpha-BHC	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
beta-BHC	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
delta-BHC	EPA 608	5B22041	0.020	0.20	ND	0.962	02/22/05	02/23/05	
gamma-BHC (Lindane)	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
Chlordane	EPA 608	5B22041	0.20	1.0	ND	0.962	02/22/05	02/23/05	
4,4'-DDD	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
4,4'-DDE	EPA 608	5B22041	0.020	0.10	ND	0.962	02/22/05	02/23/05	
4,4'-DDT	EPA 608	5B22041	0.030	0.10	ND	0.962	02/22/05	02/23/05	
Dieldrin	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
Endosulfan I	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
Endosulfan II	EPA 608	5B22041	0.040	0.10	ND	0.962	02/22/05	02/23/05	
Endosulfan sulfate	EPA 608	5B22041	0.015	0.20	ND	0.962	02/22/05	02/23/05	
Endrin	EPA 608	5B22041	0.015	0.10	ND	0.962	02/22/05	02/23/05	
Endrin aldehyde	EPA 608	5B22041	0.045	0.10	ND	0.962	02/22/05	02/23/05	
Endrin ketone	EPA 608	5B22041	0.020	0.10	ND	0.962	02/22/05	02/23/05	
Heptachlor	EPA 608	5B22041	0.030	0.10	ND	0.962	02/22/05	02/23/05	
Heptachlor epoxide	EPA 608	5B22041	0.020	0.10	ND	0.962	02/22/05	02/23/05	
Methoxychlor	EPA 608	5B22041	0.035	0.10	ND	0.962	02/22/05	02/23/05	
Toxaphene	EPA 608	5B22041	1.5	5.0	ND	0.962	02/22/05	02/23/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					43 %				
Surrogate: Decachlorobiphenyl (45-120%)					62 %				

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

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B22041	0.20	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1221	EPA 608	5B22041	0.10	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1232	EPA 608	5B22041	0.15	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1242	EPA 608	5B22041	0.15	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1248	EPA 608	5B22041	0.25	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1254	EPA 608	5B22041	0.25	1.0	ND	0.962	02/22/05	02/23/05	
Aroclor 1260	EPA 608	5B22041	0.40	1.0	ND	0.962	02/22/05	02/23/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					61 %				

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

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	5B28119	0.0074	0.050	0.042	1	02/28/05	03/01/05	B, J

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B28119	47	50	9100	1	02/28/05	03/01/05	
Antimony	EPA 200.8	5B24099	0.18	2.0	0.31	1	02/24/05	02/25/05	J
Arsenic	EPA 200.7	5B28119	3.8	5.0	ND	1	02/28/05	03/01/05	
Beryllium	EPA 200.7	5B28119	0.62	2.0	ND	1	02/28/05	03/01/05	
Cadmium	EPA 200.8	5B24099	0.015	1.0	0.13	1	02/24/05	02/25/05	J
Chromium	EPA 200.7	5B28119	0.68	5.0	13	1	02/28/05	03/01/05	
Copper	EPA 200.8	5B24099	0.49	2.0	12	1	02/24/05	02/25/05	
Lead	EPA 200.8	5B24099	0.13	1.0	4.5	1	02/24/05	02/25/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	0.079	1	02/22/05	02/22/05	J
Nickel	EPA 200.7	5B28119	2.0	10	8.3	1	02/28/05	03/01/05	J
Selenium	EPA 200.7	5B28119	4.6	10	4.7	1	02/28/05	03/01/05	J
Silver	EPA 200.7	5B28119	1.3	10	ND	1	02/28/05	03/01/05	
Thallium	EPA 200.8	5B24099	0.075	1.0	0.13	1	02/24/05	02/25/05	J
Vanadium	EPA 200.7	5B28119	1.4	10	23	1	02/28/05	03/01/05	
Zinc	EPA 200.7	5B28119	3.7	20	29	1	02/28/05	03/01/05	

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B18129	0.26	0.50	0.96	1	02/18/05	02/19/05	
Total Cyanide	EPA 335.2	5B23086	0.0022	0.0050	ND	1	02/23/05	02/25/05	
Nitrate/Nitrite-N	EPA 300.0	5B18129	0.072	0.11	0.37	1	02/18/05	02/19/05	
Oil & Grease	EPA 413.1	5B23082	0.94	5.0	ND	1	02/23/05	02/23/05	
Sulfate	EPA 300.0	5B18129	0.18	0.50	0.60	1	02/18/05	02/19/05	
Total Dissolved Solids	SM2540C	5B23077	10	10	110	1	02/23/05	02/23/05	
Total Suspended Solids	EPA 160.2	5B23109	10	10	160	1	02/23/05	02/23/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 006 Report Number: IOB1559	Sampled: 02/18/05 Received: 02/18/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1559-01 (Outfall 006 - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B26001	0.80	4.0	ND	1	02/26/05	02/26/05	

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Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 006 (IOB1559-01) - Water					
EPA 300.0	2	02/18/2005 09:00	02/18/2005 18:30	02/18/2005 22:00	02/19/2005 00:00
EPA 624	3	02/18/2005 09:00	02/18/2005 18:30	02/19/2005 00:00	02/19/2005 17:58
Sample ID: Trip Blanks (IOB1559-02) - Water					
EPA 624	3	02/18/2005 14:50	02/18/2005 18:30	02/19/2005 00:00	02/19/2005 15:55

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Project ID: Annual Outfall 006
 Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B19020 Extracted: 02/19/05											
Blank Analyzed: 02/19/2005 (5B19020-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	24.9			ug/l	25.0		100	80-120			
Surrogate: Toluene-d8	26.8			ug/l	25.0		107	80-120			
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120			
LCS Analyzed: 02/19/2005 (5B19020-BS1)											
2-Chloroethyl vinyl ether	28.8	5.0	1.3	ug/l	25.0		115	20-175			
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	27.1			ug/l	25.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	25.9			ug/l	25.0		104	80-120			
Matrix Spike Analyzed: 02/19/2005 (5B19020-MS1)											
						Source: IOB1556-01					
2-Chloroethyl vinyl ether	21.2	5.0	1.3	ug/l	25.0	ND	85	20-175			
Surrogate: Dibromofluoromethane	24.1			ug/l	25.0		96	80-120			
Surrogate: Toluene-d8	25.9			ug/l	25.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	24.6			ug/l	25.0		98	80-120			
Matrix Spike Dup Analyzed: 02/19/2005 (5B19020-MSD1)											
						Source: IOB1556-01					
2-Chloroethyl vinyl ether	24.9	5.0	1.3	ug/l	25.0	ND	100	20-175	16	25	
Surrogate: Dibromofluoromethane	24.1			ug/l	25.0		96	80-120			
Surrogate: Toluene-d8	25.8			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	24.9			ug/l	25.0		100	80-120			

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

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Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B19020 Extracted: 02/19/05										
Blank Analyzed: 02/19/2005 (5B19020-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	24.9			ug/l	25.0		100	80-120		
Surrogate: Toluene-d8	26.8			ug/l	25.0		107	80-120		
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120		

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting	MDL	Units	Spike	Source	%REC		RPD	Limit	Data
		Limit					%REC	Limits			
Batch: 5B19020 Extracted: 02/19/05											
LCS Analyzed: 02/19/2005 (5B19020-BS1)											
Benzene	25.3	1.0	0.28	ug/l	25.0		101	70-120			
Bromodichloromethane	22.8	2.0	0.30	ug/l	25.0		91	70-140			
Bromoform	24.9	5.0	0.32	ug/l	25.0		100	55-135			
Bromomethane	26.0	5.0	0.34	ug/l	25.0		104	60-140			
Carbon tetrachloride	22.7	0.50	0.28	ug/l	25.0		91	70-140			
Chlorobenzene	24.2	2.0	0.36	ug/l	25.0		97	80-125			
Chloroethane	25.4	5.0	0.33	ug/l	25.0		102	60-145			
Chloroform	23.2	2.0	0.33	ug/l	25.0		93	75-130			
Chloromethane	25.1	5.0	0.30	ug/l	25.0		100	40-145			
Dibromochloromethane	24.2	2.0	0.28	ug/l	25.0		97	65-145			
1,2-Dichlorobenzene	24.5	2.0	0.32	ug/l	25.0		98	80-120			
1,3-Dichlorobenzene	23.7	2.0	0.35	ug/l	25.0		95	80-120			
1,4-Dichlorobenzene	23.9	2.0	0.37	ug/l	25.0		96	80-120			
1,1-Dichloroethane	23.4	2.0	0.27	ug/l	25.0		94	70-135			
1,2-Dichloroethane	22.7	0.50	0.28	ug/l	25.0		91	60-150			
1,1-Dichloroethene	25.6	5.0	0.32	ug/l	25.0		102	75-135			
trans-1,2-Dichloroethene	24.9	2.0	0.27	ug/l	25.0		100	70-130			
1,2-Dichloropropane	25.2	2.0	0.35	ug/l	25.0		101	70-120			
cis-1,3-Dichloropropene	25.2	2.0	0.22	ug/l	25.0		101	75-130			
trans-1,3-Dichloropropene	25.6	2.0	0.24	ug/l	25.0		102	75-135			
Ethylbenzene	25.2	2.0	0.25	ug/l	25.0		101	80-120			
Methylene chloride	24.7	5.0	0.48	ug/l	25.0		99	60-135			
1,1,2,2-Tetrachloroethane	27.6	2.0	0.24	ug/l	25.0		110	60-135			
Tetrachloroethene	23.8	2.0	0.32	ug/l	25.0		95	75-125			
Toluene	25.0	2.0	0.36	ug/l	25.0		100	75-120			
1,1,1-Trichloroethane	21.8	2.0	0.30	ug/l	25.0		87	75-140			
1,1,2-Trichloroethane	25.2	2.0	0.30	ug/l	25.0		101	70-125			
Trichloroethene	24.4	2.0	0.26	ug/l	25.0		98	80-120			
Trichlorofluoromethane	21.9	5.0	0.34	ug/l	25.0		88	65-145			
Vinyl chloride	24.1	0.50	0.26	ug/l	25.0		96	50-130			
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	27.1			ug/l	25.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	25.9			ug/l	25.0		104	80-120			

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B19020 Extracted: 02/19/05										
Matrix Spike Analyzed: 02/19/2005 (5B19020-MS1)					Source: IOB1556-01					
Benzene	22.7	1.0	0.28	ug/l	25.0	ND	91	70-120		
Bromodichloromethane	20.2	2.0	0.30	ug/l	25.0	ND	81	70-140		
Bromoform	20.2	5.0	0.32	ug/l	25.0	ND	81	55-140		
Bromomethane	23.0	5.0	0.34	ug/l	25.0	ND	92	50-145		
Carbon tetrachloride	20.8	0.50	0.28	ug/l	25.0	ND	83	70-145		
Chlorobenzene	21.9	2.0	0.36	ug/l	25.0	ND	88	80-125		
Chloroethane	22.3	5.0	0.33	ug/l	25.0	ND	89	50-145		
Chloroform	21.0	2.0	0.33	ug/l	25.0	ND	84	70-135		
Chloromethane	21.8	5.0	0.30	ug/l	25.0	ND	87	35-145		
Dibromochloromethane	21.0	2.0	0.28	ug/l	25.0	ND	84	65-145		
1,2-Dichlorobenzene	22.2	2.0	0.32	ug/l	25.0	ND	89	75-130		
1,3-Dichlorobenzene	22.0	2.0	0.35	ug/l	25.0	ND	88	75-130		
1,4-Dichlorobenzene	22.0	2.0	0.37	ug/l	25.0	ND	88	80-120		
1,1-Dichloroethane	21.3	2.0	0.27	ug/l	25.0	ND	85	65-135		
1,2-Dichloroethane	19.6	0.50	0.28	ug/l	25.0	ND	78	60-150		
1,1-Dichloroethene	22.6	5.0	0.32	ug/l	25.0	ND	90	65-140		
trans-1,2-Dichloroethene	22.5	2.0	0.27	ug/l	25.0	ND	90	65-135		
1,2-Dichloropropane	22.1	2.0	0.35	ug/l	25.0	ND	88	65-130		
cis-1,3-Dichloropropene	22.2	2.0	0.22	ug/l	25.0	ND	89	70-140		
trans-1,3-Dichloropropene	21.7	2.0	0.24	ug/l	25.0	ND	87	70-140		
Ethylbenzene	23.3	2.0	0.25	ug/l	25.0	ND	93	70-130		
Methylene chloride	22.7	5.0	0.48	ug/l	25.0	0.95	87	60-135		
1,1,2,2-Tetrachloroethane	22.8	2.0	0.24	ug/l	25.0	ND	91	60-145		
Tetrachloroethene	21.3	2.0	0.32	ug/l	25.0	ND	85	70-130		
Toluene	22.5	2.0	0.36	ug/l	25.0	ND	90	70-120		
1,1,1-Trichloroethane	20.3	2.0	0.30	ug/l	25.0	0.76	78	75-140		
1,1,2-Trichloroethane	20.9	2.0	0.30	ug/l	25.0	ND	84	60-135		
Trichloroethene	22.1	2.0	0.26	ug/l	25.0	0.66	86	70-125		
Trichlorofluoromethane	19.6	5.0	0.34	ug/l	25.0	ND	78	55-145		
Vinyl chloride	21.6	0.50	0.26	ug/l	25.0	ND	86	40-135		
Surrogate: Dibromofluoromethane	24.1			ug/l	25.0		96	80-120		
Surrogate: Toluene-d8	25.9			ug/l	25.0		104	80-120		
Surrogate: 4-Bromofluorobenzene	24.6			ug/l	25.0		98	80-120		

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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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B19020 Extracted: 02/19/05											
Matrix Spike Dup Analyzed: 02/19/2005 (5B19020-MSD1)						Source: IOB1556-01					
Benzene	24.4	1.0	0.28	ug/l	25.0	ND	98	70-120	7	20	
Bromodichloromethane	21.5	2.0	0.30	ug/l	25.0	ND	86	70-140	6	20	
Bromoform	22.7	5.0	0.32	ug/l	25.0	ND	91	55-140	12	25	
Bromomethane	24.8	5.0	0.34	ug/l	25.0	ND	99	50-145	8	25	
Carbon tetrachloride	22.1	0.50	0.28	ug/l	25.0	ND	88	70-145	6	25	
Chlorobenzene	23.4	2.0	0.36	ug/l	25.0	ND	94	80-125	7	20	
Chloroethane	23.8	5.0	0.33	ug/l	25.0	ND	95	50-145	7	25	
Chloroform	22.2	2.0	0.33	ug/l	25.0	ND	89	70-135	6	20	
Chloromethane	23.2	5.0	0.30	ug/l	25.0	ND	93	35-145	6	25	
Dibromochloromethane	22.8	2.0	0.28	ug/l	25.0	ND	91	65-145	8	25	
1,2-Dichlorobenzene	23.3	2.0	0.32	ug/l	25.0	ND	93	75-130	5	20	
1,3-Dichlorobenzene	22.9	2.0	0.35	ug/l	25.0	ND	92	75-130	4	20	
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0	ND	92	80-120	4	20	
1,1-Dichloroethane	22.5	2.0	0.27	ug/l	25.0	ND	90	65-135	5	20	
1,2-Dichloroethane	23.3	0.50	0.28	ug/l	25.0	ND	93	60-150	17	20	
1,1-Dichloroethene	24.3	5.0	0.32	ug/l	25.0	ND	97	65-140	7	20	
trans-1,2-Dichloroethene	24.0	2.0	0.27	ug/l	25.0	ND	96	65-135	6	20	
1,2-Dichloropropane	23.7	2.0	0.35	ug/l	25.0	ND	95	65-130	7	20	
cis-1,3-Dichloropropene	23.9	2.0	0.22	ug/l	25.0	ND	96	70-140	7	20	
trans-1,3-Dichloropropene	23.7	2.0	0.24	ug/l	25.0	ND	95	70-140	9	25	
Ethylbenzene	24.8	2.0	0.25	ug/l	25.0	ND	99	70-130	6	20	
Methylene chloride	24.2	5.0	0.48	ug/l	25.0	0.95	93	60-135	6	20	
1,1,2,2-Tetrachloroethane	25.3	2.0	0.24	ug/l	25.0	ND	101	60-145	10	30	
Tetrachloroethene	23.0	2.0	0.32	ug/l	25.0	ND	92	70-130	8	20	
Toluene	24.0	2.0	0.36	ug/l	25.0	ND	96	70-120	6	20	
1,1,1-Trichloroethane	21.7	2.0	0.30	ug/l	25.0	0.76	84	75-140	7	20	
1,1,2-Trichloroethane	23.3	2.0	0.30	ug/l	25.0	ND	93	60-135	11	25	
Trichloroethene	23.0	2.0	0.26	ug/l	25.0	0.66	89	70-125	4	20	
Trichlorofluoromethane	20.7	5.0	0.34	ug/l	25.0	ND	83	55-145	5	25	
Vinyl chloride	22.8	0.50	0.26	ug/l	25.0	ND	91	40-135	5	30	
Surrogate: Dibromofluoromethane	24.1			ug/l	25.0		96	80-120			
Surrogate: Toluene-d8	25.8			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	24.9			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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05										
Blank Analyzed: 02/25/2005 (5B22043-BLK1)										
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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ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05											
Blank Analyzed: 02/25/2005 (5B22043-BLK1)											
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	138			ug/l	200	69	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 %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05										
Blank Analyzed: 02/25/2005 (5B22043-BLK1)										
Surrogate: Phenol-d6	144			ug/l	200		72 45-120			
Surrogate: 2,4,6-Tribromophenol	162			ug/l	200		81 50-125			
Surrogate: Nitrobenzene-d5	76.2			ug/l	100		76 45-120			
Surrogate: 2-Fluorobiphenyl	79.8			ug/l	100		80 45-120			
Surrogate: Terphenyl-d14	70.2			ug/l	100		70 45-135			
LCS Analyzed: 02/25/2005 (5B22043-BS1)										
Acenaphthene	83.1	10	4.3	ug/l	100		83 55-120			M-NRI
Acenaphthylene	82.0	10	3.2	ug/l	100		82 55-120			
Aniline	78.1	10	2.9	ug/l	100		78 30-120			
Anthracene	86.0	10	3.2	ug/l	100		86 60-120			
Benzidine	150	20	5.2	ug/l	100		150 20-180			
Benzoic acid	68.1	20	2.6	ug/l	100		68 30-125			
Benzo(a)anthracene	82.9	10	3.7	ug/l	100		83 65-120			
Benzo(b)fluoranthene	84.5	10	2.7	ug/l	100		84 50-125			
Benzo(k)fluoranthene	89.6	10	3.4	ug/l	100		90 50-125			
Benzo(g,h,i)perylene	74.4	10	5.3	ug/l	100		74 35-160			
Benzo(a)pyrene	86.0	10	3.5	ug/l	100		86 55-125			
Benzyl alcohol	79.2	20	2.5	ug/l	100		79 40-130			
Bis(2-chloroethoxy)methane	82.5	10	3.9	ug/l	100		82 55-120			
Bis(2-chloroethyl)ether	68.6	10	4.4	ug/l	100		69 50-120			
Bis(2-chloroisopropyl)ether	77.4	10	4.6	ug/l	100		77 50-120			
Bis(2-ethylhexyl)phthalate	75.0	50	5.2	ug/l	100		75 65-125			
4-Bromophenyl phenyl ether	78.0	10	4.6	ug/l	100		78 55-125			
Butyl benzyl phthalate	79.3	20	3.5	ug/l	100		79 60-125			
4-Chloroaniline	80.4	10	6.0	ug/l	100		80 55-120			
2-Chloronaphthalene	80.9	10	4.0	ug/l	100		81 60-120			
4-Chloro-3-methylphenol	83.6	20	3.5	ug/l	100		84 60-120			
2-Chlorophenol	72.0	10	4.2	ug/l	100		72 45-120			
4-Chlorophenyl phenyl ether	80.7	10	3.0	ug/l	100		81 55-120			
Chrysene	83.0	10	2.8	ug/l	100		83 65-120			
Dibenz(a,h)anthracene	75.5	20	4.7	ug/l	100		76 40-160			
Dibenzofuran	81.1	10	2.6	ug/l	100		81 60-120			
Di-n-butyl phthalate	83.2	20	2.8	ug/l	100		83 65-125			
1,3-Dichlorobenzene	65.5	10	4.1	ug/l	100		66 40-120			
1,4-Dichlorobenzene	64.8	10	3.9	ug/l	100		65 40-120			

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Limit	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05											
LCS Analyzed: 02/25/2005 (5B22043-BS1)											
1,2-Dichlorobenzene	66.6	10	4.5	ug/l	100		67	40-120			M-NR1
3,3-Dichlorobenzidine	85.5	20	11	ug/l	100		86	50-170			
2,4-Dichlorophenol	80.7	10	4.1	ug/l	100		81	55-120			
Diethyl phthalate	78.4	10	3.1	ug/l	100		78	60-120			
2,4-Dimethylphenol	71.1	20	4.4	ug/l	100		71	35-120			
Dimethyl phthalate	78.0	10	3.6	ug/l	100		78	60-120			
4,6-Dinitro-2-methylphenol	77.3	20	5.1	ug/l	100		77	55-120			
2,4-Dinitrophenol	75.1	20	5.3	ug/l	100		75	40-140			
2,4-Dinitrotoluene	81.1	10	4.2	ug/l	100		81	60-140			
2,6-Dinitrotoluene	77.9	10	3.2	ug/l	100		78	65-125			
Di-n-octyl phthalate	68.3	20	4.7	ug/l	100		68	60-130			
Fluoranthene	86.3	10	4.2	ug/l	100		86	55-125			
Fluorene	83.9	10	3.9	ug/l	100		84	60-120			
Hexachlorobenzene	84.1	10	4.8	ug/l	100		84	50-120			
Hexachlorobutadiene	70.9	10	4.2	ug/l	100		71	45-120			
Hexachlorocyclopentadiene	69.3	20	3.4	ug/l	100		69	10-130			
Hexachloroethane	64.4	10	4.2	ug/l	100		64	40-120			
Indeno(1,2,3-cd)pyrene	71.9	20	5.4	ug/l	100		72	35-150			
Isophorone	75.7	10	3.7	ug/l	100		76	55-120			
2-Methylnaphthalene	80.5	10	3.0	ug/l	100		80	50-120			
2-Methylphenol	72.7	10	3.7	ug/l	100		73	45-120			
4-Methylphenol	75.3	10	3.8	ug/l	100		75	45-120			
Naphthalene	78.3	10	4.5	ug/l	100		78	50-120			
2-Nitroaniline	84.0	20	3.9	ug/l	100		84	60-130			
3-Nitroaniline	87.2	20	4.5	ug/l	100		87	50-140			
4-Nitroaniline	89.5	20	4.9	ug/l	100		90	45-160			
Nitrobenzene	72.3	20	4.2	ug/l	100		72	50-120			
2-Nitrophenol	79.1	10	4.2	ug/l	100		79	55-120			
4-Nitrophenol	74.9	20	6.6	ug/l	100		75	50-135			
N-Nitrosodiphenylamine	77.6	10	4.0	ug/l	100		78	60-120			
N-Nitroso-di-n-propylamine	73.9	10	3.6	ug/l	100		74	50-120			
Pentachlorophenol	88.3	20	4.0	ug/l	100		88	50-125			
Phenanthrene	84.1	10	3.3	ug/l	100		84	55-120			
Phenol	72.3	10	4.0	ug/l	100		72	45-120			
Pyrene	81.6	10	3.9	ug/l	100		82	50-120			

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Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05										
LCS Analyzed: 02/25/2005 (5B22043-BS1)										
1,2,4-Trichlorobenzene	70.3	10	4.4	ug/l	100		70		50-120	M-NRI
2,4,5-Trichlorophenol	83.4	20	3.6	ug/l	100		83		60-120	
2,4,6-Trichlorophenol	81.7	20	4.1	ug/l	100		82		60-120	
1,2-Diphenylhydrazine/Azobenzene	84.6	20	5.0	ug/l	100		85		60-120	
N-Nitrosodimethylamine	73.1	20	3.7	ug/l	100		73		40-120	
Surrogate: 2-Fluorophenol	132			ug/l	200		66		35-120	
Surrogate: Phenol-d6	142			ug/l	200		71		45-120	
Surrogate: 2,4,6-Tribromophenol	166			ug/l	200		83		50-125	
Surrogate: Nitrobenzene-d5	75.9			ug/l	100		76		45-120	
Surrogate: 2-Fluorobiphenyl	77.6			ug/l	100		78		45-120	
Surrogate: Terphenyl-d14	76.0			ug/l	100		76		45-135	
LCS Dup Analyzed: 02/25/2005 (5B22043-BSD1)										
Acenaphthene	77.9	10	4.3	ug/l	100		78	6	55-120	20
Acenaphthylene	78.7	10	3.2	ug/l	100		79	4	55-120	20
Aniline	62.7	10	2.9	ug/l	100		63	22	30-120	25
Anthracene	83.5	10	3.2	ug/l	100		84	3	60-120	20
Benzidine	ND	20	5.2	ug/l	100				20-180	35
Benzoic acid	61.0	20	2.6	ug/l	100		61	11	30-125	30
Benzo(a)anthracene	80.9	10	3.7	ug/l	100		81	2	65-120	20
Benzo(b)fluoranthene	80.1	10	2.7	ug/l	100		80	5	50-125	25
Benzo(k)fluoranthene	80.7	10	3.4	ug/l	100		81	10	50-125	20
Benzo(g,h,i)perylene	86.3	10	5.3	ug/l	100		86	15	35-160	25
Benzo(a)pyrene	80.9	10	3.5	ug/l	100		81	6	55-125	25
Benzyl alcohol	78.0	20	2.5	ug/l	100		78	2	40-130	20
Bis(2-chloroethoxy)methane	78.3	10	3.9	ug/l	100		78	5	55-120	20
Bis(2-chloroethyl)ether	66.9	10	4.4	ug/l	100		67	3	50-120	20
Bis(2-chloroisopropyl)ether	76.3	10	4.6	ug/l	100		76	1	50-120	20
Bis(2-ethylhexyl)phthalate	69.6	50	5.2	ug/l	100		70	7	65-125	20
4-Bromophenyl phenyl ether	75.9	10	4.6	ug/l	100		76	3	55-125	25
Butyl benzyl phthalate	85.0	20	3.5	ug/l	100		85	7	60-125	20
4-Chloroaniline	73.7	10	6.0	ug/l	100		74	9	55-120	25
2-Chloronaphthalene	78.3	10	4.0	ug/l	100		78	3	60-120	20
4-Chloro-3-methylphenol	75.8	20	3.5	ug/l	100		76	10	60-120	25
2-Chlorophenol	70.2	10	4.2	ug/l	100		70	3	45-120	25
4-Chlorophenyl phenyl ether	79.3	10	3.0	ug/l	100		79	2	55-120	20

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05											
LCS Dup Analyzed: 02/25/2005 (5B22043-BSD1)											
Chrysene	81.6	10	2.8	ug/l	100		82	65-120	2	20	
Dibenz(a,h)anthracene	86.3	20	4.7	ug/l	100		86	40-160	13	25	
Dibenzofuran	77.5	10	2.6	ug/l	100		78	60-120	5	20	
Di-n-butyl phthalate	80.8	20	2.8	ug/l	100		81	65-125	3	20	
1,3-Dichlorobenzene	64.4	10	4.1	ug/l	100		64	40-120	2	25	
1,4-Dichlorobenzene	63.4	10	3.9	ug/l	100		63	40-120	2	25	
1,2-Dichlorobenzene	65.7	10	4.5	ug/l	100		66	40-120	1	25	
3,3-Dichlorobenzidine	76.3	20	11	ug/l	100		76	50-170	11	25	
2,4-Dichlorophenol	75.1	10	4.1	ug/l	100		75	55-120	7	20	
Diethyl phthalate	76.4	10	3.1	ug/l	100		76	60-120	3	20	
2,4-Dimethylphenol	67.0	20	4.4	ug/l	100		67	35-120	6	25	
Dimethyl phthalate	75.1	10	3.6	ug/l	100		75	60-120	4	20	
4,6-Dinitro-2-methylphenol	76.9	20	5.1	ug/l	100		77	55-120	1	25	
2,4-Dinitrophenol	70.5	20	5.3	ug/l	100		70	40-140	6	25	
2,4-Dinitrotoluene	77.8	10	4.2	ug/l	100		78	60-140	4	20	
2,6-Dinitrotoluene	75.3	10	3.2	ug/l	100		75	65-125	3	20	
Di-n-octyl phthalate	64.0	20	4.7	ug/l	100		64	60-130	7	20	
Fluoranthene	80.3	10	4.2	ug/l	100		80	55-125	7	20	
Fluorene	80.1	10	3.9	ug/l	100		80	60-120	5	20	
Hexachlorobenzene	79.9	10	4.8	ug/l	100		80	50-120	5	20	
Hexachlorobutadiene	67.7	10	4.2	ug/l	100		68	45-120	5	25	
Hexachlorocyclopentadiene	66.0	20	3.4	ug/l	100		66	10-130	5	30	
Hexachloroethane	63.8	10	4.2	ug/l	100		64	40-120	1	25	
Indeno(1,2,3-cd)pyrene	81.8	20	5.4	ug/l	100		82	35-150	13	25	
Isophorone	71.9	10	3.7	ug/l	100		72	55-120	5	20	
2-Methylnaphthalene	74.5	10	3.0	ug/l	100		74	50-120	8	20	
2-Methylphenol	71.4	10	3.7	ug/l	100		71	45-120	2	20	
4-Methylphenol	73.1	10	3.8	ug/l	100		73	45-120	3	20	
Naphthalene	75.6	10	4.5	ug/l	100		76	50-120	4	20	
2-Nitroaniline	80.5	20	3.9	ug/l	100		80	60-130	4	20	
3-Nitroaniline	81.1	20	4.5	ug/l	100		81	50-140	7	25	
4-Nitroaniline	79.5	20	4.9	ug/l	100		80	45-160	12	20	
Nitrobenzene	70.4	20	4.2	ug/l	100		70	50-120	3	25	
2-Nitrophenol	75.4	10	4.2	ug/l	100		75	55-120	5	25	
4-Nitrophenol	65.8	20	6.6	ug/l	100		66	50-135	13	25	

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 Wendy Kirkeeng For Michele Harper
 Project Manager



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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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5B22043 Extracted: 02/22/05										
LCS Dup Analyzed: 02/25/2005 (5B22043-BSD1)										
N-Nitrosodiphenylamine	76.4	10	4.0	ug/l	100		76	60-120	2	20
N-Nitroso-di-n-propylamine	70.3	10	3.6	ug/l	100		70	50-120	5	20
Pentachlorophenol	83.9	20	4.0	ug/l	100		84	50-125	5	25
Phenanthrene	80.8	10	3.3	ug/l	100		81	55-120	4	20
Phenol	70.0	10	4.0	ug/l	100		70	45-120	3	25
Pyrene	98.6	10	3.9	ug/l	100		99	50-120	19	25
1,2,4-Trichlorobenzene	66.9	10	4.4	ug/l	100		67	50-120	5	20
2,4,5-Trichlorophenol	76.7	20	3.6	ug/l	100		77	60-120	8	20
2,4,6-Trichlorophenol	77.8	20	4.1	ug/l	100		78	60-120	5	20
1,2-Diphenylhydrazine/Azobenzene	81.0	20	5.0	ug/l	100		81	60-120	4	25
N-Nitrosodimethylamine	70.7	20	3.7	ug/l	100		71	40-120	3	20
Surrogate: 2-Fluorophenol	126			ug/l	200		63	35-120		
Surrogate: Phenol-d6	137			ug/l	200		68	45-120		
Surrogate: 2,4,6-Tribromophenol	162			ug/l	200		81	50-125		
Surrogate: Nitrobenzene-d5	71.8			ug/l	100		72	45-120		
Surrogate: 2-Fluorobiphenyl	75.7			ug/l	100		76	45-120		
Surrogate: Terphenyl-d14	87.9			ug/l	100		88	45-135		

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 Project Manager

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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 006 Report Number: IOB1559	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
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Batch: 5B22041 Extracted: 02/22/05

Blank Analyzed: 02/23/2005 (5B22041-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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	0.389			ug/l	0.500		78	35-120		
Surrogate: Decachlorobiphenyl	0.441			ug/l	0.500		88	45-120		

LCS Analyzed: 02/23/2005 (5B22041-BS1)

M-NR1

Aldrin	0.415	0.10	0.030	ug/l	0.500		83	45-115		
alpha-BHC	0.450	0.10	0.015	ug/l	0.500		90	45-115		
beta-BHC	0.420	0.10	0.015	ug/l	0.500		84	50-115		
delta-BHC	0.435	0.20	0.020	ug/l	0.500		87	55-120		
gamma-BHC (Lindane)	0.453	0.10	0.015	ug/l	0.500		91	45-115		
4,4'-DDD	0.505	0.10	0.015	ug/l	0.500		101	60-120		
4,4'-DDE	0.478	0.10	0.020	ug/l	0.500		96	55-120		
4,4'-DDT	0.481	0.10	0.030	ug/l	0.500		96	60-130		
Dieldrin	0.466	0.10	0.015	ug/l	0.500		93	55-120		
Endosulfan I	0.437	0.10	0.015	ug/l	0.500		87	50-115		
Endosulfan II	0.459	0.10	0.040	ug/l	0.500		92	60-125		
Endosulfan sulfate	0.466	0.20	0.015	ug/l	0.500		93	60-120		

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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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22041 Extracted: 02/22/05										
LCS Analyzed: 02/23/2005 (5B22041-BS1)										
Endrin	0.518	0.10	0.015	ug/l	0.500		104 55-125			M-NR1
Endrin aldehyde	0.444	0.10	0.045	ug/l	0.500		89 55-115			
Endrin ketone	0.457	0.10	0.020	ug/l	0.500		91 60-120			
Heptachlor	0.443	0.10	0.030	ug/l	0.500		89 45-115			
Heptachlor epoxide	0.425	0.10	0.020	ug/l	0.500		85 50-120			
Methoxychlor	0.525	0.10	0.035	ug/l	0.500		105 60-135			
Surrogate: Tetrachloro-m-xylene	0.381			ug/l	0.500		76 35-120			
Surrogate: Decachlorobiphenyl	0.440			ug/l	0.500		88 45-120			
LCS Dup Analyzed: 02/23/2005 (5B22041-BSD1)										
Aldrin	0.371	0.10	0.030	ug/l	0.500		74 45-115	11	30	
alpha-BHC	0.449	0.10	0.015	ug/l	0.500		90 45-115	0	30	
beta-BHC	0.419	0.10	0.015	ug/l	0.500		84 50-115	0	30	
delta-BHC	0.432	0.20	0.020	ug/l	0.500		86 55-120	1	30	
gamma-BHC (Lindane)	0.452	0.10	0.015	ug/l	0.500		90 45-115	0	30	
4,4'-DDD	0.496	0.10	0.015	ug/l	0.500		99 60-120	2	30	
4,4'-DDE	0.472	0.10	0.020	ug/l	0.500		94 55-120	1	30	
4,4'-DDT	0.481	0.10	0.030	ug/l	0.500		96 60-130	0	30	
Dieldrin	0.459	0.10	0.015	ug/l	0.500		92 55-120	2	30	
Endosulfan I	0.436	0.10	0.015	ug/l	0.500		87 50-115	0	30	
Endosulfan II	0.443	0.10	0.040	ug/l	0.500		89 60-125	4	30	
Endosulfan sulfate	0.461	0.20	0.015	ug/l	0.500		92 60-120	1	30	
Endrin	0.509	0.10	0.015	ug/l	0.500		102 55-125	2	30	
Endrin aldehyde	0.440	0.10	0.045	ug/l	0.500		88 55-115	1	30	
Endrin ketone	0.450	0.10	0.020	ug/l	0.500		90 60-120	2	30	
Heptachlor	0.446	0.10	0.030	ug/l	0.500		89 45-115	1	30	
Heptachlor epoxide	0.431	0.10	0.020	ug/l	0.500		86 50-120	1	30	
Methoxychlor	0.533	0.10	0.035	ug/l	0.500		107 60-135	2	30	
Surrogate: Tetrachloro-m-xylene	0.384			ug/l	0.500		77 35-120			
Surrogate: Decachlorobiphenyl	0.442			ug/l	0.500		88 45-120			

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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: Annual Outfall 006 Report Number: IOB1559	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B22041 Extracted: 02/22/05											
Blank Analyzed: 02/23/2005 (5B22041-BLK1)											
Aroclor 1016	ND	1.0	0.20	ug/l							
Aroclor 1221	ND	1.0	0.10	ug/l							
Aroclor 1232	ND	1.0	0.15	ug/l							
Aroclor 1242	ND	1.0	0.15	ug/l							
Aroclor 1248	ND	1.0	0.25	ug/l							
Aroclor 1254	ND	1.0	0.25	ug/l							
Aroclor 1260	ND	1.0	0.40	ug/l							
Surrogate: Decachlorobiphenyl	0.340			ug/l	0.500		68	45-120			
LCS Analyzed: 02/23/2005 (5B22041-BS2)											
Aroclor 1016	2.62	1.0	0.20	ug/l	4.00		66	50-115			M-NR1
Aroclor 1260	2.49	1.0	0.40	ug/l	4.00		62	60-115			
Surrogate: Decachlorobiphenyl	0.312			ug/l	0.500		62	45-120			
LCS Dup Analyzed: 02/23/2005 (5B22041-BSD2)											
Aroclor 1016	2.91	1.0	0.20	ug/l	4.00		73	50-115	10	30	
Aroclor 1260	2.67	1.0	0.40	ug/l	4.00		67	60-115	7	25	
Surrogate: Decachlorobiphenyl	0.418			ug/l	0.500		84	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 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22063 Extracted: 02/22/05										
Blank Analyzed: 02/22/2005 (5B22063-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 02/22/2005 (5B22063-BS1)										
Mercury	8.32	0.20	0.063	ug/l	8.00		104		85-115	
Matrix Spike Analyzed: 02/22/2005 (5B22063-MS1)										
Mercury	8.36	0.20	0.063	ug/l	8.00	0.074	104		70-130	
Matrix Spike Dup Analyzed: 02/22/2005 (5B22063-MSD1)										
Mercury	8.38	0.20	0.063	ug/l	8.00	0.074	104	0	70-130	20
Batch: 5B24099 Extracted: 02/24/05										
Blank Analyzed: 02/25/2005-02/26/2005 (5B24099-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
Thallium	ND	1.0	0.075	ug/l						
LCS Analyzed: 02/25/2005 (5B24099-BS1)										
Antimony	85.6	2.0	0.18	ug/l	80.0		107		85-115	
Cadmium	76.4	1.0	0.015	ug/l	80.0		96		85-115	
Copper	84.0	2.0	0.49	ug/l	80.0		105		85-115	
Lead	80.3	1.0	0.13	ug/l	80.0		100		85-115	
Thallium	78.5	1.0	0.075	ug/l	80.0		98		85-115	

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 Project Manager

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

Project ID: Annual Outfall 006
 Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
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Batch: 5B24099 Extracted: 02/24/05

Matrix Spike Analyzed: 02/25/2005 (5B24099-MS1)

Source: IOB1490-01

Antimony	85.7	2.0	0.18	ug/l	80.0	0.50	106	70-130		
Cadmium	75.1	1.0	0.015	ug/l	80.0	0.016	94	70-130		
Copper	82.5	2.0	0.49	ug/l	80.0	1.0	102	70-130		
Lead	77.6	1.0	0.13	ug/l	80.0	ND	97	70-130		
Thallium	76.5	1.0	0.075	ug/l	80.0	0.17	95	70-130		

Matrix Spike Analyzed: 02/25/2005 (5B24099-MS2)

Source: IOB1557-01

Antimony	83.8	2.0	0.18	ug/l	80.0	0.20	104	70-130		
Cadmium	74.6	1.0	0.015	ug/l	80.0	ND	93	70-130		
Copper	83.9	2.0	0.49	ug/l	80.0	ND	105	70-130		
Lead	77.7	1.0	0.13	ug/l	80.0	0.15	97	70-130		
Thallium	76.7	1.0	0.075	ug/l	80.0	0.19	96	70-130		

Matrix Spike Dup Analyzed: 02/25/2005 (5B24099-MSD1)

Source: IOB1490-01

Antimony	85.0	2.0	0.18	ug/l	80.0	0.50	106	70-130	1	20
Cadmium	75.2	1.0	0.015	ug/l	80.0	0.016	94	70-130	0	20
Copper	81.2	2.0	0.49	ug/l	80.0	1.0	100	70-130	2	20
Lead	76.3	1.0	0.13	ug/l	80.0	ND	95	70-130	2	20
Thallium	75.2	1.0	0.075	ug/l	80.0	0.17	94	70-130	2	20

Batch: 5B28119 Extracted: 02/28/05

Blank Analyzed: 03/01/2005 (5B28119-BLK1)

Aluminum	ND	50	47	ug/l						
Arsenic	ND	5.0	3.8	ug/l						
Beryllium	ND	2.0	0.62	ug/l						
Boron	0.0302	0.050	0.0074	mg/l						
Chromium	1.20	5.0	0.68	ug/l						
Nickel	ND	10	2.0	ug/l						
Selenium	ND	10	4.6	ug/l						
Silver	ND	10	1.3	ug/l						
Vanadium	ND	10	1.4	ug/l						
Zinc	ND	20	3.7	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 006	Report Number: IOB1559	Sampled: 02/18/05 Received: 02/18/05
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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 Qualifiers
Batch: 5B28119 Extracted: 02/28/05										
LCS Analyzed: 03/01/2005 (5B28119-BS1)										
Aluminum	489	50	47	ug/l	500	98	85-115			
Arsenic	493	5.0	3.8	ug/l	500	99	85-115			
Beryllium	495	2.0	0.62	ug/l	500	99	85-115			
Boron	0.512	0.050	0.0074	mg/l	0.500	102	85-115			
Chromium	488	5.0	0.68	ug/l	500	98	85-115			
Nickel	485	10	2.0	ug/l	500	97	85-115			
Selenium	491	10	4.6	ug/l	500	98	85-115			
Silver	248	10	1.3	ug/l	250	99	85-115			
Vanadium	500	10	1.4	ug/l	500	100	85-115			
Zinc	478	20	3.7	ug/l	500	96	85-115			
Matrix Spike Analyzed: 03/01/2005 (5B28119-MS1) Source: IOB1933-01										
Aluminum	551	50	47	ug/l	500	56	99	70-130		
Arsenic	500	5.0	3.8	ug/l	500	ND	100	70-130		
Beryllium	494	2.0	0.62	ug/l	500	ND	99	70-130		
Boron	0.678	0.050	0.0074	mg/l	0.500	0.20	96	70-130		
Chromium	488	5.0	0.68	ug/l	500	6.8	96	70-130		
Nickel	481	10	2.0	ug/l	500	3.9	95	70-130		
Selenium	483	10	4.6	ug/l	500	ND	97	70-130		
Silver	252	10	1.3	ug/l	250	3.2	100	70-130		
Vanadium	507	10	1.4	ug/l	500	2.2	101	70-130		
Zinc	590	20	3.7	ug/l	500	110	96	70-130		
Matrix Spike Dup Analyzed: 03/01/2005 (5B28119-MSD1) Source: IOB1933-01										
Aluminum	577	50	47	ug/l	500	56	104	70-130	5	20
Arsenic	519	5.0	3.8	ug/l	500	ND	104	70-130	4	20
Beryllium	513	2.0	0.62	ug/l	500	ND	103	70-130	4	20
Boron	0.688	0.050	0.0074	mg/l	0.500	0.20	98	70-130	1	20
Chromium	512	5.0	0.68	ug/l	500	6.8	101	70-130	5	20
Nickel	501	10	2.0	ug/l	500	3.9	99	70-130	4	20
Selenium	502	10	4.6	ug/l	500	ND	100	70-130	4	20
Silver	261	10	1.3	ug/l	250	3.2	103	70-130	4	20
Vanadium	527	10	1.4	ug/l	500	2.2	105	70-130	4	20
Zinc	609	20	3.7	ug/l	500	110	100	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: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B18129 Extracted: 02/18/05											
Blank Analyzed: 02/18/2005 (5B18129-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 02/18/2005 (5B18129-BS1)											
Chloride	5.11	0.50	0.26	mg/l	5.00		102	90-110			
Sulfate	10.6	0.50	0.18	mg/l	10.0		106	90-110			
Matrix Spike Analyzed: 02/18/2005 (5B18129-MS1)											
						Source: IOB1556-01					
Chloride	7.47	0.50	0.26	mg/l	5.00	2.1	107	80-120			
Sulfate	15.3	0.50	0.18	mg/l	10.0	4.7	106	80-120			
Matrix Spike Dup Analyzed: 02/18/2005 (5B18129-MSD1)											
						Source: IOB1556-01					
Chloride	7.43	0.50	0.26	mg/l	5.00	2.1	107	80-120	1	20	
Sulfate	14.3	0.50	0.18	mg/l	10.0	4.7	96	80-120	7	20	
Batch: 5B23077 Extracted: 02/23/05											
Blank Analyzed: 02/23/2005 (5B23077-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/23/2005 (5B23077-BS1)											
Total Dissolved Solids	1050	10	10	mg/l	1000		105	90-110			
Duplicate Analyzed: 02/23/2005 (5B23077-DUP1)											
						Source: IOB1667-06					
Total Dissolved Solids	880	10	10	mg/l		880			0	10	

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

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B23082 Extracted: 02/23/05											
Blank Analyzed: 02/23/2005 (5B23082-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/23/2005 (5B23082-BS1)											
Oil & Grease	15.9	5.0	0.94	mg/l	20.0		80	65-120			M-NR1
LCS Dup Analyzed: 02/23/2005 (5B23082-BSD1)											
Oil & Grease	16.5	5.0	0.94	mg/l	20.0		82	65-120	4	20	
Batch: 5B23086 Extracted: 02/23/05											
Blank Analyzed: 02/25/2005 (5B23086-BLK1)											
Total Cyanide	ND	0.0050	0.0022	mg/l							
LCS Analyzed: 02/25/2005 (5B23086-BS1)											
Total Cyanide	0.197	0.0050	0.0022	mg/l	0.200		98	90-110			
Matrix Spike Analyzed: 02/25/2005 (5B23086-MS1)											
Total Cyanide	0.206	0.0050	0.0022	mg/l	0.200	0.025	90	70-115			Source: IOB1522-01
Matrix Spike Dup Analyzed: 02/25/2005 (5B23086-MSD1)											
Total Cyanide	0.206	0.0050	0.0022	mg/l	0.200	0.025	90	70-115	0	15	Source: IOB1522-01
Batch: 5B23109 Extracted: 02/23/05											
Blank Analyzed: 02/23/2005 (5B23109-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 006

Report Number: IOB1559

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B23109 Extracted: 02/23/05											
LCS Analyzed: 02/23/2005 (5B23109-BS1)											
Total Suspended Solids	991	10	10	mg/l	1000		99	85-115			
Duplicate Analyzed: 02/23/2005 (5B23109-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOB1557-01 ND				10	
Batch: 5B26001 Extracted: 02/26/05											
Blank Analyzed: 02/26/2005 (5B26001-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/26/2005 (5B26001-BS1)											
Perchlorate	49.5	4.0	0.80	ug/l	50.0		99	85-115			
Matrix Spike Analyzed: 02/26/2005 (5B26001-MS1)											
Perchlorate	54.9	4.0	0.80	ug/l	50.0	Source: IOB1917-01 3.6	103	80-120			
Matrix Spike Dup Analyzed: 02/26/2005 (5B26001-MSD1)											
Perchlorate	54.2	4.0	0.80	ug/l	50.0	Source: IOB1917-01 3.6	101	80-120	1	20	

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Sampled: 02/18/05
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Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOB1559-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.38	5.0	15
IOB1559-01	Antimony-200.8	Antimony	ug/l	0.31	2.0	6.00
IOB1559-01	Boron-200.7	Boron	mg/l	0.042	0.050	1.00
IOB1559-01	Cadmium-200.8	Cadmium	ug/l	0.13	1.0	4.00
IOB1559-01	Chloride - 300.0	Chloride	mg/l	0.96	0.50	150
IOB1559-01	Copper-200.8	Copper	ug/l	12	2.0	14
IOB1559-01	Mercury - 245.1	Mercury	ug/l	0.079	0.20	0.20
IOB1559-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.37	0.11	10.00
IOB1559-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB1559-01	Sulfate-300.0	Sulfate	mg/l	0.60	0.50	250
IOB1559-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	110	10	850
IOB1559-01	Thallium-200.8	Thallium	ug/l	0.13	1.0	2.00

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DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

ADDITIONAL COMMENTS

For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

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Wendy Kirkeeng For Michele Harper
Project Manager

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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 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 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	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.

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOB1559-01

Analysis Performed: EDD + Level 4
 Samples: IOB1559-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr
 Samples: IOB1559-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4
 Samples: IOB1559-01

Analysis Performed: Gross Alpha
 Samples: IOB1559-01

Analysis Performed: Gross Beta
 Samples: IOB1559-01

Analysis Performed: Radium, Combined
 Samples: IOB1559-01

Analysis Performed: Strontium 90
 Samples: IOB1559-01

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Sampled: 02/18/05
Received: 02/18/05

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Tritium

Samples: IOB1559-01

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

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TOB1559

Page 1 of 1

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

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

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

Sampler: **Powell**

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, + PP	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl-, SO4, NO3+NO2-N, Perchlorate	TDS, TSS	VOCS (624), NPDES + PP	VOCS A+A+2C+E	Pesticides/PCBS - PP	Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90 Radium 226 & 228	SVOCs - PP	Acute Toxicity	Cyanide
Outfall 006	W	1L Poly	1	2-18-05 09:00	HNO3	1A	X											
Outfall 006-Dup	W	1L Poly	1		HNO3	1B	X											
Outfall 006	W	1L Amber	2		None	2A,2B		X										
Outfall 006	W	1L Amber	2		HCl	3A, 3B			X									
Outfall 006	W	Poly-500 ml	2		None	4A,4B				X								
Outfall 006	W	Poly-500 ml	2		None	5A, 5B					X							
Outfall 006	W	VOAs	3		HCl	6A, 6B, 6C												
Outfall 006	W	VOA	3	2-18-05	None	7A, 7B, 7C						X						
Outfall 006	W	1L Amber	2		None	8A, 8B							X					
Outfall 006	W	1 Gal Poly VOAs	1		None	9A									X			
Outfall 006	W	1 Gal Poly VOAs	2		None	9B, 9C												
Outfall 006	W	1L Amber	2		None	10A, 10B												
Outfall 006	W	1 Gal Poly	1		None	11A												
Outfall 006	W	500ml Poly	1		NaOH	12												
Trip Blanks	W	VOA	3		None	13A, 13B, 13C												
Trip Blank	W	VOAs	3		HCl	14A, 14B, 14C						X						

Field readings: Temp = 54.3, pH = 7.0

Comments: *(Handwritten signature)*

Analyze for Total Combined RA-226 & RA-228 only if Gross Alpha/Beta > 15pCi/L

Turn around Time: (check) 24 Hours, 48 Hours, 72 Hours, Perchlorate Only 72 Hours, Metals Only 72 Hours

Received By: *(Signature)* Date/Time: 2-18-05 1450

Received By: *(Signature)* Date/Time: 2-18-05 1830

Received By: *(Signature)* Date/Time: 2-18-05 1830



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

April 1, 2005

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

Attention: Bronwyn Kelly
Project: Annual Outfall 006
Sampled: 02/18/05
Del Mar Analytical Number: IOB1559

Dear Ms. Kelly:

Alta Analytical Laboratory performed EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans, Aquatic Testing Laboratories tested the Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0) and Eberline Services performed gross alpha/gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ALTA ID	AQUATIC ID	EBERLINE ID
Outfall 006	IOB1559-01	25784-001	A-0502906-001	R502212-8291

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



March 01, 2005

Alta Project I.D.: 25784

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on February 24, 2005 under your Project Name "IOB1559". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,


Martha M. Maier
HRMS Services Director



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

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

Section I: Sample Inventory Report

Date Received: 2/24/2005

Alta Lab. ID

Client Sample ID

25784-001

IOB1559-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6543	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	25-Feb-05	Date Analyzed DB-5:	28-Feb-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.866			IS 13C-2,3,7,8-TCDD	75.9	25 - 164	
1,2,3,7,8-PeCDD	ND	1.15			13C-1,2,3,7,8-PeCDD	73.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.88			13C-1,2,3,4,7,8-HxCDD	70.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.86			13C-1,2,3,6,7,8-HxCDD	73.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.84			13C-1,2,3,4,6,7,8-HpCDD	67.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.38			13C-OCDD	56.3	17 - 157	
OCDD	ND	8.88			13C-2,3,7,8-TCDF	78.7	24 - 169	
2,3,7,8-TCDF	ND	0.545			13C-1,2,3,7,8-PeCDF	68.1	24 - 185	
1,2,3,7,8-PeCDF	ND	1.62			13C-2,3,4,7,8-PeCDF	73.3	21 - 178	
2,3,4,7,8-PeCDF	ND	1.45			13C-1,2,3,4,7,8-HxCDF	60.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.24			13C-1,2,3,6,7,8-HxCDF	64.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.869			13C-2,3,4,6,7,8-HxCDF	63.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.958			13C-1,2,3,7,8,9-HxCDF	65.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.55			13C-1,2,3,4,6,7,8-HpCDF	54.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	2.22			13C-1,2,3,4,7,8,9-HpCDF	59.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.68			13C-OCDF	54.9	17 - 157	
OCDF	ND	4.49			CRS 37Cl-2,3,7,8-TCDD	77.4	35 - 197	
Totals					Footnotes			
Total TCDD	ND	0.866			a. Sample specific estimated detection limit.			
Total PeCDD	ND	1.15			b. Estimated maximum possible concentration.			
Total HxCDD	ND	1.86			c. Method detection limit.			
Total HpCDD	ND	3.38			d. Lower control limit - upper control limit.			
Total TCDF	ND	0.545						
Total PeCDF	ND	1.54						
Total HxCDF	ND	1.37						
Total HpCDF	ND	2.38						

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:44



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 28-Feb-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6543	Lab Sample:	0-OPR001	Date Analyzed DB-5:	28-Feb-05
Sample Size:	1.000 L	Date Extracted:	25-Feb-05	Date Analyzed DB-225:	NA		
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	8.67	6.7 - 15.8	<u>IS</u> 13C-2,3,7,8-TCDD	67.4	25 - 164	
1,2,3,7,8-PeCDD	50.0	43.8	35 - 71	13C-1,2,3,7,8-PeCDD	64.0	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	42.5	35 - 82	13C-1,2,3,4,7,8-HxCDD	58.2	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	43.5	38 - 67	13C-1,2,3,6,7,8-HxCDD	62.5	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	43.7	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	42.5	35 - 70	13C-OCDD	51.4	17 - 157	
OCDD	100	87.0	78 - 144	13C-2,3,7,8-TCDF	72.5	24 - 169	
2,3,7,8-TCDF	10.0	7.98	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.4	24 - 185	
1,2,3,7,8-PeCDF	50.0	41.4	40 - 67	13C-2,3,4,7,8-PeCDF	64.8	21 - 178	
2,3,4,7,8-PeCDF	50.0	42.3	34 - 80	13C-1,2,3,4,7,8-HxCDF	49.4	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	42.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	52.7	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	43.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	55.2	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	42.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	53.4	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	43.5	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	45.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	41.8	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	49.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	42.7	39 - 69	13C-OCDF	49.0	17 - 157	
OCDF	100	88.8	63 - 170	<u>CRS</u> 37Cl-2,3,7,8-TCDD	76.2	35 - 197	

Analyst: MS

Approved By: William J. Luksenburg 01-Mar-2005 16:44



Sample ID: IOB1559-01

EPA Method 1613

Client Data		Laboratory Data	
Name: Del Mar Analytical, Irvine	Lab Sample: 25784-001	Date Received: 24-Feb-05	
Project: IOB1559	QC Batch No.: 6543	Date Extracted: 25-Feb-05	
Date Collected: 18-Feb-05	Date Analyzed DB-5: 28-Feb-05	Date Analyzed DB-225: NA	
Time Collected: 0900			

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.673			13C-2,3,7,8-TCDD	81.6	25 - 164	
1,2,3,7,8-PeCDD	ND	1.86			13C-1,2,3,7,8-PeCDD	76.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.29			13C-1,2,3,4,7,8-HxCDD	71.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.35			13C-1,2,3,6,7,8-HxCDD	74.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.29			13C-1,2,3,4,6,7,8-HpCDD	73.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	12.0			J	13C-OCDD	63.9	17 - 157	
OCDD	163							
2,3,7,8-TCDF	ND	1.08			13C-2,3,7,8-TCDF	79.6	24 - 169	
1,2,3,7,8-PeCDF	ND	1.08			13C-1,2,3,7,8-PeCDF	71.8	24 - 185	
2,3,4,7,8-PeCDF	ND	1.04			13C-2,3,4,7,8-PeCDF	73.8	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.760			13C-1,2,3,4,7,8-HxCDF	67.0	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.741			13C-1,2,3,6,7,8-HxCDF	66.4	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.847			13C-2,3,4,6,7,8-HxCDF	65.4	28 - 136	
1,2,3,7,8,9-HxCDF	ND	1.29			13C-1,2,3,7,8,9-HxCDF	69.3	29 - 147	
1,2,3,4,6,7,8-HpCDF	2.70			J	13C-1,2,3,4,6,7,8-HpCDF	61.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	1.03			13C-1,2,3,4,7,8,9-HpCDF	70.4	26 - 138	
OCDF	8.59			J	13C-OCDF	64.4	17 - 157	
Totals					CRS 37Cl-2,3,7,8-TCDD	93.9	35 - 197	

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

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:44

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS



NELAP — (Primary AA: California, Certificate No. 02102CA)
Department of the Navy
U.S. Army Corps of Engineers
U.S. EPA Region 5
Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)
Commonwealth of Kentucky — (Certificate No. 90063)
Commonwealth of Virginia — (Certificate No. 00013)
State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)
State of Arizona — (Certificate No. AZ0639)
State of Arkansas, Department of Health — (Approval granted through CA certification)
State of Arkansas, Department of Environmental Quality
State of California — (Certificate No. 1640)
State of Colorado
State of Connecticut — (Certificate No. PH-0182)
State of Florida — (Certificate No. 87456)
State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)
State of Louisiana, Department of Environmental Quality
State of Maine
State of Michigan (Certificate No. 81178087)
State of Mississippi — (Approval granted through CA certification)
State of Nevada — (Certificate No. CA413)
State of New Jersey — (Certificate No. CA003)
State of New York, Department of Health — (Certificate No. 11411)
State of North Carolina — (Certification No. 06700)
State of North Dakota, Department of Health — (Certificate No. R-078)
State of New Mexico
State of Oklahoma — (D9919)
State of Oregon — (Certificate No. CA413)
State of Pennsylvania — (Certificate No. 68-490)
State of South Carolina — (Certificate No. 87002001)
State of Tennessee — (Certificate No. 02996)
State of Texas — (Certificate No. TX247-1000A)
State of Utah — (Certificate No. E-201)
State of Washington — (Certification No. C091)
State of Wisconsin — (Certificate No. 998036160)
State of Wyoming — (USEPA Region 8 Ref: 8TMS-Q)



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-6696 Fax (619) 505-9689
 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) 786-3620 Fax (702) 786-3621

SUBCONTRACT ORDER - PROJECT # IOB1559

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical, Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Harper	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <div style="font-size: 2em; margin-top: 10px;">25784 0.8°C</div>

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

Analysis	Expiration	Comments
Sample ID: IOB1559-01 Water	Sampled: 02/18/05 09:00	Instant Notification
1613-Dioxin-HR	02/25/05 09:00	I flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4-OUT	03/18/05 09:00	
Containers Supplied:		
1 L Amber (IOB1559-01C)		
1 L Amber (IOB1559-01D)		

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

Released By: [Signature] Date: 2-23-05 Time: 1700 Received By: [Signature] Date: 2/24/05 Time: 0905
 Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

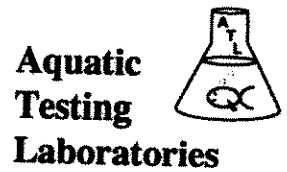
ALTA Project No.: 25784

1. Date Samples Arrived: <u>2/24/05</u> <u>0905</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1300</u> <u>2/24/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice / Blue Ice</u> / Dry Ice / None Temp °C <u>0.8</u>			
5. Shipping Container(s) intact? If not, describe condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7904 3642 7349</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. _____ Intact? If not intact, describe condition in comment section.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. Sample Container Intact? If no, indicate sample condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Chain of Custody (COC) or other Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments: sample's initials found on sample label

ALTA Analytical Laboratory
El Dorado Hills, CA 95762

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: February 23, 2005
Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05021906-001
Sample ID.: IOB1559-01

Sample Control: The samples were received by ATL in a chilled state, with the chain of custody record attached.

Date Sampled: 02/18/05
Date Received: 02/19/05
Date Tested: 02/19/05 to 02/23/05

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>
IOB1559-01	100% Survival (TU _a = 0.0)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05021906-001
 Client/ID: Del Mar IOB1559-01

Start Date: 02/19/2005

TEST SUMMARY

Species: *Pimephales promelas*.
 Age: 12 (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	20.0	8.8	7.9	0	0	RW 1330
	100%	20.0	9.7	6.9	0	0	
24 Hr	Control	19.3	7.0	7.4	0	0	RW 1330
	100%	19.4	6.7	7.3	0	0	
48 Hr	Control	19.6	6.8	7.7	0	0	RW 1300
	100%	19.2	5.5	7.1	0	0	
Renewal	Control	19.4	7.7	8.0	0	0	RW 1300
	100%	19.7	8.2	7.3	0	0	
72 Hr	Control	19.1	6.8	7.6	0	0	RW 1200
	100%	19.0	7.5	7.3	0	0	
96 Hr	Control	19.2	7.5	7.5	0	0	RW 1200
	100%	19.1	7.9	7.1	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.9; Conductivity: 93 umho; Temp: 4°C;
 DO: 9.7 mg/l; Alkalinity: 41 mg/l; Hardness: 50 mg/l; NH₃-N: 0.4 mg/l.
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No
 Control: Alkalinity: 54 mg/l; Hardness: 92 mg/l; Conductivity: 280 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 %



Del Mar Analytical

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

1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046

9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689

9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851

2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOB1559

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Aquatic Testing Laboratories-SUB
4350 Transport Street, Unit 107
Ventura, CA 93003
Phone : (805) 650-0546
Fax: (805) 650-0756

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

Analysis	Expiration	Comments
Sample ID: IOB1559-01 Water Bioassay-Acute 96hr	Sampled: 02/18/05 09:00 02/19/05 21:00	Instant Notification FH minnow, EPA/821-R02-012, Sub to AqTox Labs
Containers Supplied: 1 gal Poly (IOB1559-01X)		

SAMPLE INTEGRITY:

All containers intact: Yes No
Custody Seals Present: Yes No

Sample labels/COC agree: Yes No
Samples Preserved Properly: Yes No

Samples Received On Ice: Yes No
Samples Received at (temp): 4°C

Released By: [Signature] Date: 2/19/05 Time: 0830 Received By: [Signature] Date: 2/19/05 Time: 0830

Released By: [Signature] Date: 2/19/05 Time: 1100 Received By: [Signature] Date: 2-19-05 Time: 1100



EBERLINE SERVICES

March 15, 2005

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

Reference: Del Mar Analytical Project No. IOB1559
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502212-8291

Dear Ms. Harper:

Enclosed are results from the analyses of one water sample received at Eberline Services on February 23, 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

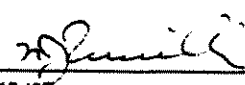
Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

Eberline Services

ANALYSIS RESULTS

SDG <u>8291</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502212-01</u>	Contract <u>PROJECT# 10B1559</u>
Received Date <u>02/23/05</u>	Matrix <u>WATER</u>

<u>Client</u>	<u>Lab</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results ± 2σ</u>	<u>Units</u>	<u>MDA</u>
10B1559-01	8291-001		02/18/05	03/08/05	GrossAlpha	3.92 ± 1.5	pCi/L	1.34
				03/08/05	Gross Beta	9.00 ± 1.6	pCi/L	1.82
				03/12/05	H3	14.2 ± 150	pCi/L	259
				03/12/05	Sr90	-0.081 ± 0.29	pCi/L	0.335

Certified by 
Report Date 03/15/05
Page 1

Eberline Services

QC RESULTS

SDG <u>8291</u> Work Order <u>R502212-01</u> Received Date <u>02/23/05</u>	Client <u>DEL MAR ANAL</u> Contract <u>PROJECT# IOB1559</u> Matrix <u>WATER</u>
--	---

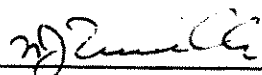
Lab	Sample ID	Nuclide	Results	Units	Amount Added	MDA	Evaluation
<u>LCS</u>							
	8294-003	GrossAlpha	10.9 ± 1.2	pCi/Smpl	10.2	0.313	107% recovery
		Gross Beta	9.49 ± 0.74	pCi/Smpl	10.1	0.546	94% recovery
		H3	214 ± 23	pCi/Smpl	235	25.4	91% recovery
		Sr90	9.75 ± 0.32	pCi/Smpl	10.1	0.145	97% recovery
<u>BLANK</u>							
	8294-004	GrossAlpha	-0.034 ± 0.23	pCi/Smpl	NA	0.415	<MDA
		Gross Beta	-0.236 ± 0.29	pCi/Smpl	NA	0.551	<MDA
		H3	9.66 ± 15	pCi/Smpl	NA	25.1	<MDA
		Sr90	-0.064 ± 0.098	pCi/Smpl	NA	0.140	<MDA

<u>DUPLICATES</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8294-005	GrossAlpha	0.399 ± 0.53	0.874
	Gross Beta	2.91 ± 1.2	1.78
	H3	76.8 ± 150	254
	Sr90	0.884 ± 0.24	0.281

<u>ORIGINALS</u>						
Sample ID	Results ± 2σ	MDA	3σ			
			RPD	(Tot)	Eval	
8294-001	0.904 ± 0.74	1.00	-		0	satis.
	3.32 ± 1.2	1.79	13		88	satis.
	-41.9 ± 150	254	-		0	satis.
	0.901 ± 0.24	0.280	2		61	satis.

<u>SPIKED SAMPLE</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8294-006	GrossAlpha	86.0 ± 5.3	0.881
	Gross Beta	72.1 ± 3.5	1.79
	H3	22300 ± 580	252

<u>ORIGINAL SAMPLE</u>					
Sample ID	Results ± 2σ	MDA	Added	%Recv	
8294-002	1.42 ± 0.93	1.19	71.5	118	
	3.75 ± 1.2	1.78	67.2	102	
	-77.0 ± 140	255	23600	95	

Certified by <u></u> Report Date <u>03/15/05</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) 505-9586 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 # IOB1559

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: 5 weeks Initials: _____

Analysis	Expiration	Sampled:	Comments
Sample ID: IOB1559-01 Water		02/18/05 09:00	Instant Notification
EDD + Level 4	03/18/05 09:00		
Gross Alpha-O	02/18/06 09:00		900.0, IF RESULT > 15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/18/06 09:00		900.0, IF RESULT > 50 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/18/06 09:00		HOLD for Gross A&B results; EPA 903.1 & 904.0
Strontium 90-O	02/18/06 09:00		EPA 905.0
Tritium-O	02/18/06 09:00		EPA 906.0

Containers Supplied:
 1 gal Poly (IOB1559-01S) w/H₂O₂
 40 ml Voa Vial (IOB1559-01T)
 40 ml Voa Vial (IOB1559-01U)

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: 2-22-05 Time: 1700 Received By: [Signature] Date: 2/23/05 Time: 11:00

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

RICHMOND, CA LABORATORY



SAMPLE RECEIPT CHECKLIST

Client: EL MAR ANALYT City IRVINE State CA

Date/Time received 2/23/05 10:00 CoC No. JOB 1559

Container I.D. No. BASIC LAB Requested TAT (Days) 4 week 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 JK Date: 2/23/05 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 _____

APPENDIX G

Section 21

February Outfall 007

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF30
 Task Order 313150010
 SDG No. Multi
 No. of Analyses 13

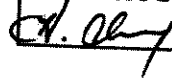
Laboratory Alta Analytical Perspective

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: March 18, 2005

Reviewer's Signature



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

Detects below the calibration range were qualified "J."

False negative and false positives noted.

Several transcription errors were noted.

COMMENTS^b

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

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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: IOB0993-01 Outfall 007

Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Pace Inc.	Matrix:	Aqueous	Project No.:	P5072
Project ID:	General Analytical HRMS	Weight/Volume:	1.03 L	Sample ID:	P5072_2989_002
Date Collected:	11 Feb 05	pH	6	QC Batch No.:	2989
Analyte	Conc.	DL	EMPC	Recoveries	
				ES	CS
	pg/L	pg/L	pg/L		
2,3,7,8-TCDD	ND	2.06		76.2	84.9
1,2,3,7,8-PeCDD	ND	1.79		72.7	89.3
1,2,3,4,7,8-HxCDD	ND	2.55		74.4	84.1
1,2,3,6,7,8-HxCDD	ND	2.57		79.8	84.1
1,2,3,7,8,9-HxCDD	ND	3.13		77.6	84.1
1,2,3,4,6,7,8-HpCDD	31.5	3.87		65.6	68
OCDD	267	9.8		53.6	68
2,3,7,8-TCDF	ND	1.64		77	84.9
1,2,3,7,8-PeCDF	ND	2.75		83.3	87.1
2,3,4,7,8-PeCDF	ND	2.8		74.2	87.1
1,2,3,4,7,8-HxCDF	ND	0.9		69.6	84.1
1,2,3,6,7,8-HxCDF	ND	0.827		78.1	84.1
2,3,4,6,7,8-HxCDF	ND	1.04		69	84.1
1,2,3,7,8,9-HxCDF	ND	1.58		65.6	84.1
1,2,3,4,6,7,8-HpCDF	ND	1.89		54	68
1,2,3,4,7,8,9-HpCDF	ND	2.95		54.7	68
OCDF	ND	11		51.7	68
Totals & TEQs					
TCDDs	ND	2.06			
PeCDDs	ND	1.79			
HxCDDs	4.44 3.59	2.76			
HpCDDs	65.1	3.87			
TCDFs	ND	1.64			
PeCDFs	0.050 ND	2.77			
HxCDFs	ND	1.05			
HpCDFs	ND	2.38			
Total PCDD/Fs	338 336				



2714 Exchange Drive
Wilmington
North Carolina 28405
USA

Tel: 910 794-1613
Fax: 910 794-3919
e-mail: y@ultraTRACE.com
web: www.ultraTRACE.com

Checkcode: 4681

AMEC VALIDATED

LEVEL IV

AAP 2005 Rev. B

Reviewer
Date



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB0993 & IOB0996

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#: IOB0993/IOB0996
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 23, 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.: IOB0993/IOB0996
Analysis: METALS

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 007	Outfall 007	IOB0993-01	Water	ILM04
Outfall 009	Outfall 009	IOB0996-01	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

Sample Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and sample Outfall 009 was received above the temperature limits at 8°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP and ICP/MS and 80-120% for mercury. The ICP reporting limit check standard for silver was recovered below the control limits at 48%; therefore, nondetected silver in samples Outfall 007 and Outfall 009 was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further qualifications were required.

2.4 BLANKS

There were detects and negative results reported for the method blanks and bracketing CCBs associated with the samples in these SDGs; however, the blank results were insufficient to qualify either sample. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

Results were not provided for the ICP/MS spiked interferences phosphorus, sulfur, carbon, chloride, and titanium. The reviewer noted that positive results for cadmium and copper above the reporting limit were reported in the ICSA analyses. The results for potassium and sodium were above the calibration range of the instrument in both the ICSA and ICSAB analyses. The results for aluminum exceeded the calibration range of the instrument in the ICSA analysis and were low with a recovery of 78.3% in the ICSAB analysis; however, as aluminum was not reported from the ICP/MS, no qualifications were required. Antimony and lead were not spiked into the ICSAB solution; therefore, the ICSAB recoveries could not be assessed. The validator reviewed the raw data for the site sample ICS/MS analyses for the level of reported interferences, Al, Ca, Fe, and Mg, and determined that the concentration of interferences was not high enough to cause matrix effects. No assessment could be made with respect to possible interference from phosphorus, sulfur, carbon, chloride, and titanium. No qualifications were required.

The ICSA/AB analyses were not run on the same day as the site samples except for selenium in sample Outfall 007. The recoveries for the interferences and spiked analytes were within the control limits of 80-120% for the ICP analyses. Detects for zinc and negative results for chromium that were greater than the applicable reporting limits were reported in the ICSA analyses; however, the validator reviewed the raw data for the site sample ICP analysis for the level of reported interferences, Al, Ca, Fe, and Mg, and determined that the concentration of interferences 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 sample was identified as 5B17097-BS1 and the ICP/MS LCS sample was identified as 5B17099-BS1. The mercury LCS sample was identified as 5B15070-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD 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 evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP and ICP/MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits except for scandium; however, scandium was not associated with the site samples 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." A negative value greater than the reporting limit for selenium was reported at -0.0088 mg/L for sample Outfall 007, indicating the ICP/MS could not effectively detect selenium at the level reported; therefore, the reviewer raised the reporting limit and the MDL for selenium to the level of interference for Outfall 007. 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOB0993/IOB0996
Analysis: METALS

2.13.2 Field Duplicates

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



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4167 FAX (949) 370-1040
 5484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9685
 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 007

Report Number: IOB0993

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: IOB0993-01 (DRAFT: Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Arsenic	EPA 200.7	5B17097	0.0038	0.0050	ND	1	02/17/05	02/17/05	U
Beryllium	EPA 200.7	5B17097	0.00062	0.0020	ND	1	02/17/05	02/17/05	↓
Chromium	EPA 200.7	5B17097	0.00068	0.0050	0.0073	1	02/17/05	02/17/05	
Nickel	EPA 200.7	5B17097	0.0020	0.010	0.0055	1	02/17/05	02/17/05	J
Selenium	EPA 200.7	5B17097	0.0045	0.0050	ND	1	02/17/05	02/22/05	U
Silver	EPA 200.7	5B17097	0.0013	0.010	ND	1	02/17/05	02/17/05	UJ
Zinc	EPA 200.7	5B17097	0.0037	0.020	0.038	1	02/17/05	02/17/05	

REV QUAL
 QUAL CODE

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J 3/23/05

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LEVEL IV

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (818) 505-9089
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (410) 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 007

Report Number: IOB0993

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: IOB0993-01 (DRAFT: Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B17097	47	50	5300	1	02/17/05	02/17/05	REV QUAL QUAL (C/D)
Lead	EPA 200.8	5B17099	0.13	1.0	4.4	1	02/17/05	02/17/05	
Vanadium	EPA 200.7	5B17097	1.4	10	14	1	02/17/05	02/17/05	

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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 T711PP16
 Task Order 313150010
 SDG No. IOB0993, IOB996

No. of Analyses 2

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method Pesticides

Date March 23, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis	Qualifications were assigned for %D continuing calibration 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	

COMMENTS^b

Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB0993, IOB0996

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#: IOB0993, IOB0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 23, 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 007	Outfall 007	IOB0993-01	water	608
Outfall 009	Outfall 009	IOB0996-01	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 cooler for sample Outfall 009 was received above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 8°C ; however, the sample was transported directly to the laboratory and had not completely cooled in transit. The cooler for sample Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 02/15/05 associated with the pesticide analyses of the samples, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analyses of samples Outfall 007 and Outfall 009, consisting of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No further qualifications were required.

2.3.3 Continuing Calibration

The pesticide analyses for samples Outfall 007 and Outfall 009 were bracketed by four continuing calibrations, two preceding and two following the analyses. The %Ds for target compound 4,4'-DDD (02/16/05 at 08:59) and for delta-BHC, aldrin, and 4,4'-DDT (02/16/05 at 09:28) exceeded 15% on Channel B. The %Ds for numerous target compounds exceeded 15% on Channel A in the bracketing calibration standard analyzed 02/16/05 (08:59 and 09:28); however, as all results for these samples were reported from channel B, only the nondetect results for the aforementioned %D outliers were qualified as estimated, "UJ," in samples Outfall 007 and Outfall 009. The remaining %Ds were within the Method QC limit of $\pm 15\%$ for the remaining calibrations. The PCB analyses of these samples were bracketed by two CCVs and the %Ds for Aroclor 1016 and Aroclor 1260 were $\leq 15\%$. 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 (5B15038-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 (5B15038-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 the samples were within the laboratory-established. 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 benchesheets, 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: IOB0993, IOB0996
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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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4567 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) 785-0343 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 007

Report Number: IOB0993

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
Sample ID: IOB0993-01 (DRAFT: Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B15038	0.030	0.10	ND	0.971	02/15/05	02/16/05	UJ C
alpha-BHC	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	U
beta-BHC	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	U
delta-BHC	EPA 608	5B15038	0.020	0.20	ND	0.971	02/15/05	02/16/05	UJ C
gamma-BHC (Lindane)	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	U
Chlordane	EPA 608	5B15038	0.20	1.0	ND	0.971	02/15/05	02/16/05	U
4,4'-DDD	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	UJ C
4,4'-DDE	EPA 608	5B15038	0.020	0.10	ND	0.971	02/15/05	02/16/05	U
4,4'-DDT	EPA 608	5B15038	0.030	0.10	ND	0.971	02/15/05	02/16/05	UJ C
Dieldrin	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	U
Endosulfan I	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
Endosulfan II	EPA 608	5B15038	0.040	0.10	ND	0.971	02/15/05	02/16/05	
Endosulfan sulfate	EPA 608	5B15038	0.015	0.20	ND	0.971	02/15/05	02/16/05	
Endrin	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
Endrin aldehyde	EPA 608	5B15038	0.045	0.10	ND	0.971	02/15/05	02/16/05	
Endrin ketone	EPA 608	5B15038	0.020	0.10	ND	0.971	02/15/05	02/16/05	
Heptachlor	EPA 608	5B15038	0.030	0.10	ND	0.971	02/15/05	02/16/05	
Heptachlor epoxide	EPA 608	5B15038	0.020	0.10	ND	0.971	02/15/05	02/16/05	
Methoxychlor	EPA 608	5B15038	0.035	0.10	ND	0.971	02/15/05	02/16/05	
Toxaphene	EPA 608	5B15038	1.5	5.0	ND	0.971	02/15/05	02/16/05	
Surrogate: Tetrachloro-m-xylene (35-120%)									68 %
Surrogate: Decachlorobiphenyl (45-120%)									82 %

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LEVEL IV

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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 007

Report Number: IOB0993

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
Sample ID: IOB0993-01 (DRAFT: Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B15038	0.20	1.0	ND	0.971	02/15/05	02/15/05	U
Aroclor 1221	EPA 608	5B15038	0.10	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1232	EPA 608	5B15038	0.15	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1242	EPA 608	5B15038	0.15	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1248	EPA 608	5B15038	0.25	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1254	EPA 608	5B15038	0.25	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1260	EPA 608	5B15038	0.40	1.0	ND	0.971	02/15/05	02/15/05	
Surrogate: Decachlorobiphenyl (45-120%)					93 %				

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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. These 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>8261</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502132-01</u>	Contract <u>PROJECT# IOB0993</u>
Received Date <u>02/15/05</u>	Matrix <u>WATER</u>

Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results - 2σ	Units	MDA	Qual	Code
Client										
<u>Sample ID</u>										
Outfall 007										
IOB0993-01	8261-001	02/11/05	03/01/05	GrossAlpha	1.64 ± 1.0	pCi/L	0.936	J	R	
			03/01/05	Gross Beta	5.18 ± 1.3	pCi/L	1.80			
			03/02/05	H3	71.9 ± 150	pCi/L	246	R	*1	
			02/25/05	Sr90	-0.077 ± 0.25	pCi/L	0.499	U		

AMM 3/24/05

AMEC VALIDATED

LEVEL IV

Certified by <u>[Signature]</u>
Report Date <u>03/08/05</u>
Page 1

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV31
 Task Order 313150010
 SDG No. IOB0993, IOB0996

No. of Analyses 2

Laboratory Del Mar Analytical.

Date: March 23, 2005
 Reviewer's Signature *L. Calvin*

Reviewer L. Calvin

Analysis/Method Semivolatiles by Method 625

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____ _____
3. Analyses Not Conducted	_____ _____
4. Missing Hardcopy Deliverables	_____ _____
5. Incorrect Hardcopy Deliverables	_____ _____
6. Deviations from Analysis	Qualification was assigned for the following:
Protocol, e.g.,	--initial calibration %RSD >15% and r ² values <0.995
Holding Times	--continuing calibration %Ds >15%
GC/MS Tune/Inst. Performance	_____
Calibration	_____
Method blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification	_____
Quantitation	_____
System Performance	_____
COMMENTS^b	

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB0993, IOB0996

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#: IOB0993, IOB0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: March 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 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 007	Outfall 007	IOB0993-01	water	625
Outfall 009	Outfall 009	IOB0996-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Sample Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Sample Outfall 009 was received above the temperature limits at 8°C ; however, as the sample was couriered directly to the laboratory, it had not completely cooled in transit. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

Both the original extraction and reextraction of the water samples were performed within seven days of collection. The samples analyzed within 40 days of extraction. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tune met the ion abundance criteria specified in Method 625. No qualifications were required.

2.3 CALIBRATION

The initial calibrations associated with these SDGs were dated 02/15/05 and 02/17/05 (benzidine only). The average RRFs for were ≥ 0.05 for all applicable target compounds. The %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ with the exception of the %RSD for pentachlorophenol, and the r^2 for benzoic acid, hexachlorocyclopentadiene, and 2,4-dinitrophenol. The nondetect results for the aforementioned compounds were qualified as estimated, "UJ," in both site samples. The continuing calibrations associated with the sample analyses were analyzed 02/15/05 and 02/17/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$. 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 further qualifications were required.

2.4 BLANKS

Two method blanks (5B13024-BLK1 and 5B17041-BLK1/benzidine only) were extracted and analyzed with these SDGs. There were no detects above the MDLs for any target compounds. 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 (5A13024-BS1/BSD1) was originally 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 5A13024-BS1 benzidine was recovered below the QC limits but $\geq 10\%$, and in 5A12027-BSD1, benzidine was recovered above the QC limits. The RPD for benzidine exceeded the laboratory QC limit. The laboratory reextracted both samples for benzidine only with 5B17041-BS1/BSD1 with recoveries and the RPD for benzidine within the laboratory-established QC limits. The remaining recoveries and RPDs for 5A13024-BS1/BSD1 were within the 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 for both samples 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 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

±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 µg/L (ppb). No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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) 370-4367 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) 785-0343 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 007

Report Number: IOB0993

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
Sample ID: IOB0993-01RE1 (DRAFT: Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.962	02/17/05	02/22/05	u
Surrogate: 2-Fluorophenol (35-120%)					59 %				
Surrogate: Phenol-d6 (45-120%)					64 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					80 %				
Surrogate: Nitrobenzene-d5 (45-120%)					73 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					76 %				
Surrogate: Terphenyl-d14 (45-135%)					75 %				

vel qual
qual code

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

L I V

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 T711VO60
 Task Order 313150010
 SDG No. IOB0993, IOB0996

No. of Analyses 4

Laboratory Del Mar Analytical

Date March 23, 2005

Reviewer K. Shadowlight

Reviewer's Signature

Analysis/Method Volatiles

K. Shadowlight

ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	_____
2. Out of Scope	
Analyses	_____ _____
3. Analyses Not Conducted	_____ _____
4. Missing Hardcopy	
Deliverables	_____ _____
5. Incorrect Hardcopy	
Deliverables	_____
6. Deviations from Analysis	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^b	

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOB0993, IOB0996

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#: IOB0993, IOB0996
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 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 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 007	Outfall 007	IOB0993-01	water	624
Trip Blank	Trip Blank	IOB0993-02	water	624
Outfall 009	Outfall 009	IOB0996-01	water	624
Trip Blank	Trip Blank	IOB0996-02	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 cooler for samples Outfall 009 and Trip Blank (IOB0996) was received above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 8°C ; however, the samples were transported directly to the laboratory and had not completely cooled in transit. The remaining samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the 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

Two initial calibrations dated 10/14/04 (acrolein and acrylonitrile only) and 02/07/05, were associated with these SDGs. The average RRF for acrolein was <0.05 ; therefore, the nondetect results for acrolein were rejected, "R," in all samples. The remaining average RRFs were ≥ 0.05 and all %RSDs were $\leq 35\%$ for the target compounds listed on the sample result summaries. Two continuing calibrations analyzed 02/12/05 and 02/17/05 were 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," in all samples. The %Ds for acrolein and acrylonitrile exceeded 20%; therefore, nondetect results for acrolein and acrylonitrile were qualified as estimated, "UJ," in samples Outfall 007 and Outfall 009, unless otherwise rejected. The trip blanks were not qualified for %D calibration outliers. For all remaining target compounds the %Ds were $\leq 20\%$ and the RRFs were ≥ 0.05 . A representative number of %RSDs and average RRFs from

the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Two water method blanks (5B17020-BLK1 and 5B12011-BLK1) were associated with these SDGs. 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 these SDGs. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on 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 (IOB0993) and Trip Blank (IOB0996) were the trip blanks associated with the site samples in these SDGs. There were no target compounds detected above the MDLs in either of 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 ± 0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration 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 ug/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.



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
 484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9629
 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 007
 Report Number: IOB0993

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
Sample ID: IOB0993-01 (DRAFT: Outfall 007 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/18/05	u
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/18/05	
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/18/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/18/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/18/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Trichloroethene	EPA 624	5B17020	0.26	2.0	ND	1	02/17/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Vinyl chloride	EPA 624	5B17020	0.26	0.50	ND	1	02/17/05	02/18/05	
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/18/05	
Surrogate: Dibromofluoromethane (80-120%)					112 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					102 %				

Per Qual Qual Code

ANALYSIS VALIDATED

LEVEL IV

DRAFT REPORT
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 DATA SUBJECT TO CHANGE

KG
 03/21/05

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

Project ID: Annual Outfall 007

Report Number: IOB0993

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
Sample ID: IOB0993-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/17/05	u
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	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	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	
Chloroform	EPA 624	5B17020	0.33	2.0	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	
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	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	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	
Ethylbenzene	EPA 624	5B17020	0.25	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	
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	2.0	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	0.50	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	

for Qual
Qual call

Surrogate: Dibromofluoromethane (80-120%) 106 %
 Surrogate: Toluene-d8 (80-120%) 110 %
 Surrogate: 4-Bromofluorobenzene (80-120%) 103 %

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

Project ID: Annual Outfall 007

Report Number: IOB0993

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
Sample ID: IOB0993-01 (DRAFT: Outfall 007 - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	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%)					92 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB0993-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	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%)					87 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

ANALYZED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOB0993 & IOB0996

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 #: IOB0993/IOB0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: March 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 335.2 and 160.2. Standard Methods for the Examination of Water and Wastewater Method SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 007	Outfall 007	IOB0993-01	Water	General Minerals
Outfall 009	Outfall 009	IOB0996-01	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

Sample Annual Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and sample Annual Outfall 009 was received above the temperature limits at 8°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

The 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 dates of collection with the dates of analyses. The 14-day analytical holding time for cyanide and the 7-day holding time for total suspended solids were met. No qualifications were required.

2.2 CALIBRATION

For cyanide, the initial calibration correlation coefficient was ≥ 0.995 . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for cyanide. Initial and continuing calibrations are not applicable to the total suspended solid analysis. No qualifications were required.

The total cyanide reporting limit check standard was recovered above AMEC control limits of 70-130% at 137.9%; however, as cyanide was not detected in either 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 samples 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 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOB0993/IOB0996
Analysis: General Minerals

2.11.2 Field Duplicates

There were no field duplicate pairs associated with these SDGs.



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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8396 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: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05
 Received: 02/11/05

DRAFT: INORGANICS

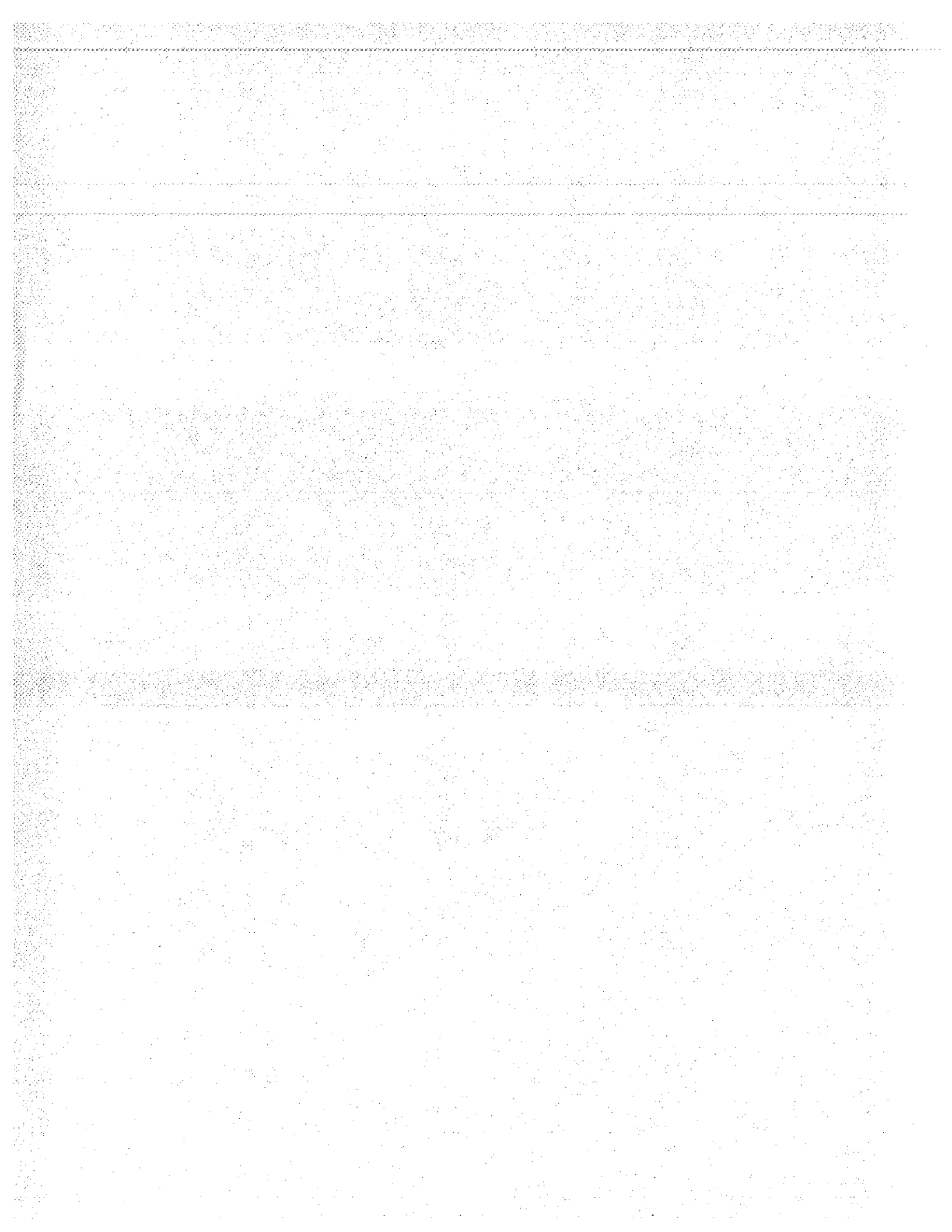
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0993-01 (DRAFT: Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	U
Total Suspended Solids	EPA 160.2	5B17069	10	10	70	1	02/17/05	02/17/05	

REV. QUAL. CODE

AMEC VALIDATED

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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 007

Sampled: 02/11/05
 Received: 02/11/05
 Issued: 03/28/05 10:00

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOB0993-01	Outfall 007	Water
IOB0993-02	Trip Blanks	Water

Reviewed By:

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



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

Project ID: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05

Received: 02/11/05

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 02/16/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B13024

Identification and Definition of Problem:

The percent recovery for benzidine in the BS 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 BSD was within the acceptance limits. All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval:

Dave Dawes

Date: 02/18/2005 04:36 PM

Del Mar Analytical, Irvine
Wendy Kirkeeng For 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: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05

Received: 02/11/05

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: IOB0993-01 (Outfall 007 - Water)									
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%)					92 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB0993-02 (Trip Blanks - Water)									
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 %				

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

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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
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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05
 Received: 02/11/05

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: IOB0993-01 (Outfall 007 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/18/05	
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/18/05	
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/18/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/18/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/18/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Trichloroethene	EPA 624	5B17020	0.26	2.0	ND	1	02/17/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Vinyl chloride	EPA 624	5B17020	0.26	0.50	ND	1	02/17/05	02/18/05	
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/18/05	
Surrogate: Dibromofluoromethane (80-120%)					112 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					102 %				

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

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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 007

Report Number: IOB0993

Sampled: 02/11/05

Received: 02/11/05

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: IOB0993-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/17/05	
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	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	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	
Chloroform	EPA 624	5B17020	0.33	2.0	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	
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	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	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	
Ethylbenzene	EPA 624	5B17020	0.25	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	
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	2.0	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	0.50	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	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					106 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					110 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					103 %				

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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: Annual Outfall 007

Report Number: IOB0993

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: IOB0993-01 (Outfall 007 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B13024	4.3	10	ND	0.971	02/13/05	02/16/05	
Acenaphthylene	EPA 625	5B13024	3.2	10	ND	0.971	02/13/05	02/16/05	
Aniline	EPA 625	5B13024	2.9	10	ND	0.971	02/13/05	02/16/05	
Anthracene	EPA 625	5B13024	3.2	10	ND	0.971	02/13/05	02/16/05	
Benzoic acid	EPA 625	5B13024	2.6	20	ND	0.971	02/13/05	02/16/05	
Benzo(a)anthracene	EPA 625	5B13024	3.7	10	ND	0.971	02/13/05	02/16/05	
Benzo(b)fluoranthene	EPA 625	5B13024	2.7	10	ND	0.971	02/13/05	02/16/05	
Benzo(k)fluoranthene	EPA 625	5B13024	3.4	10	ND	0.971	02/13/05	02/16/05	
Benzo(g,h,i)perylene	EPA 625	5B13024	5.3	10	ND	0.971	02/13/05	02/16/05	
Benzo(a)pyrene	EPA 625	5B13024	3.5	10	ND	0.971	02/13/05	02/16/05	
Benzyl alcohol	EPA 625	5B13024	2.5	20	ND	0.971	02/13/05	02/16/05	
Bis(2-chloroethoxy)methane	EPA 625	5B13024	3.9	10	ND	0.971	02/13/05	02/16/05	
Bis(2-chloroethyl)ether	EPA 625	5B13024	4.4	10	ND	0.971	02/13/05	02/16/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B13024	4.6	10	ND	0.971	02/13/05	02/16/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B13024	5.2	50	ND	0.971	02/13/05	02/16/05	
4-Bromophenyl phenyl ether	EPA 625	5B13024	4.6	10	ND	0.971	02/13/05	02/16/05	
Butyl benzyl phthalate	EPA 625	5B13024	3.5	20	ND	0.971	02/13/05	02/16/05	
4-Chloroaniline	EPA 625	5B13024	6.0	10	ND	0.971	02/13/05	02/16/05	
2-Chloronaphthalene	EPA 625	5B13024	4.0	10	ND	0.971	02/13/05	02/16/05	
4-Chloro-3-methylphenol	EPA 625	5B13024	3.5	20	ND	0.971	02/13/05	02/16/05	
2-Chlorophenol	EPA 625	5B13024	4.2	10	ND	0.971	02/13/05	02/16/05	
4-Chlorophenyl phenyl ether	EPA 625	5B13024	3.0	10	ND	0.971	02/13/05	02/16/05	
Chrysene	EPA 625	5B13024	2.8	10	ND	0.971	02/13/05	02/16/05	
Dibenz(a,h)anthracene	EPA 625	5B13024	4.7	20	ND	0.971	02/13/05	02/16/05	
Dibenzofuran	EPA 625	5B13024	2.6	10	ND	0.971	02/13/05	02/16/05	
Di-n-butyl phthalate	EPA 625	5B13024	2.8	20	ND	0.971	02/13/05	02/16/05	
1,3-Dichlorobenzene	EPA 625	5B13024	4.1	10	ND	0.971	02/13/05	02/16/05	
1,4-Dichlorobenzene	EPA 625	5B13024	3.9	10	ND	0.971	02/13/05	02/16/05	
1,2-Dichlorobenzene	EPA 625	5B13024	4.5	10	ND	0.971	02/13/05	02/16/05	
3,3-Dichlorobenzidine	EPA 625	5B13024	11	20	ND	0.971	02/13/05	02/16/05	
2,4-Dichlorophenol	EPA 625	5B13024	4.1	10	ND	0.971	02/13/05	02/16/05	
Diethyl phthalate	EPA 625	5B13024	3.1	10	ND	0.971	02/13/05	02/16/05	
2,4-Dimethylphenol	EPA 625	5B13024	4.4	20	ND	0.971	02/13/05	02/16/05	
Dimethyl phthalate	EPA 625	5B13024	3.6	10	ND	0.971	02/13/05	02/16/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B13024	5.1	20	ND	0.971	02/13/05	02/16/05	
2,4-Dinitrophenol	EPA 625	5B13024	5.3	20	ND	0.971	02/13/05	02/16/05	
2,4-Dinitrotoluene	EPA 625	5B13024	4.2	10	ND	0.971	02/13/05	02/16/05	
2,6-Dinitrotoluene	EPA 625	5B13024	3.2	10	ND	0.971	02/13/05	02/16/05	
Di-n-octyl phthalate	EPA 625	5B13024	4.7	20	ND	0.971	02/13/05	02/16/05	
Fluoranthene	EPA 625	5B13024	4.2	10	ND	0.971	02/13/05	02/16/05	
Fluorene	EPA 625	5B13024	3.9	10	ND	0.971	02/13/05	02/16/05	

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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: Annual Outfall 007

Report Number: IOB0993

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: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Hexachlorobenzene	EPA 625	5B13024	4.8	10	ND	0.971	02/13/05	02/16/05	
Hexachlorobutadiene	EPA 625	5B13024	4.2	10	ND	0.971	02/13/05	02/16/05	
Hexachlorocyclopentadiene	EPA 625	5B13024	3.4	20	ND	0.971	02/13/05	02/16/05	
Hexachloroethane	EPA 625	5B13024	4.2	10	ND	0.971	02/13/05	02/16/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B13024	5.4	20	ND	0.971	02/13/05	02/16/05	
Isophorone	EPA 625	5B13024	3.7	10	ND	0.971	02/13/05	02/16/05	
2-Methylnaphthalene	EPA 625	5B13024	3.0	10	ND	0.971	02/13/05	02/16/05	
2-Methylphenol	EPA 625	5B13024	3.7	10	ND	0.971	02/13/05	02/16/05	
4-Methylphenol	EPA 625	5B13024	3.8	10	ND	0.971	02/13/05	02/16/05	
Naphthalene	EPA 625	5B13024	4.5	10	ND	0.971	02/13/05	02/16/05	
2-Nitroaniline	EPA 625	5B13024	3.9	20	ND	0.971	02/13/05	02/16/05	
3-Nitroaniline	EPA 625	5B13024	4.5	20	ND	0.971	02/13/05	02/16/05	
4-Nitroaniline	EPA 625	5B13024	4.9	20	ND	0.971	02/13/05	02/16/05	
Nitrobenzene	EPA 625	5B13024	4.2	20	ND	0.971	02/13/05	02/16/05	
2-Nitrophenol	EPA 625	5B13024	4.2	10	ND	0.971	02/13/05	02/16/05	
4-Nitrophenol	EPA 625	5B13024	6.6	20	ND	0.971	02/13/05	02/16/05	
N-Nitrosodiphenylamine	EPA 625	5B13024	4.0	10	ND	0.971	02/13/05	02/16/05	
N-Nitroso-di-n-propylamine	EPA 625	5B13024	3.6	10	ND	0.971	02/13/05	02/16/05	
Pentachlorophenol	EPA 625	5B13024	4.0	20	ND	0.971	02/13/05	02/16/05	
Phenanthrene	EPA 625	5B13024	3.3	10	ND	0.971	02/13/05	02/16/05	
Phenol	EPA 625	5B13024	4.0	10	ND	0.971	02/13/05	02/16/05	
Pyrene	EPA 625	5B13024	3.9	10	ND	0.971	02/13/05	02/16/05	
1,2,4-Trichlorobenzene	EPA 625	5B13024	4.4	10	ND	0.971	02/13/05	02/16/05	
2,4,5-Trichlorophenol	EPA 625	5B13024	3.6	20	ND	0.971	02/13/05	02/16/05	
2,4,6-Trichlorophenol	EPA 625	5B13024	4.1	20	ND	0.971	02/13/05	02/16/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B13024	5.0	20	ND	0.971	02/13/05	02/16/05	
N-Nitrosodimethylamine	EPA 625	5B13024	3.7	20	ND	0.971	02/13/05	02/16/05	
<i>Surrogate: 2-Fluorophenol (35-120%)</i>					61 %				
<i>Surrogate: Phenol-d6 (45-120%)</i>					67 %				
<i>Surrogate: 2,4,6-Tribromophenol (50-125%)</i>					88 %				
<i>Surrogate: Nitrobenzene-d5 (45-120%)</i>					72 %				
<i>Surrogate: 2-Fluorobiphenyl (45-120%)</i>					78 %				
<i>Surrogate: Terphenyl-d14 (45-135%)</i>					90 %				

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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: Annual Outfall 007

Report Number: IOB0993

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: IOB0993-01RE1 (Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.962	02/17/05	02/22/05	
<i>Surrogate: 2-Fluorophenol (35-120%)</i>					59 %				
<i>Surrogate: Phenol-d6 (45-120%)</i>					64 %				
<i>Surrogate: 2,4,6-Tribromophenol (50-125%)</i>					80 %				
<i>Surrogate: Nitrobenzene-d5 (45-120%)</i>					73 %				
<i>Surrogate: 2-Fluorobiphenyl (45-120%)</i>					76 %				
<i>Surrogate: Terphenyl-d14 (45-135%)</i>					75 %				

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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: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05
 Received: 02/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B15038	0.030	0.10	ND	0.971	02/15/05	02/16/05	
alpha-BHC	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
beta-BHC	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
delta-BHC	EPA 608	5B15038	0.020	0.20	ND	0.971	02/15/05	02/16/05	
gamma-BHC (Lindane)	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
Chlordane	EPA 608	5B15038	0.20	1.0	ND	0.971	02/15/05	02/16/05	
4,4'-DDD	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
4,4'-DDE	EPA 608	5B15038	0.020	0.10	ND	0.971	02/15/05	02/16/05	
4,4'-DDT	EPA 608	5B15038	0.030	0.10	ND	0.971	02/15/05	02/16/05	
Dieldrin	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
Endosulfan I	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
Endosulfan II	EPA 608	5B15038	0.040	0.10	ND	0.971	02/15/05	02/16/05	
Endosulfan sulfate	EPA 608	5B15038	0.015	0.20	ND	0.971	02/15/05	02/16/05	
Endrin	EPA 608	5B15038	0.015	0.10	ND	0.971	02/15/05	02/16/05	
Endrin aldehyde	EPA 608	5B15038	0.045	0.10	ND	0.971	02/15/05	02/16/05	
Endrin ketone	EPA 608	5B15038	0.020	0.10	ND	0.971	02/15/05	02/16/05	
Heptachlor	EPA 608	5B15038	0.030	0.10	ND	0.971	02/15/05	02/16/05	
Heptachlor epoxide	EPA 608	5B15038	0.020	0.10	ND	0.971	02/15/05	02/16/05	
Methoxychlor	EPA 608	5B15038	0.035	0.10	ND	0.971	02/15/05	02/16/05	
Toxaphene	EPA 608	5B15038	1.5	5.0	ND	0.971	02/15/05	02/16/05	
<i>Surrogate: Tetrachloro-m-xylene (35-120%)</i>					68 %				
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					82 %				

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

Project ID: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05

Received: 02/11/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B15038	0.20	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1221	EPA 608	5B15038	0.10	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1232	EPA 608	5B15038	0.15	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1242	EPA 608	5B15038	0.15	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1248	EPA 608	5B15038	0.25	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1254	EPA 608	5B15038	0.25	1.0	ND	0.971	02/15/05	02/15/05	
Aroclor 1260	EPA 608	5B15038	0.40	1.0	ND	0.971	02/15/05	02/15/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					93 %				

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Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	5B17097	0.0074	0.050	0.034	1	02/17/05	02/17/05	J

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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B17097	47	50	5300	1	02/17/05	02/17/05	
Antimony	EPA 200.8	5B17099	0.18	2.0	2.7	1	02/17/05	02/17/05	B
Arsenic	EPA 200.7	5B17097	3.8	5.0	ND	1	02/17/05	02/17/05	
Beryllium	EPA 200.7	5B17097	0.62	2.0	ND	1	02/17/05	02/17/05	
Cadmium	EPA 200.8	5B17099	0.015	1.0	0.19	1	02/17/05	02/17/05	J
Chromium	EPA 200.7	5B17097	0.68	5.0	7.3	1	02/17/05	02/17/05	
Copper	EPA 200.8	5B17099	0.49	2.0	7.4	1	02/17/05	02/17/05	
Lead	EPA 200.8	5B17099	0.13	1.0	4.4	1	02/17/05	02/17/05	
Mercury	EPA 245.1	5B15070	0.063	0.20	0.19	1	02/15/05	02/15/05	J
Nickel	EPA 200.7	5B17097	2.0	10	5.5	1	02/17/05	02/17/05	J
Selenium	EPA 200.7	5B17097	4.6	5.0	ND	1	02/17/05	02/22/05	
Silver	EPA 200.7	5B17097	1.3	10	ND	1	02/17/05	02/17/05	
Thallium	EPA 200.8	5B17099	0.075	1.0	0.087	1	02/17/05	02/17/05	J
Vanadium	EPA 200.7	5B17097	1.4	10	14	1	02/17/05	02/17/05	
Zinc	EPA 200.7	5B17097	3.7	20	38	1	02/17/05	02/17/05	

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 007

Report Number: IOB0993

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: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B11120	0.26	0.50	1.9	1	02/11/05	02/12/05	
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	0.49	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B17117	0.94	5.0	ND	1	02/17/05	02/17/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	0.97	1	02/11/05	02/12/05	
Total Dissolved Solids	SM2540C	5B16118	10	10	110	1	02/16/05	02/16/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	70	1	02/17/05	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: IOB0993-01 (Outfall 007 - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B16069	0.80	4.0	ND	1	02/16/05	02/16/05	

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Sampled: 02/11/05
 Received: 02/11/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 007 (IOB0993-01) - Water					
EPA 300.0	2	02/11/2005 10:50	02/11/2005 18:15	02/11/2005 23:00	02/12/2005 05:29
EPA 624	3	02/11/2005 10:50	02/11/2005 18:15	02/12/2005 00:00	02/12/2005 15:21
Sample ID: Trip Blanks (IOB0993-02) - Water					
EPA 624	3	02/11/2005 14:20	02/11/2005 18:15	02/12/2005 00:00	02/12/2005 12:17

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Project ID: Annual Outfall 007

Report Number: IOB0993

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
Batch: 5B12011 Extracted: 02/12/05										
Blank Analyzed: 02/12/2005 (5B12011-BLK1)										
Acrolein	ND	50	4.6	ug/l						
Acrylonitrile	ND	50	5.1	ug/l						
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l						
Surrogate: Dibromofluoromethane	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			
LCS Analyzed: 02/12/2005 (5B12011-BS1)										
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			
Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1) Source: IOB0980-01										
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			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1) Source: IOB0980-01										
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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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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17020 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17020-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
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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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17020 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17020-BS1)											
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	25.2	5.0	0.48	ug/l	25.0		101	60-135			
1,1,1,2-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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 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: Annual Outfall 007

Report Number: IOB0993

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
Batch: 5B17020 Extracted: 02/17/05											
Matrix Spike Analyzed: 02/17/2005 (5B17020-MS1)						Source: IOB0980-01					
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 007

Report Number: IOB0993

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
Batch: 5B17020 Extracted: 02/17/05											
Matrix Spike Dup Analyzed: 02/17/2005 (5B17020-MSD1)						Source: IOB0980-01					
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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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 007

Report Number: IOB0993

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
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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ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
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	141			ug/l	200		70		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 %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
Blank Analyzed: 02/15/2005 (5B13024-BLK1)											
Surrogate: Phenol-d6	152			ug/l	200		76	45-120			
Surrogate: 2,4,6-Tribromophenol	189			ug/l	200		94	50-125			
Surrogate: Nitrobenzene-d5	82.2			ug/l	100		82	45-120			
Surrogate: 2-Fluorobiphenyl	86.8			ug/l	100		87	45-120			
Surrogate: Terphenyl-d14	87.1			ug/l	100		87	45-135			
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
Acenaphthene	83.0	10	4.3	ug/l	100		83	55-120			
Acenaphthylene	88.0	10	3.2	ug/l	100		88	55-120			
Aniline	67.5	10	2.9	ug/l	100		68	30-120			
Anthracene	82.9	10	3.2	ug/l	100		83	60-120			
Benzidine	11.3	20	5.2	ug/l	100		11	20-180			L2, J
Benzoic acid	72.6	20	2.6	ug/l	100		73	30-125			
Benzo(a)anthracene	89.4	10	3.7	ug/l	100		89	65-120			
Benzo(b)fluoranthene	84.9	10	2.7	ug/l	100		85	50-125			
Benzo(k)fluoranthene	84.1	10	3.4	ug/l	100		84	50-125			
Benzo(g,h,i)perylene	83.3	10	5.3	ug/l	100		83	35-160			
Benzo(a)pyrene	87.3	10	3.5	ug/l	100		87	55-125			
Benzyl alcohol	77.6	20	2.5	ug/l	100		78	40-130			
Bis(2-chloroethoxy)methane	83.2	10	3.9	ug/l	100		83	55-120			
Bis(2-chloroethyl)ether	68.3	10	4.4	ug/l	100		68	50-120			
Bis(2-chloroisopropyl)ether	73.7	10	4.6	ug/l	100		74	50-120			
Bis(2-ethylhexyl)phthalate	77.2	50	5.2	ug/l	100		77	65-125			
4-Bromophenyl phenyl ether	79.7	10	4.6	ug/l	100		80	55-125			
Butyl benzyl phthalate	77.4	20	3.5	ug/l	100		77	60-125			
4-Chloroaniline	80.1	10	6.0	ug/l	100		80	55-120			
2-Chloronaphthalene	81.0	10	4.0	ug/l	100		81	60-120			
4-Chloro-3-methylphenol	83.6	20	3.5	ug/l	100		84	60-120			
2-Chlorophenol	71.0	10	4.2	ug/l	100		71	45-120			
4-Chlorophenyl phenyl ether	84.8	10	3.0	ug/l	100		85	55-120			
Chrysene	85.3	10	2.8	ug/l	100		85	65-120			
Dibenz(a,h)anthracene	88.7	20	4.7	ug/l	100		89	40-160			
Dibenzofuran	83.4	10	2.6	ug/l	100		83	60-120			
Di-n-butyl phthalate	81.1	20	2.8	ug/l	100		81	65-125			
1,3-Dichlorobenzene	63.4	10	4.1	ug/l	100		63	40-120			
1,4-Dichlorobenzene	61.8	10	3.9	ug/l	100		62	40-120			

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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
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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 007

Report Number: IOB0993

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
Batch: 5B13024 Extracted: 02/13/05										
LCS Analyzed: 02/15/2005 (5B13024-BS1)										
1,2-Dichlorobenzene	63.4	10	4.5	ug/l	100	63	40-120			M-NRI
3,3-Dichlorobenzidine	101	20	11	ug/l	100	101	50-170			
2,4-Dichlorophenol	81.8	10	4.1	ug/l	100	82	55-120			
Diethyl phthalate	76.5	10	3.1	ug/l	100	76	60-120			
2,4-Dimethylphenol	65.9	20	4.4	ug/l	100	66	35-120			
Dimethyl phthalate	80.9	10	3.6	ug/l	100	81	60-120			
4,6-Dinitro-2-methylphenol	80.0	20	5.1	ug/l	100	80	55-120			
2,4-Dinitrophenol	77.4	20	5.3	ug/l	100	77	40-140			
2,4-Dinitrotoluene	81.4	10	4.2	ug/l	100	81	60-140			
2,6-Dinitrotoluene	77.3	10	3.2	ug/l	100	77	65-125			
Di-n-octyl phthalate	86.1	20	4.7	ug/l	100	86	60-130			
Fluoranthene	91.5	10	4.2	ug/l	100	92	55-125			
Fluorene	87.4	10	3.9	ug/l	100	87	60-120			
Hexachlorobenzene	83.3	10	4.8	ug/l	100	83	50-120			
Hexachlorobutadiene	71.6	10	4.2	ug/l	100	72	45-120			
Hexachlorocyclopentadiene	63.9	20	3.4	ug/l	100	64	10-130			
Hexachloroethane	60.9	10	4.2	ug/l	100	61	40-120			
Indeno(1,2,3-cd)pyrene	85.2	20	5.4	ug/l	100	85	35-150			
Isophorone	77.0	10	3.7	ug/l	100	77	55-120			
2-Methylnaphthalene	82.7	10	3.0	ug/l	100	83	50-120			
2-Methylphenol	72.5	10	3.7	ug/l	100	72	45-120			
4-Methylphenol	74.6	10	3.8	ug/l	100	75	45-120			
Naphthalene	80.2	10	4.5	ug/l	100	80	50-120			
2-Nitroaniline	88.9	20	3.9	ug/l	100	89	60-130			
3-Nitroaniline	83.1	20	4.5	ug/l	100	83	50-140			
4-Nitroaniline	85.5	20	4.9	ug/l	100	86	45-160			
Nitrobenzene	72.2	20	4.2	ug/l	100	72	50-120			
2-Nitrophenol	80.7	10	4.2	ug/l	100	81	55-120			
4-Nitrophenol	78.9	20	6.6	ug/l	100	79	50-135			
N-Nitrosodiphenylamine	76.0	10	4.0	ug/l	100	76	60-120			
N-Nitroso-di-n-propylamine	71.2	10	3.6	ug/l	100	71	50-120			
Pentachlorophenol	88.6	20	4.0	ug/l	100	89	50-125			
Phenanthrene	80.8	10	3.3	ug/l	100	81	55-120			
Phenol	74.0	10	4.0	ug/l	100	74	45-120			
Pyrene	85.3	10	3.9	ug/l	100	85	50-120			

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 Wendy Kirkeeng For Michele Harper
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 Attention: Bronwyn Kelly

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Report Number: IOB0993

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
LCS Analyzed: 02/15/2005 (5B13024-BS1)										
1,2,4-Trichlorobenzene	72.0	10	4.4	ug/l	100	72	50-120			M-NRI
2,4,5-Trichlorophenol	85.4	20	3.6	ug/l	100	85	60-120			
2,4,6-Trichlorophenol	87.6	20	4.1	ug/l	100	88	60-120			
1,2-Diphenylhydrazine/Azobenzene	85.6	20	5.0	ug/l	100	86	60-120			
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120			
Surrogate: 2-Fluorophenol	133			ug/l	200	66	35-120			
Surrogate: Phenol-d6	143			ug/l	200	72	45-120			
Surrogate: 2,4,6-Tribromophenol	177			ug/l	200	88	50-125			
Surrogate: Nitrobenzene-d5	75.4			ug/l	100	75	45-120			
Surrogate: 2-Fluorobiphenyl	79.5			ug/l	100	80	45-120			
Surrogate: Terphenyl-d14	78.6			ug/l	100	79	45-135			
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)										
Acenaphthene	86.2	10	4.3	ug/l	100	86	55-120	4	20	
Acenaphthylene	90.7	10	3.2	ug/l	100	91	55-120	3	20	
Aniline	81.2	10	2.9	ug/l	100	81	30-120	18	25	
Anthracene	88.7	10	3.2	ug/l	100	89	60-120	7	20	
Benzidine	137	20	5.2	ug/l	100	137	20-180	170	35	R-2
Benzoic acid	66.6	20	2.6	ug/l	100	67	30-125	9	30	
Benzo(a)anthracene	95.6	10	3.7	ug/l	100	96	65-120	7	20	
Benzo(b)fluoranthene	92.5	10	2.7	ug/l	100	92	50-125	9	25	
Benzo(k)fluoranthene	88.6	10	3.4	ug/l	100	89	50-125	5	20	
Benzo(g,h,i)perylene	97.4	10	5.3	ug/l	100	97	35-160	16	25	
Benzo(a)pyrene	93.6	10	3.5	ug/l	100	94	55-125	7	25	
Benzyl alcohol	80.5	20	2.5	ug/l	100	80	40-130	4	20	
Bis(2-chloroethoxy)methane	85.9	10	3.9	ug/l	100	86	55-120	3	20	
Bis(2-chloroethyl)ether	70.9	10	4.4	ug/l	100	71	50-120	4	20	
Bis(2-chloroisopropyl)ether	76.8	10	4.6	ug/l	100	77	50-120	4	20	
Bis(2-ethylhexyl)phthalate	84.3	50	5.2	ug/l	100	84	65-125	9	20	
4-Bromophenyl phenyl ether	85.8	10	4.6	ug/l	100	86	55-125	7	25	
Butyl benzyl phthalate	82.9	20	3.5	ug/l	100	83	60-125	7	20	
4-Chloroaniline	84.5	10	6.0	ug/l	100	84	55-120	5	25	
2-Chloronaphthalene	83.6	10	4.0	ug/l	100	84	60-120	3	20	
4-Chloro-3-methylphenol	87.2	20	3.5	ug/l	100	87	60-120	4	25	
2-Chlorophenol	72.1	10	4.2	ug/l	100	72	45-120	2	25	
4-Chlorophenyl phenyl ether	90.4	10	3.0	ug/l	100	90	55-120	6	20	

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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 Attention: Bronwyn Kelly

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Report Number: IOB0993

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Chrysene	90.6	10	2.8	ug/l	100	91	65-120	6	20		
Dibenz(a,h)anthracene	103	20	4.7	ug/l	100	103	40-160	15	25		
Dibenzofuran	87.2	10	2.6	ug/l	100	87	60-120	4	20		
Di-n-butyl phthalate	86.8	20	2.8	ug/l	100	87	65-125	7	20		
1,3-Dichlorobenzene	59.7	10	4.1	ug/l	100	60	40-120	6	25		
1,4-Dichlorobenzene	63.0	10	3.9	ug/l	100	63	40-120	2	25		
1,2-Dichlorobenzene	62.9	10	4.5	ug/l	100	63	40-120	1	25		
3,3-Dichlorobenzidine	114	20	11	ug/l	100	114	50-170	12	25		
2,4-Dichlorophenol	84.2	10	4.1	ug/l	100	84	55-120	3	20		
Diethyl phthalate	80.6	10	3.1	ug/l	100	81	60-120	5	20		
2,4-Dimethylphenol	72.1	20	4.4	ug/l	100	72	35-120	9	25		
Dimethyl phthalate	84.3	10	3.6	ug/l	100	84	60-120	4	20		
4,6-Dinitro-2-methylphenol	84.0	20	5.1	ug/l	100	84	55-120	5	25		
2,4-Dinitrophenol	80.3	20	5.3	ug/l	100	80	40-140	4	25		
2,4-Dinitrotoluene	86.3	10	4.2	ug/l	100	86	60-140	6	20		
2,6-Dinitrotoluene	80.3	10	3.2	ug/l	100	80	65-125	4	20		
Di-n-octyl phthalate	96.4	20	4.7	ug/l	100	96	60-130	11	20		
Fluoranthene	96.3	10	4.2	ug/l	100	96	55-125	5	20		
Fluorene	91.9	10	3.9	ug/l	100	92	60-120	5	20		
Hexachlorobenzene	87.5	10	4.8	ug/l	100	88	50-120	5	20		
Hexachlorobutadiene	73.2	10	4.2	ug/l	100	73	45-120	2	25		
Hexachlorocyclopentadiene	66.5	20	3.4	ug/l	100	66	10-130	4	30		
Hexachloroethane	60.4	10	4.2	ug/l	100	60	40-120	1	25		
Indeno(1,2,3-cd)pyrene	98.6	20	5.4	ug/l	100	99	35-150	15	25		
Isophorone	81.3	10	3.7	ug/l	100	81	55-120	5	20		
2-Methylnaphthalene	86.1	10	3.0	ug/l	100	86	50-120	4	20		
2-Methylphenol	75.6	10	3.7	ug/l	100	76	45-120	4	20		
4-Methylphenol	78.2	10	3.8	ug/l	100	78	45-120	5	20		
Naphthalene	83.1	10	4.5	ug/l	100	83	50-120	4	20		
2-Nitroaniline	91.5	20	3.9	ug/l	100	92	60-130	3	20		
3-Nitroaniline	88.6	20	4.5	ug/l	100	89	50-140	6	25		
4-Nitroaniline	94.4	20	4.9	ug/l	100	94	45-160	10	20		
Nitrobenzene	74.6	20	4.2	ug/l	100	75	50-120	3	25		
2-Nitrophenol	83.0	10	4.2	ug/l	100	83	55-120	3	25		
4-Nitrophenol	81.6	20	6.6	ug/l	100	82	50-135	3	25		

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 Wendy Kirkeeng For Michele Harper
 Project Manager



17461 Darian 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) 505-8586 FAX (858) 505-9689
 9630 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
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Report Number: IOB0993

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)										
N-Nitrosodiphenylamine	80.6	10	4.0	ug/l	100	81	60-120	6	20	
N-Nitroso-di-n-propylamine	75.1	10	3.6	ug/l	100	75	50-120	5	20	
Pentachlorophenol	92.7	20	4.0	ug/l	100	93	50-125	5	25	
Phenanthrene	86.6	10	3.3	ug/l	100	87	55-120	7	20	
Phenol	75.1	10	4.0	ug/l	100	75	45-120	1	25	
Pyrene	88.4	10	3.9	ug/l	100	88	50-120	4	25	
1,2,4-Trichlorobenzene	73.0	10	4.4	ug/l	100	73	50-120	1	20	
2,4,5-Trichlorophenol	88.6	20	3.6	ug/l	100	89	60-120	4	20	
2,4,6-Trichlorophenol	89.5	20	4.1	ug/l	100	90	60-120	2	20	
1,2-Diphenylhydrazine/Azobenzene	90.2	20	5.0	ug/l	100	90	60-120	5	25	
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120	0	20	
Surrogate: 2-Fluorophenol	128			ug/l	200	64	35-120			
Surrogate: Phenol-d6	141			ug/l	200	70	45-120			
Surrogate: 2,4,6-Tribromophenol	185			ug/l	200	92	50-125			
Surrogate: Nitrobenzene-d5	76.5			ug/l	100	76	45-120			
Surrogate: 2-Fluorobiphenyl	79.4			ug/l	100	79	45-120			
Surrogate: Terphenyl-d14	82.3			ug/l	100	82	45-135			

Batch: 5B17041 Extracted: 02/17/05

Blank Analyzed: 02/22/2005 (5B17041-BLK1)

Benzidine	ND	20	5.2	ug/l						
Surrogate: 2-Fluorophenol	110			ug/l	200	55	35-120			
Surrogate: Phenol-d6	121			ug/l	200	60	45-120			
Surrogate: 2,4,6-Tribromophenol	144			ug/l	200	72	50-125			
Surrogate: Nitrobenzene-d5	66.4			ug/l	100	66	45-120			
Surrogate: 2-Fluorobiphenyl	70.0			ug/l	100	70	45-120			
Surrogate: Terphenyl-d14	67.5			ug/l	100	68	45-135			

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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
Batch: 5B17041 Extracted: 02/17/05										
LCS Analyzed: 02/22/2005 (5B17041-BS1)										
Benzidine	145	20	5.2	ug/l	100	145	20-180			M-NR1
Surrogate: 2-Fluorophenol	120			ug/l	200	60	35-120			
Surrogate: Phenol-d6	138			ug/l	200	69	45-120			
Surrogate: 2,4,6-Tribromophenol	164			ug/l	200	82	50-125			
Surrogate: Nitrobenzene-d5	74.1			ug/l	100	74	45-120			
Surrogate: 2-Fluorobiphenyl	73.0			ug/l	100	73	45-120			
Surrogate: Terphenyl-d14	85.2			ug/l	100	85	45-135			
LCS Dup Analyzed: 02/22/2005 (5B17041-BSD1)										
Benzidine	149	20	5.2	ug/l	100	149	20-180	3	35	
Surrogate: 2-Fluorophenol	120			ug/l	200	60	35-120			
Surrogate: Phenol-d6	132			ug/l	200	66	45-120			
Surrogate: 2,4,6-Tribromophenol	163			ug/l	200	82	50-125			
Surrogate: Nitrobenzene-d5	76.0			ug/l	100	76	45-120			
Surrogate: 2-Fluorobiphenyl	74.0			ug/l	100	74	45-120			
Surrogate: Terphenyl-d14	84.4			ug/l	100	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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B15038 Extracted: 02/15/05										
Blank Analyzed: 02/15/2005-02/16/2005 (5B15038-BLK1)										
Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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	0.329			ug/l	0.500		66	35-120		
Surrogate: Decachlorobiphenyl	0.459			ug/l	0.500		92	45-120		

LCS Analyzed: 02/16/2005 (5B15038-BS1)

M-NR1

Aldrin	0.248	0.10	0.030	ug/l	0.500		50	45-115		
alpha-BHC	0.267	0.10	0.015	ug/l	0.500		53	45-115		
beta-BHC	0.328	0.10	0.015	ug/l	0.500		66	50-115		
delta-BHC	0.322	0.20	0.020	ug/l	0.500		64	55-120		
gamma-BHC (Lindane)	0.283	0.10	0.015	ug/l	0.500		57	45-115		
4,4'-DDD	0.346	0.10	0.015	ug/l	0.500		69	60-120		
4,4'-DDE	0.331	0.10	0.020	ug/l	0.500		66	55-120		
4,4'-DDT	0.328	0.10	0.030	ug/l	0.500		66	60-130		
Dieldrin	0.330	0.10	0.015	ug/l	0.500		66	55-120		
Endosulfan I	0.319	0.10	0.015	ug/l	0.500		64	50-115		
Endosulfan II	0.337	0.10	0.040	ug/l	0.500		67	60-125		
Endosulfan sulfate	0.354	0.20	0.015	ug/l	0.500		71	60-120		

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 Wendy Kirkeeng For Michele Harper
 Project Manager



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

Project ID: Annual Outfall 007

Report Number: IOB0993

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B15038 Extracted: 02/15/05										
LCS Analyzed: 02/16/2005 (5B15038-BS1)										
Endrin	0.329	0.10	0.015	ug/l	0.500		66 55-125			M-NR1
Endrin aldehyde	0.346	0.10	0.045	ug/l	0.500		69 55-115			
Endrin ketone	0.364	0.10	0.020	ug/l	0.500		73 60-120			
Heptachlor	0.278	0.10	0.030	ug/l	0.500		56 45-115			
Heptachlor epoxide	0.315	0.10	0.020	ug/l	0.500		63 50-120			
Methoxychlor	0.365	0.10	0.035	ug/l	0.500		73 60-135			
Surrogate: Tetrachloro-m-xylene	0.241			ug/l	0.500		48 35-120			
Surrogate: Decachlorobiphenyl	0.337			ug/l	0.500		67 45-120			
LCS Dup Analyzed: 02/16/2005 (5B15038-BSD1)										
Aldrin	0.288	0.10	0.030	ug/l	0.500		58 45-115	15	30	
alpha-BHC	0.282	0.10	0.015	ug/l	0.500		56 45-115	5	30	
beta-BHC	0.395	0.10	0.015	ug/l	0.500		79 50-115	19	30	
delta-BHC	0.395	0.20	0.020	ug/l	0.500		79 55-120	20	30	
gamma-BHC (Lindane)	0.320	0.10	0.015	ug/l	0.500		64 45-115	12	30	
4,4'-DDD	0.435	0.10	0.015	ug/l	0.500		87 60-120	23	30	
4,4'-DDE	0.413	0.10	0.020	ug/l	0.500		83 55-120	22	30	
4,4'-DDT	0.411	0.10	0.030	ug/l	0.500		82 60-130	22	30	
Dieldrin	0.407	0.10	0.015	ug/l	0.500		81 55-120	21	30	
Endosulfan I	0.387	0.10	0.015	ug/l	0.500		77 50-115	19	30	
Endosulfan II	0.420	0.10	0.040	ug/l	0.500		84 60-125	22	30	
Endosulfan sulfate	0.437	0.20	0.015	ug/l	0.500		87 60-120	21	30	
Endrin	0.407	0.10	0.015	ug/l	0.500		81 55-125	21	30	
Endrin aldehyde	0.420	0.10	0.045	ug/l	0.500		84 55-115	19	30	
Endrin ketone	0.452	0.10	0.020	ug/l	0.500		90 60-120	22	30	
Heptachlor	0.311	0.10	0.030	ug/l	0.500		62 45-115	11	30	
Heptachlor epoxide	0.377	0.10	0.020	ug/l	0.500		75 50-120	18	30	
Methoxychlor	0.455	0.10	0.035	ug/l	0.500		91 60-135	22	30	
Surrogate: Tetrachloro-m-xylene	0.190			ug/l	0.500		38 35-120			
Surrogate: Decachlorobiphenyl	0.412			ug/l	0.500		82 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 007

Report Number: IOB0993

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	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B15038 Extracted: 02/15/05											
Blank Analyzed: 02/15/2005-02/16/2005 (5B15038-BLK1)											
Aroclor 1016	ND	1.0	0.20	ug/l							
Aroclor 1221	ND	1.0	0.10	ug/l							
Aroclor 1232	ND	1.0	0.15	ug/l							
Aroclor 1242	ND	1.0	0.15	ug/l							
Aroclor 1248	ND	1.0	0.25	ug/l							
Aroclor 1254	ND	1.0	0.25	ug/l							
Aroclor 1260	ND	1.0	0.40	ug/l							
Surrogate: Decachlorobiphenyl	0.410			ug/l	0.500		82	45-120			
LCS Analyzed: 02/15/2005 (5B15038-BS2)											
Aroclor 1016	2.88	1.0	0.20	ug/l	4.00		72	50-115			M-NR1
Aroclor 1260	3.29	1.0	0.40	ug/l	4.00		82	60-115			
Surrogate: Decachlorobiphenyl	0.444			ug/l	0.500		89	45-120			
LCS Dup Analyzed: 02/15/2005 (5B15038-BSD2)											
Aroclor 1016	2.51	1.0	0.20	ug/l	4.00		63	50-115	14	30	
Aroclor 1260	2.99	1.0	0.40	ug/l	4.00		75	60-115	10	25	
Surrogate: Decachlorobiphenyl	0.404			ug/l	0.500		81	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 007 Report Number: IOB0993	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	Data Limit	Qualifiers
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Batch: 5B15070 Extracted: 02/15/05

Blank Analyzed: 02/15/2005 (5B15070-BLK1)

Mercury	ND	0.20	0.063	ug/l							
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LCS Analyzed: 02/15/2005 (5B15070-BS1)

Mercury	8.18	0.20	0.063	ug/l	8.00		102	85-115			
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Matrix Spike Analyzed: 02/15/2005 (5B15070-MS1)

Source: IOB1088-01

Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130			
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Matrix Spike Dup Analyzed: 02/15/2005 (5B15070-MSD1)

Source: IOB1088-01

Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130	0	20	
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Batch: 5B17097 Extracted: 02/17/05

Blank Analyzed: 02/17/2005 (5B17097-BLK1)

Aluminum	ND	50	47	ug/l							
Arsenic	ND	5.0	3.8	ug/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	ND	0.050	0.0074	mg/l							
Chromium	ND	5.0	0.68	ug/l							
Nickel	ND	10	2.0	ug/l							
Selenium	ND	5.0	4.6	ug/l							
Silver	ND	10	1.3	ug/l							
Vanadium	ND	10	1.4	ug/l							
Zinc	ND	20	3.7	ug/l							

LCS Analyzed: 02/17/2005 (5B17097-BS1)

Aluminum	464	50	47	ug/l	500		93	85-115			
Arsenic	514	5.0	3.8	ug/l	500		103	85-115			
Beryllium	502	2.0	0.62	ug/l	500		100	85-115			
Boron	0.474	0.050	0.0074	mg/l	0.500		95	85-115			
Chromium	517	5.0	0.68	ug/l	500		103	85-115			
Nickel	508	10	2.0	ug/l	500		102	85-115			
Selenium	514	5.0	4.6	ug/l	500		103	85-115			
Silver	258	10	1.3	ug/l	250		103	85-115			
Vanadium	512	10	1.4	ug/l	500		102	85-115			
Zinc	503	20	3.7	ug/l	500		101	85-115			

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Report Number: IOB0993

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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: 5B17097 Extracted: 02/17/05

Matrix Spike Analyzed: 02/17/2005 (5B17097-MS1)

Source: IOB1000-01

Aluminum	1690	50	47	ug/l	500	880	162	70-130			MI
Arsenic	516	5.0	3.8	ug/l	500	ND	103	70-130			
Beryllium	506	2.0	0.62	ug/l	500	ND	101	70-130			
Boron	0.499	0.050	0.0074	mg/l	0.500	0.017	96	70-130			
Chromium	522	5.0	0.68	ug/l	500	3.4	104	70-130			
Nickel	526	10	2.0	ug/l	500	2.9	105	70-130			
Selenium	509	5.0	4.6	ug/l	500	4.7	101	70-130			
Silver	262	10	1.3	ug/l	250	ND	105	70-130			
Vanadium	524	10	1.4	ug/l	500	3.1	104	70-130			
Zinc	640	20	3.7	ug/l	500	120	104	70-130			

Matrix Spike Dup Analyzed: 02/17/2005 (5B17097-MSD1)

Source: IOB1000-01

Aluminum	1590	50	47	ug/l	500	880	142	70-130	6	20	MI
Arsenic	515	5.0	3.8	ug/l	500	ND	103	70-130	0	20	
Beryllium	504	2.0	0.62	ug/l	500	ND	101	70-130	0	20	
Boron	0.495	0.050	0.0074	mg/l	0.500	0.017	96	70-130	1	20	
Chromium	519	5.0	0.68	ug/l	500	3.4	103	70-130	1	20	
Nickel	514	10	2.0	ug/l	500	2.9	102	70-130	2	20	
Selenium	512	5.0	4.6	ug/l	500	4.7	101	70-130	1	20	
Silver	260	10	1.3	ug/l	250	ND	104	70-130	1	20	
Vanadium	520	10	1.4	ug/l	500	3.1	103	70-130	1	20	
Zinc	630	20	3.7	ug/l	500	120	102	70-130	2	20	

Batch: 5B17099 Extracted: 02/17/05

Blank Analyzed: 02/17/2005 (5B17099-BLK1)

Antimony	0.511	2.0	0.18	ug/l							J
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
Thallium	ND	1.0	0.075	ug/l							

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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
Batch: 5B17099 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17099-BS1)											
Antimony	87.8	2.0	0.18	ug/l	80.0		110	85-115			
Cadmium	75.9	1.0	0.015	ug/l	80.0		95	85-115			
Copper	78.0	2.0	0.49	ug/l	80.0		98	85-115			
Lead	79.9	1.0	0.13	ug/l	80.0		100	85-115			
Thallium	80.0	1.0	0.075	ug/l	80.0		100	85-115			
Matrix Spike Analyzed: 02/17/2005 (5B17099-MS1) Source: IOB0990-01											
Antimony	85.8	2.0	0.18	ug/l	80.0	0.44	107	70-130			
Cadmium	75.3	1.0	0.015	ug/l	80.0	0.020	94	70-130			
Copper	79.3	2.0	0.49	ug/l	80.0	0.66	98	70-130			
Lead	81.6	1.0	0.13	ug/l	80.0	0.33	102	70-130			
Thallium	81.5	1.0	0.075	ug/l	80.0	0.15	102	70-130			
Matrix Spike Dup Analyzed: 02/17/2005 (5B17099-MSD1) Source: IOB0990-01											
Antimony	84.3	2.0	0.18	ug/l	80.0	0.44	105	70-130	2	20	
Cadmium	75.1	1.0	0.015	ug/l	80.0	0.020	94	70-130	0	20	
Copper	79.1	2.0	0.49	ug/l	80.0	0.66	98	70-130	0	20	
Lead	81.1	1.0	0.13	ug/l	80.0	0.33	101	70-130	1	20	
Thallium	81.3	1.0	0.075	ug/l	80.0	0.15	101	70-130	0	20	

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

Project ID: Annual Outfall 007

Report Number: IOB0993

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	Limit Limits	Limit	Data Qualifiers
Batch: 5B11120 Extracted: 02/11/05											
Blank Analyzed: 02/11/2005 (5B11120-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 02/11/2005 (5B11120-BS1)											
Chloride	4.84	0.50	0.26	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		
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
Sulfate	39.3	0.50	0.18	mg/l	10.0	29	103		80-120	2	20
Batch: 5B14107 Extracted: 02/14/05											
Blank Analyzed: 02/14/2005 (5B14107-BLK1)											
Total Cyanide	ND	0.0050	0.0022	mg/l							
LCS Analyzed: 02/14/2005 (5B14107-BS1)											
Total Cyanide	0.200	0.0050	0.0022	mg/l	0.200		100		90-110		
Matrix Spike Analyzed: 02/14/2005 (5B14107-MS1) Source: IOB0888-01											
Total Cyanide	0.167	0.0050	0.0022	mg/l	0.200	ND	84		70-115		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 007 Report Number: IOB0993	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	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14107 Extracted: 02/14/05											
Matrix Spike Dup Analyzed: 02/14/2005 (5B14107-MSD1)						Source: IOB0888-01					
Total Cyanide	0.190	0.0050	0.0022	mg/l	0.200	ND	95	70-115	13	15	
Batch: 5B16069 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16069-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/16/2005 (5B16069-BS1)											
Perchlorate	52.0	4.0	0.80	ug/l	50.0		104	85-115			
Matrix Spike Analyzed: 02/16/2005 (5B16069-MS1)						Source: IOB1060-02					
Perchlorate	51.9	4.0	0.80	ug/l	50.0	ND	104	80-120			
Matrix Spike Dup Analyzed: 02/16/2005 (5B16069-MSD1)						Source: IOB1060-02					
Perchlorate	51.6	4.0	0.80	ug/l	50.0	ND	103	80-120	1	20	
Batch: 5B16118 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16118-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/16/2005 (5B16118-BS1)											
Total Dissolved Solids	1050	10	10	mg/l	1000		105	90-110			
Duplicate Analyzed: 02/16/2005 (5B16118-DUP1)						Source: IOB1205-06					
Total Dissolved Solids	756	10	10	mg/l		750			1	10	

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Report Number: IOB0993

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17069 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17069-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/17/2005 (5B17069-BS1)											
Total Suspended Solids	977	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 02/17/2005 (5B17069-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOB0990-01 ND				10	
Batch: 5B17117 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17117-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/17/2005 (5B17117-BS1)											
Oil & Grease	17.6	5.0	0.94	mg/l	20.0		88	65-120			M-NRI
LCS Dup Analyzed: 02/17/2005 (5B17117-BSD1)											
Oil & Grease	16.4	5.0	0.94	mg/l	20.0		82	65-120	7	20	

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

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



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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: Annual Outfall 007

Report Number: IOB0993

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
IOB0993-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.20	5.0	15
IOB0993-01	Antimony-200.8	Antimony	ug/l	2.70	2.0	6.00
IOB0993-01	Boron-200.7	Boron	mg/l	0.034	0.050	1.00
IOB0993-01	Cadmium-200.8	Cadmium	ug/l	0.19	1.0	4.00
IOB0993-01	Chloride - 300.0	Chloride	mg/l	1.90	0.50	150
IOB0993-01	Copper-200.8	Copper	ug/l	7.40	2.0	14
IOB0993-01	Mercury - 245.1	Mercury	ug/l	0.19	0.20	0.20
IOB0993-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.49	0.26	10.00
IOB0993-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB0993-01	Sulfate-300.0	Sulfate	mg/l	0.97	0.50	250
IOB0993-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	110	10	850
IOB0993-01	Thallium-200.8	Thallium	ug/l	0.087	1.0	2.00

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05
Received: 02/11/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- 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.
- 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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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 007

Report Number: IOB0993

Sampled: 02/11/05
 Received: 02/11/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 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 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	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.

Subcontracted Laboratories

Alta Analytical Perspectives

Analysis Performed: 1613-Dioxin-HR
 Samples: IOB0993-01

Analysis Performed: EDD + Level 4
 Samples: IOB0993-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr
 Samples: IOB0993-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4
 Samples: IOB0993-01

Analysis Performed: Gross Alpha
 Samples: IOB0993-01

Analysis Performed: Gross Beta
 Samples: IOB0993-01

Analysis Performed: Strontium 90
 Samples: IOB0993-01

Analysis Performed: Tritium
 Samples: IOB0993-01

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: Annual Outfall 007

Report Number: IOB0993

Sampled: 02/11/05
Received: 02/11/05

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

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IOB0993 <Page 41 of 41>

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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 Annual Outfall 007 Stormwater at Building 100																		Temp = 55.4 pH = 6.9
Project Manager: Bronwyn Kelly				Phone Number: (626) 568-6691																		Comments
Sampler: Podack				Fax Number: (626) 568-6515																		
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Sampling Date/Time	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, + PP	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl-, SO4, NO3+NO2-N, Perchlorate	TDS, TSS	VOCs (624), NPDES + PP	VOCs A+A+2CVE	Pesticides/PCBs - PP	Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90 Radium 226 & 228	SVOCs - PP	Acute Toxicity	Cyanide				
Outfall 007	W	1L Poly	1	HNO3	1A	2-11-05 14:20	X															
Outfall 007-Dup	W	1L Poly	1	HNO3	1B		X															
Outfall 007	W	1L Amber	2	None	2A, 2B			X														
Outfall 007	W	1L Amber	2	HCl	3A, 3B				X													
Outfall 007	W	Poly-500 ml	2	None	4A, 4B				X													
Outfall 007	W	Poly-500 ml	2	None	5A, 5B					X												
Outfall 007	W	VOAs	3	HCl	6A, 6B, 6C						X											
Outfall 007	W	VOA	3	None	7A, 7B, 7C							X										
Outfall 007	W	1L Amber	2	None	8A, 8B								X									
Outfall 007	W	1 Gal Poly VOAs	1	None	9A									X								
Outfall 007	W	1 Gal Poly VOAs	2	None	9B, 9C										X							
Outfall 007	W	1L Amber	2	None	10A, 10B																	
Outfall 007	W	1 Gal Poly	1	None	11A																	
Outfall 007	W	500ml Poly	1	NaOH	12																	
Trip Blanks	W	VOA	3	None	13A, 13B, 13C																	
Trip Blank	W	VOAs	3	HCl	14A, 14B, 14C						X											
Relinquished By	Date/Time:			Date/Time:			Turn around Time: (check)															
Podack	2-11-05 14:20			2/11/05 14:20			24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal <input checked="" type="checkbox"/> Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____															
Relinquished By	Date/Time:			Date/Time:			Sample Integrity: (Check) <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/> 3°C															
Podack	2/11/05 18:15			2-11-05 18:15																		
Relinquished By	Date/Time:			Date/Time:																		

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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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 25, 2005

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

Attention: Bronwyn Kelly
Project: Annual Outfall 007
Sampled: 02/11/05
Del Mar Analytical Number: IOB0993

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), Eberline Services tested gross alpha/gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) and Alta Analytical Perspectives performed the EPA Method 1613B Dioxin analysis 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	Alta ID
Outfall 007	IOB0993-01	A-05021204-001	R502132-01/8261-001	P5072_2989_002

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

LABORATORY REPORT

**Aquatic
Testing
Laboratories**



"dedicated to providing quality aquatic toxicity testing"

Date: February 16, 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-05021204-001
Sample ID.: IOB0993-01

Sample Control: The samples were received by ATL in a chilled state, with the chain of custody record attached.

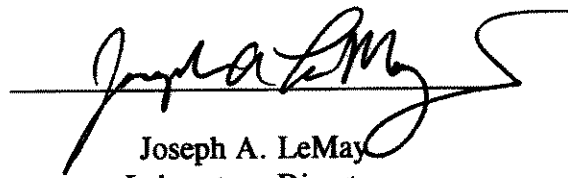
Date Sampled: 02/11/05
Date Received: 02/12/05
Date Tested: 02/12/05 to 02/16/05

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>
IOB0993-01	100% Survival (TU _a = 0.0)

Quality Control: Reviewed and approved by:


Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05021204-001
 Client/ID: Del Mar IOB0993-01

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 1200
	100%	20.2	8.4	6.5	0	0	
24 Hr	Control	20.3	6.9	7.7	0	0	2 1100
	100%	20.2	6.3	7.3	0	0	
48 Hr	Control	20.4	7.4	7.5	0	0	2 1200
	100%	20.4	7.2	7.1	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	LR 1200
	100%	20.2	8.4	7.0	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	LR 1100
	100%	19.6	7.7	7.0	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	LR 1100
	100%	20.5	7.7	7.0	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.5; Conductivity: 79 umho; Temp: 4°C;
 DO: 8.4 mg/l; Alkalinity: 67 mg/l; Hardness: 42 mg/l; NH₃-N: 0.7 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 %



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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SUBCONTRACT ORDER - PROJECT # IOB0993

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: IOB0993-01 Water Bioassay-Acute 96hr	Sampled: 02/11/05 10:50 02/12/05 22:50	FH minnow, EPA/821-R02-012, Sub to AqTox Labs
Containers Supplied: 1 gal Poly (IOB0993-01) X S BDL		

SAMPLE INTEGRITY:		
All containers intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Samples Preserved Properly: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>4°C</u>

BDL Released By	2/12/05 0700 Date Time	BDL Received By	2/12/05 0700 Date Time
BDL Released By	2/12/05 0700 Date Time	ATC Received By	2-12-05 0900 Date Time



EBERLINE SERVICES

March 8, 2005

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

Reference: Del Mar Analytical Project No. IOB0993
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502132-8261

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

MCMinjv

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

Eberline Services

ANALYSIS RESULTS

SDG <u>8261</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502132-01</u>	Contract <u>PROJECT# IOB0993</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>
IOB0993-01	8261-001	02/11/05	03/01/05	GrossAlpha	1.64 ± 1.0	pCi/L	0.936
			03/01/05	Gross Beta	5.18 ± 1.3	pCi/L	1.80
			03/02/05	H3	71.9 ± 150	pCi/L	246
			02/25/05	Sr90	-0.077 ± 0.25	pCi/L	0.499

Certified by <u>[Signature]</u>
Report Date <u>03/08/05</u>
Page 1

Eberline Services

QC RESULTS

SDG <u>8261</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502132-01</u>	Contract <u>PROJECT# IOB0993</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	tRecv	
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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 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) 785-0651
 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB0993

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: IOB0993-01 Water Sampled: 02/11/05 10:50		
· EDD + Level 4-OUT	03/11/05 10:50	
Gross Alpha-O	02/11/06 10:50	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 10:50	900.0, IF RESULT>50 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/11/06 10:50	HOLD for Gross A&B results; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 10:50	EPA 905.0
Tritium-O	02/11/06 10:50	EPA 906.0

Containers Supplied:

1 gal Poly (IOB0993-01S) *w/HNO₃*

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 Property: Yes No Samples Received at (temp): _____

2-14-05 17:30 Z/LP 2/15/05 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: 2/15/05 10:00 CoC No.: F080993

Container I.D. No.: Blue Cooler AP-5500 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: 1 (Or see CoC 1)
- 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: Bottle shows sample ID, F080993-01X, while CoC shows F080993-015.
- 14. Was P.M. notified of any anomalies? Yes No Date: 2/15/05
- 15. Inspected by: Z/ly 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 _____


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

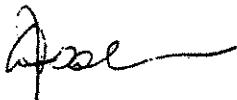
2714 EXCHANGE DRIVE
 WILMINGTON
 NORTH CAROLINA 28405
 TEL: 910-794-1613 FAX 910-794-3919

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: IOB0993-01

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:	1.03 L	Sample ID:	P5072_2989_002	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	2.06			76.2	84.9	
1,2,3,7,8-PeCDD	ND	1.79			72.7	89.3	
1,2,3,4,7,8-HxCDD	ND	2.55			74.4	84.1	
1,2,3,6,7,8-HxCDD	ND	2.57			79.8	84.1	
1,2,3,7,8,9-HxCDD	ND	3.13			77.6	84.1	
1,2,3,4,6,7,8-HpCDD	31.5	3.87			65.6	88	
OCDD	267	9.8			53.6	68	
2,3,7,8-TCDF	ND	1.84			77	84.9	
1,2,3,7,8-PeCDF	ND	2.75			83.3	87.1	
2,3,4,7,8-PeCDF	ND	2.8			74.2	87.1	
1,2,3,4,7,8-HxCDF	ND	0.9			89.6	84.1	
1,2,3,6,7,8-HxCDF	ND	0.827			78.1	84.1	
2,3,4,6,7,8-HxCDF	ND	1.04			69	84.1	
1,2,3,7,8,9-HxCDF	ND	1.58			65.6	84.1	
1,2,3,4,6,7,8-HpCDF	ND	1.88			54	88	
1,2,3,4,7,8,9-HpCDF	ND	2.95			54.7	88	
OCDF	ND	11			51.7	68	
Totals & TEQs							
TCDDs	ND	2.06			2714 Exchange Drive		
PeCDDs	ND	1.79			Wilmington		
HxCDDs	4.44	2.76	8.57		North Carolina 28405		
HpCDDs	65.1	3.87			USA		
TCDFs	ND	1.64			Tel: 910 794-1613		
PeCDFs	0.858	2.77			Fax: 910 794-3919		
HxCDFs	ND	1.05			e-mail: yt@ultratrace.com		
HpCDFs	ND	2.38			web: www.ultratrace.com		
Total PCDD/Fs	338		342				


AAP 2005 Rev. B

Checkcode: 4681

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	
1,2,3,4,7,8,9-HpCDF	ND	2.87			65.1	69.8	
OCDF	ND	11.1			67.2	69.8	
Totals & TEQs							
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					
Total PCDD/Fs	0		0				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer
Date

[Signature]
02 Mar 05

Sample Summary Part 1		Method 1613												
Analyte	0_2989_MS 001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0989-01	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
2,3,7,8-TCDD	(1.85)	(2.29)	(2.06)	(2.02)	(1.34)	(1.71)	(2.29)	(2.55)	(1.81)	(1.44)	(2.87)	(1.79)	(3.24)	(3.01)
1,2,3,7,8-PeCDD	(1.86)	(1.89)	(1.79)	(2.09)	(2.11)	(1.73)	(3.2)	(1.88)	(1.82)	(2.04)	(3.14)	(2.92)	(2.18)	(5.38)
1,2,3,4,7,8-HxCDD	(2.57)	(3.45)	(2.55)	(2.71)	(2.46)	(3.89)	(4.19)	(2.42)	3.37	(2.74)	(5.81)	(12.2)	(4.91)	(4.94)
1,2,3,7,8,9-HxCDD	(2.4)	(3.21)	(2.57)	(2.7)	(2.34)	(3.8)	(4.11)	(2.41)	8.47	(2.88)	(5.98)	(12)	(4.84)	(4.7)
1,2,3,4,6,7,8-HpCDD	(2.8)	(3.83)	(3.13)	(3.33)	(2.82)	(4.88)	(4.85)	(2.88)	8.27	(3.13)	(7.12)	(13.8)	(5.54)	(5.51)
OCDD	(1.98)	75.4	31.5	10	(9.38)	12.2	(5.34)	49.8	207	12.1	(10.8)	20.8	(3.19)	(9.5)
	(4.78)	883	267	134	70.4	157	58.1	471	2120	183	70.2	215	50.3	50
2,3,7,8-TCDF	(1.04)	(1.24)	(1.84)	(1.85)	(0.985)	(2.08)	(1.37)	(1.64)	(1.49)	(1.03)	(2.58)	(2.71)	(2.39)	(2.81)
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.78)	(1.44)	(2.35)	(1.84)	(3.71)	(1.98)	(2.35)	(2.11)	(4.02)	(2.52)	(2.98)	(2.46)
2,3,4,7,8-HxCDF	(1.98)	(1.88)	(2.8)	(1.48)	(2.42)	(1.89)	(3.89)	(2.03)	(2.31)	(1.95)	(3.97)	(2.53)	(3)	(2.49)
1,2,3,7,8,9-HxCDF	(0.812)	(0.867)	(0.9)	(0.785)	(0.943)	(1.38)	(1.47)	(1.47)	(0.97)	(0.815)	(0.78)	(1.42)	(6.24)	(1.53)
2,3,4,6,7,8-HpCDF	(0.764)	(0.843)	(0.827)	(0.706)	(0.871)	(1.31)	(1.3)	(1.51)	(0.99)	(0.815)	(1.55)	(6.88)	(1.82)	(1.13)
1,2,3,7,8,9-HxCDF	(1.01)	(1.12)	(1.04)	(0.933)	(1.12)	(1.85)	(1.73)	(1.8)	(1.1)	(0.99)	(1.81)	(8.23)	(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)	(2.88)	(1.7)	(1.51)	(2.81)	(12.4)	(2.74)	(2.05)
1,2,3,4,6,7,8,9-HpCDF	(1.78)	16.8	(1.89)	(4.57)	(1.8)	4.04	(3.25)	10.8	27.2	(1.89)	(4.35)	(3.42)	(2.05)	(3.28)
OCDF	(2.57)	(3.48)	(2.95)	(7.47)	(3.25)	(2.53)	(4.59)	(2.58)	(4.43)	(2.59)	(7.3)	(5.48)	(3.04)	(4.88)
	(11.1)	155	(11)	(22.4)	(12.4)	(9.53)	(14.9)	34.9	87.1	(10.1)	(7.89)	(20.8)	(13.1)	(8.89)
Checkcode	3385	4361	4651	4985	5239	5527	5797	0067	0335	0512	3829	4355	4822	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: *9/22/06*

P5072 - Totals
Project ID: General Analytical HRMS

Sample Summary
Part 2

ALTA ANALYTICAL PERSPECTIVE

Method 1613

Analyte	0_2000_M0001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0990-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0998-01	IOB0991-01
	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
Totals														
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	7.38	4.44	0	0	0	0	0	39.8	0	0	0	0	0
HpCDDs	0	153	65.1	25.2	9.46	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	183	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	38.5	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
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	158	78.9	197	56.4	648	2,800	182	70.7	256	62.6	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	56.4	663	2,830	193	70.7	256	62.6	50
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	42.2	1,330	361	215	128	236	119	691	2,840	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.6	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.6	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Checkcode	3385	4361	4881	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL
 [] = EMPC

Reviewer: *ASMAROS*
 Date: _____

P5072 - Others
Project ID: General Analytical HRMS

Sample Summary
Part 3

ALTA ANALYTICAL PERSPECTIVES

Method 1613

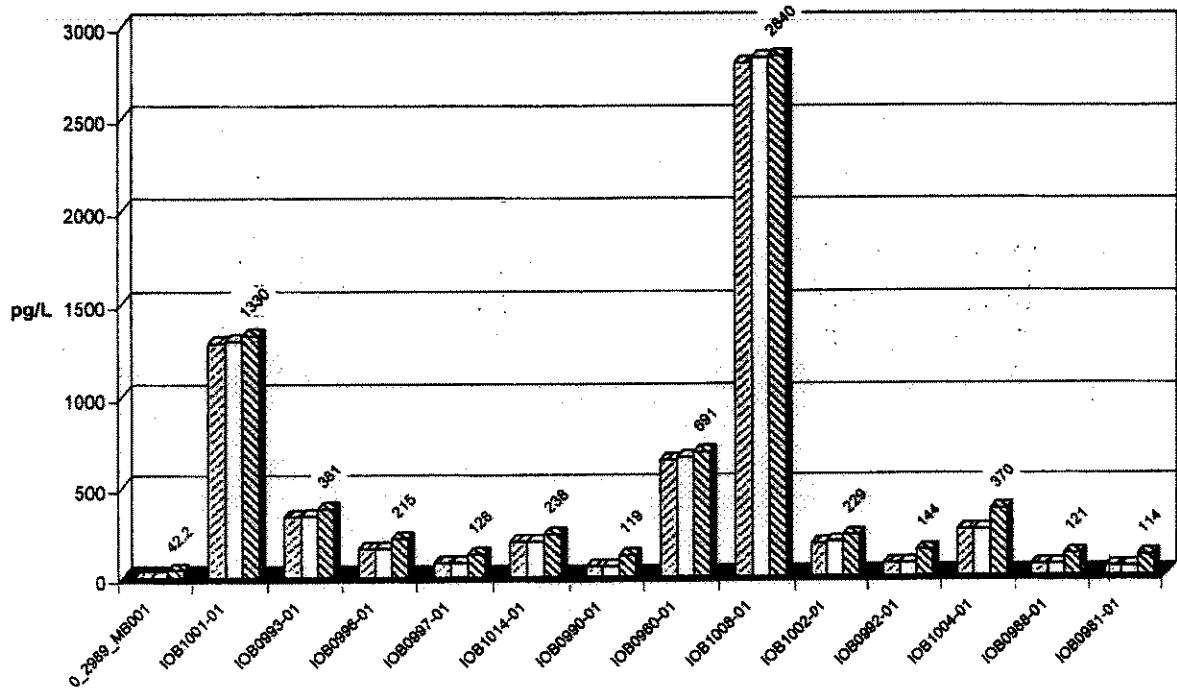
Analyte	0_2981_MB001	IOB1001-01	IOB0993-01	IOB0995-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0988-01	IOB0981-01
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
Other PCDDs (ND=0, EMPC=0)														
Other TCDD	0	0	0	0	0	0	0	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	33.6	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	6.53	0	0	0	0	0
Other PeCDF	0	0	0.858	0	0	0.76	0.256	0	2.57	0	0.456	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	71.8	5.96	0	0	0	0
Other PCDDs (ND=0, EMPC=EMPC)														
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	0.456	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	71.8	5.96	0	0	0	0
Checkcode	3385	4361	4681	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: 03/02/03

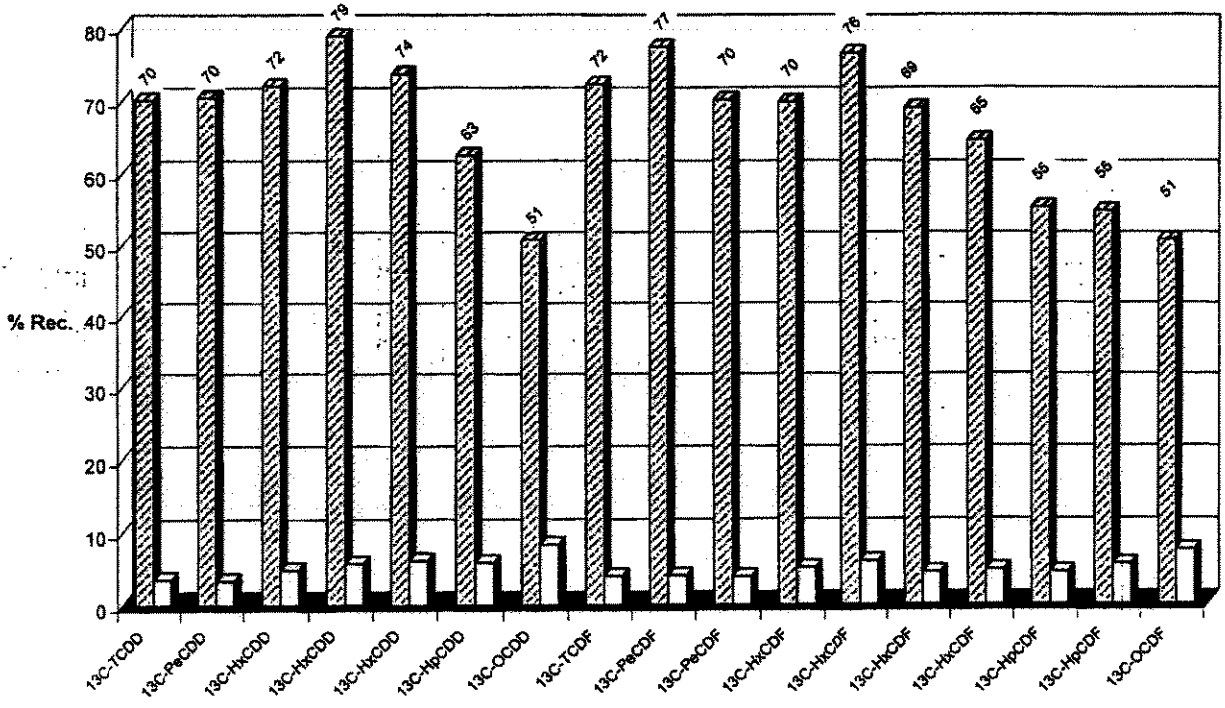
Totals
Project ID: General Analytical HRMS
P5072

Total PCDD/Fs (ND=0; EMPC=0)
 Total PCDD/Fs (ND=0; EMPC=EMPC)
 Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



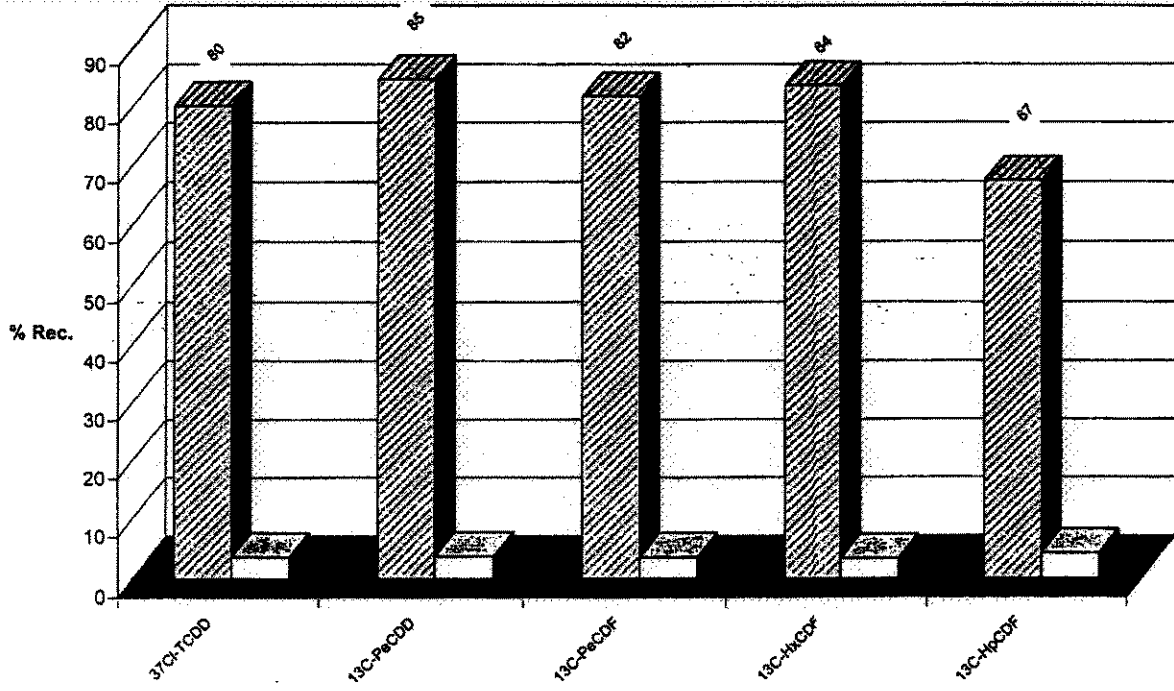
Mean Recoveries of Extraction Standards (N=14)
 Project ID: General Analytical HRMS
 P5072

▨ 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. Sureset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB0993

SENDING LABORATORY:	RECEIVING LABORATORY:
<p>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>Pace Analytical, MN- SUB 1700 Elm Street, Ste 200 Minneapolis, MN 55414 Phone : (612) 607-1700 Fax: (612) 607-6444</p> <div style="text-align: right; font-size: 2em; font-family: cursive;">107687</div>

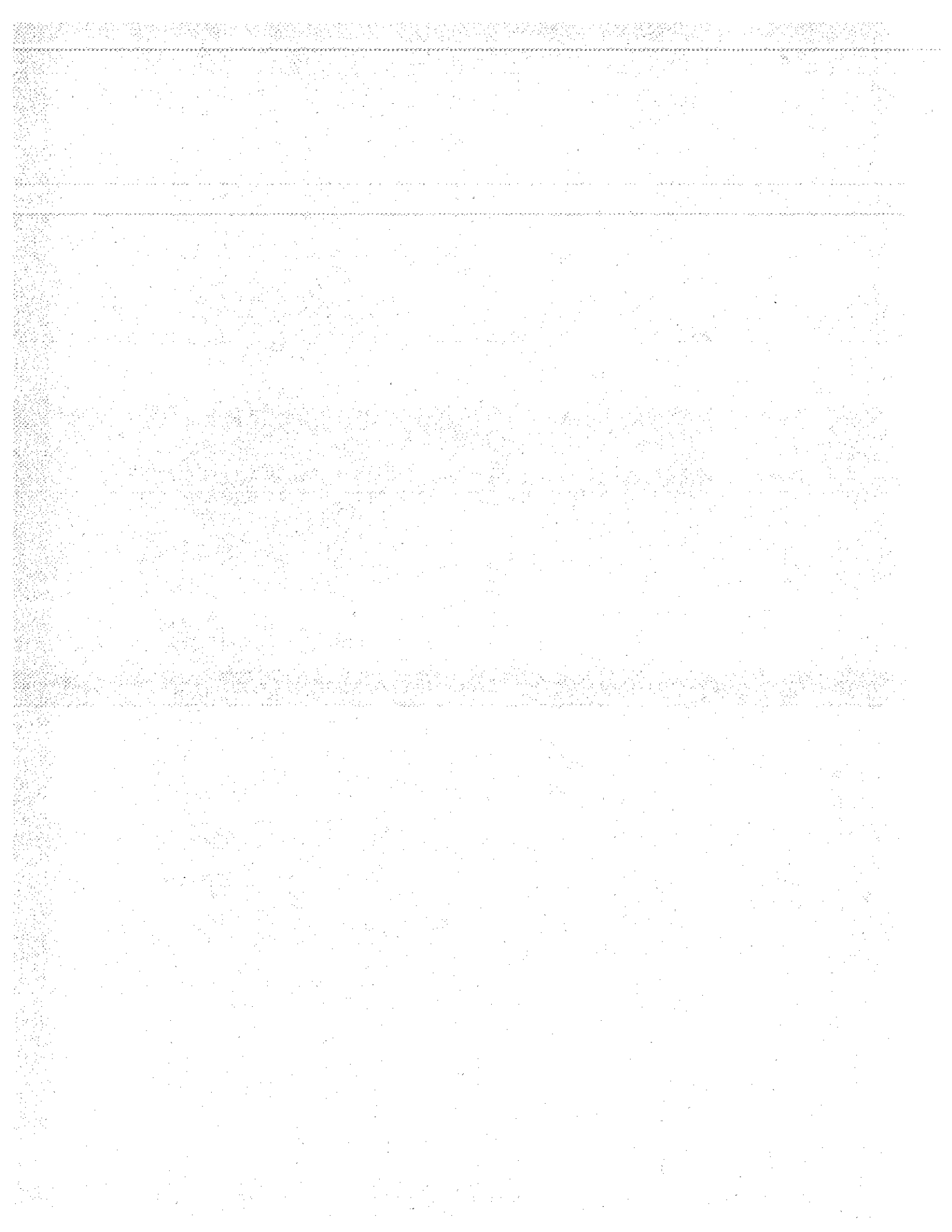
Standard TAT is requested unless specific due date is requested => Due Date: _____ Initials: _____

Analysis	Expiration	Comments
Sample ID: IOB0993-01 Water	Sampled: 02/11/05 10:50	001
1613-Dioxin-HR	02/18/05 10:50	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 10:50	
Containers Supplied:		
1 L Amber (IOB0993-01C)		
1 L Amber (IOB0993-01D)		

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): 2

	2-14-05	1700	Bright-Fluoro	2-15-05	9:00
Released By	Date	Time	Received By	Date	Time
Released By	Date	Time	Received By	Date	Time



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF28
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta

Reviewer K. Shadowlight

Analysis/Method Dioxins

Date: March 7, 2005

Reviewer's Signature

K. Shadowlight

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple SDGs
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOB1562-01	25779-001	water	1613
Outfall 003	IOB1571-01	25780-001	water	1613
Outfall 007	IOB1572-01	25782-001	water	1613
Outfall 008	IOB1573-01	25783-001	water	1613
Outfall 011	IOB1565-01	25781-001	water	1613
Outfall 018	IOB1570-01	25778-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 0.8°C ; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There were two initial calibrations, analyzed 08/30/04 and 10/04/04. The calibrations each consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6543-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 (6543-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 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. Compounds flagged by the laboratory with a "D" qualifier indicated possible diphenylether interference and were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.



Sample ID: IOB1572-01		Outfall 007		EPA Method 1613				
Client Data		Sample Data		Laboratory Data				
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25782-001	Date Received: 24-Feb-05					
Project: IOB1572	Sample Size: 1.035 L	QC Batch No.: 6543	Date Extracted: 25-Feb-05					
Date Collected: 18-Feb-05		Date Analyzed DB-5: 28-Feb-05	Date Analyzed DB-225: NA					
Time Collected: 1204								
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.811			IS 13C-2,3,7,8-TCDD	71.2	25 - 164	
1,2,3,7,8-PeCDD	ND	1.84			13C-1,2,3,7,8-PeCDD	75.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.75			13C-1,2,3,4,7,8-HxCDD	69.6	32 - 141	
1,2,3,6,7,8-HxCDD	2.30		J		13C-1,2,3,6,7,8-HxCDD	69.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.26			13C-1,2,3,4,6,7,8-HpCDD	69.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	64.4				13C-OCDD	61.4	17 - 157	
OCDD	537				13C-2,3,7,8-TCDF	72.7	24 - 169	
2,3,7,8-TCDF	ND	0.735			13C-1,2,3,7,8-PeCDF	69.0	24 - 185	
1,2,3,7,8-PeCDF	ND	1.14			13C-2,3,4,7,8-PeCDF	71.4	21 - 178	
2,3,4,7,8-PeCDF	ND	1.04			13C-1,2,3,4,7,8-HxCDF	61.5	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.695			13C-1,2,3,6,7,8-HxCDF	61.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.668			13C-2,3,4,6,7,8-HxCDF	61.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.14			13C-1,2,3,7,8,9-HxCDF	65.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.77			13C-1,2,3,4,6,7,8-HpCDF	57.5	28 - 143	
1,2,3,4,6,7,8-HpCDF	4.01		J		13C-1,2,3,4,7,8,9-HpCDF	64.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.53			13C-OCDF	62.0	17 - 157	
OCDF	12.8		J		CRS 37Cl-2,3,7,8-TCDD	84.0	35 - 197	
Totals								
Total TCDD	ND	0.811						
Total PeCDD	ND	1.84						
Total HxCDD	17.4							
Total HpCDD	139							
Total TCDF	1.88							
Total PeCDF	0.651		1.67					
Total HxCDF	1.62		3.47					
Total HpCDF	11.9							

Footnotes

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

MS 4/1/05 Analysis
Per 1

Approved By:

TRAVEL IV

NOT VALID

Project 25782

William J. Luksemburg 01-Mar-2005 16:36



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1572 & IOB1573

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#: IOB1572, IOB1573
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOB1572, 1573
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOB1573-01	water	ILM04
Outfall 007	Outfall 007	IOB1572-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 008 was analyzed and in an unreported method blank analysis. The detects ranged from 0.716 to 2.50 $\mu\text{g/L}$ and antimony was detected in Outfall 008 at a concentration well below these values, 0.34 $\mu\text{g/L}$. The CCB detects indicated the laboratory could not detect antimony at the reported MDL or RL. The reviewer raised the antimony MDL and RL for Outfall 008 MDL to the highest level of interference reported, 2.5 $\mu\text{g/L}$ and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. The results for sodium and potassium were above the calibration range of the instrument in the ICSA and ICSAB analyses. Aluminum was recovered below the control limit in the ICSA at 78% and above the calibration range in the ICSAB analyses. As aluminum, sodium, and potassium were not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B24099-BS1 and the mercury LCS sample was identified as 5B22063-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

Scandium was recovered above the control limit in Outfall 008; 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 samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



Del Mar Analytical

17461 Denan Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOB1572	Sampled: 02/18/05 Received: 02/18/05
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DRAFT: METALS

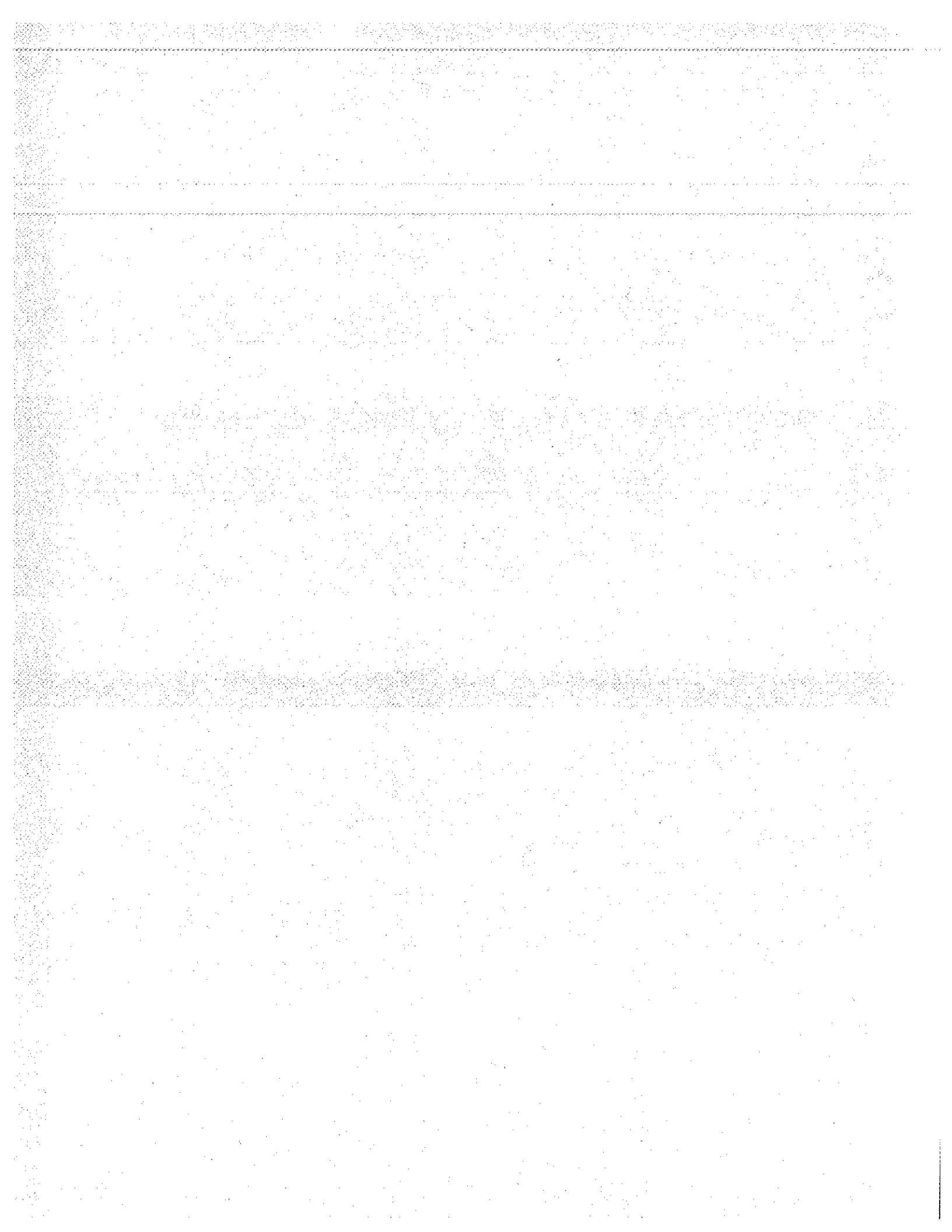
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1572-01 (DRAFT: Outfall 007 - Water)									
Reporting Units: ug/l									
Lead	EPA 200.8	5B24099	0.13	1.0	6.3	1	02/24/05	02/25/05	Rev Qual Qual Code

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.





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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 007

Sampled: 02/18/05
Received: 02/18/05
Issued: 03/25/05 11:05

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
IOB1572-01

CLIENT ID
Outfall 007

MATRIX
Water

Reviewed By:

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



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
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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOB1572	Sampled: 02/18/05 Received: 02/18/05
--	---	---

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1572-01 (Outfall 007 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B24099	0.18	2.0	1.3	1	02/24/05	02/25/05	J
Cadmium	EPA 200.8	5B24099	0.015	1.0	0.17	1	02/24/05	02/25/05	J
Copper	EPA 200.8	5B24099	0.49	2.0	8.4	1	02/24/05	02/25/05	
Lead	EPA 200.8	5B24099	0.13	1.0	6.3	1	02/24/05	02/25/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	0.070	1	02/22/05	02/22/05	J

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

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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05

Received: 02/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1572-01 (Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B18129	0.15	0.50	1.7	1	02/18/05	02/19/05	
Nitrate/Nitrite-N	EPA 300.0	5B18129	0.075	0.11	0.54	1	02/18/05	02/19/05	
Oil & Grease	EPA 413.1	5B23082	0.94	5.0	2.0	1	02/23/05	02/23/05	J
Sulfate	EPA 300.0	5B18129	0.25	0.50	1.2	1	02/18/05	02/19/05	
Total Dissolved Solids	SM2540C	5B24111	10	10	120	1	02/24/05	02/24/05	
Total Suspended Solids	EPA 160.2	5B25089	10	10	160	1	02/25/05	02/25/05	

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

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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05

Received: 02/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 007 (IOB1572-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/18/2005 12:04	02/18/2005 18:30	02/18/2005 22:00	02/19/2005 01:21

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

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

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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B22063 Extracted: 02/22/05											
Blank Analyzed: 02/22/2005 (5B22063-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 02/22/2005 (5B22063-BS1)											
Mercury	8.32	0.20	0.063	ug/l	8.00		104	85-115			
Matrix Spike Analyzed: 02/22/2005 (5B22063-MS1) Source: IOB1443-01											
Mercury	8.36	0.20	0.063	ug/l	8.00	0.074	104	70-130			
Matrix Spike Dup Analyzed: 02/22/2005 (5B22063-MSD1) Source: IOB1443-01											
Mercury	8.38	0.20	0.063	ug/l	8.00	0.074	104	70-130	0	20	
Batch: 5B24099 Extracted: 02/24/05											
Blank Analyzed: 02/25/2005-02/26/2005 (5B24099-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 02/25/2005 (5B24099-BS1)											
Antimony	85.6	2.0	0.18	ug/l	80.0		107	85-115			
Cadmium	76.4	1.0	0.015	ug/l	80.0		96	85-115			
Copper	84.0	2.0	0.49	ug/l	80.0		105	85-115			
Lead	80.3	1.0	0.13	ug/l	80.0		100	85-115			
Matrix Spike Analyzed: 02/25/2005 (5B24099-MS1) Source: IOB1490-01											
Antimony	85.7	2.0	0.18	ug/l	80.0	0.50	106	70-130			
Cadmium	75.1	1.0	0.015	ug/l	80.0	0.016	94	70-130			
Copper	82.5	2.0	0.49	ug/l	80.0	1.0	102	70-130			
Lead	77.6	1.0	0.13	ug/l	80.0	ND	97	70-130			

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

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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B24099 Extracted: 02/24/05											
Matrix Spike Analyzed: 02/25/2005 (5B24099-MS2)						Source: IOB1557-01					
Antimony	83.8	2.0	0.18	ug/l	80.0	0.20	104	70-130			
Cadmium	74.6	1.0	0.015	ug/l	80.0	ND	93	70-130			
Copper	83.9	2.0	0.49	ug/l	80.0	ND	105	70-130			
Lead	77.7	1.0	0.13	ug/l	80.0	0.15	97	70-130			
Matrix Spike Dup Analyzed: 02/25/2005 (5B24099-MSD1)						Source: IOB1490-01					
Antimony	85.0	2.0	0.18	ug/l	80.0	0.50	106	70-130	1	20	
Cadmium	75.2	1.0	0.015	ug/l	80.0	0.016	94	70-130	0	20	
Copper	81.2	2.0	0.49	ug/l	80.0	1.0	100	70-130	2	20	
Lead	76.3	1.0	0.13	ug/l	80.0	ND	95	70-130	2	20	

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOB1572	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B18129 Extracted: 02/18/05										
Blank Analyzed: 02/18/2005 (5B18129-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 02/18/2005 (5B18129-BS1)										
Chloride	5.11	0.50	0.26	mg/l	5.00		102 90-110			
Sulfate	10.6	0.50	0.18	mg/l	10.0		106 90-110			
Matrix Spike Analyzed: 02/18/2005 (5B18129-MS1) Source: IOB1556-01										
Chloride	7.47	0.50	0.26	mg/l	5.00	2.1	107 80-120			
Sulfate	15.3	0.50	0.18	mg/l	10.0	4.7	106 80-120			
Matrix Spike Dup Analyzed: 02/18/2005 (5B18129-MSD1) Source: IOB1556-01										
Chloride	7.43	0.50	0.26	mg/l	5.00	2.1	107 80-120	1	20	
Sulfate	14.3	0.50	0.18	mg/l	10.0	4.7	96 80-120	7	20	
Batch: 5B23082 Extracted: 02/23/05										
Blank Analyzed: 02/23/2005 (5B23082-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 02/23/2005 (5B23082-BS1) M-NR1										
Oil & Grease	15.9	5.0	0.94	mg/l	20.0		80 65-120			
LCS Dup Analyzed: 02/23/2005 (5B23082-BSD1)										
Oil & Grease	16.5	5.0	0.94	mg/l	20.0		82 65-120	4	20	

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

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOB1572	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B24111 Extracted: 02/24/05											
Blank Analyzed: 02/24/2005 (5B24111-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/24/2005 (5B24111-BS1)											
Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110			
Duplicate Analyzed: 02/24/2005 (5B24111-DUP1)											
						Source: IOB1821-01					
Total Dissolved Solids	374	10	10	mg/l		380			2	10	
Batch: 5B25089 Extracted: 02/25/05											
Blank Analyzed: 02/25/2005 (5B25089-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/25/2005 (5B25089-BS1)											
Total Suspended Solids	956	10	10	mg/l	1000		96	85-115			
Duplicate Analyzed: 02/25/2005 (5B25089-DUP1)											
						Source: IOB1979-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	

Del Mar Analytical, Irvine
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 Project Manager

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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05

Received: 02/18/05

Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOB1572-01	413.1 Oil and Grease	Oil & Grease	mg/l	2.00	5.0	15
IOB1572-01	Antimony-200.8	Antimony	ug/l	1.30	2.0	6.00
IOB1572-01	Cadmium-200.8	Cadmium	ug/l	0.17	1.0	4.00
IOB1572-01	Chloride - 300.0	Chloride	mg/l	1.70	0.50	150
IOB1572-01	Copper-200.8	Copper	ug/l	8.40	2.0	14
IOB1572-01	Mercury - 245.1	Mercury	ug/l	0.070	0.20	0.20
IOB1572-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.54	0.11	10.00
IOB1572-01	Sulfate-300.0	Sulfate	mg/l	1.20	0.50	250
IOB1572-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	120	10	850

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

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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05

Received: 02/18/05

DATA QUALIFIERS AND DEFINITIONS

- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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

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IOB1572 <Page 10 of 11>



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

Project ID: Routine Outfall 007

Report Number: IOB1572

Sampled: 02/18/05
 Received: 02/18/05

Certification Summary

Del Mar Analytical, Irvine

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

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

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOB1572-01

Analysis Performed: EDD + Level 4
 Samples: IOB1572-01

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



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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 007
Sampled: 02/18/05
Del Mar Analytical Number: IOB1572

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	Alta ID
Outfall 007	IOB1572-01	25782-001

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

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 01, 2005

Alta Project I.D.: 25782

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on February 24, 2005 under your Project Name "IOB1572". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier
HRMS Services Director



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

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



Section I: Sample Inventory Report

Date Received: 2/24/2005

Alta Lab. ID

Client Sample ID

25782-001

IOB1572-01

SECTION II



EPA Method 1613

Method Blank		Lab Sample: 0-MB001						
Matrix:	Aqueous	QC Batch No.:	6543 <th>Date Analyzed DB-5:</th> <td>28-Feb-05 </td>	Date Analyzed DB-5:	28-Feb-05			
Sample Size:	1.000 L	Date Extracted:	25-Feb-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.866			IS 13C-2,3,7,8-TCDD	75.9	25 - 164	
1,2,3,7,8-PeCDD	ND	1.15			13C-1,2,3,7,8-PeCDD	73.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.88			13C-1,2,3,4,7,8-HxCDD	70.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.86			13C-1,2,3,6,7,8-HxCDD	73.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.84			13C-1,2,3,4,6,7,8-HpCDD	67.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.38			13C-OCDD	56.3	17 - 157	
OCDD	ND	8.88			13C-2,3,7,8-TCDF	78.7	24 - 169	
2,3,7,8-TCDF	ND	0.545			13C-1,2,3,7,8-PeCDF	68.1	24 - 185	
1,2,3,7,8-PeCDF	ND	1.62			13C-2,3,4,7,8-PeCDF	73.3	21 - 178	
2,3,4,7,8-PeCDF	ND	1.45			13C-1,2,3,4,7,8-HxCDF	60.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.24			13C-1,2,3,6,7,8-HxCDF	64.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.869			13C-2,3,4,6,7,8-HxCDF	63.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.958			13C-1,2,3,7,8,9-HxCDF	65.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.55			13C-1,2,3,4,6,7,8-HpCDF	54.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	2.22			13C-1,2,3,4,7,8,9-HpCDF	59.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.68			13C-OCDF	54.9	17 - 157	
OCDF	ND	4.49			CRS 37Cl-2,3,7,8-TCDD	77.4	35 - 197	
Totals								
Total TCDD	ND	0.866						
Total PeCDD	ND	1.15						
Total HxCDD	ND	1.86						
Total HpCDD	ND	3.38						
Total TCDF	ND	0.545						
Total PeCDF	ND	1.54						
Total HxCDF	ND	1.37						
Total HpCDF	ND	2.38						

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

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:36



OPR Results		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	6543	Lab Sample:	0-OPR001	
Sample Size:	1.000 L	Date Extracted:	25-Feb-05	Date Analyzed DB-5:	28-Feb-05	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	8.67	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	67.4	25 - 164
1,2,3,7,8-PeCDD	50.0	43.8	35 - 71	13C-1,2,3,7,8-PeCDD	64.0	25 - 181
1,2,3,4,7,8-HxCDD	50.0	42.5	35 - 82	13C-1,2,3,4,7,8-HxCDD	58.2	32 - 141
1,2,3,6,7,8-HxCDD	50.0	43.5	38 - 67	13C-1,2,3,6,7,8-HxCDD	62.5	28 - 130
1,2,3,7,8,9-HxCDD	50.0	43.7	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	42.5	35 - 70	13C-OCDD	51.4	17 - 157
OCDD	100	87.0	78 - 144	13C-2,3,7,8-TCDF	72.5	24 - 169
2,3,7,8-TCDF	10.0	7.98	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.4	24 - 185
1,2,3,7,8-PeCDF	50.0	41.4	40 - 67	13C-2,3,4,7,8-PeCDF	64.8	21 - 178
2,3,4,7,8-PeCDF	50.0	42.3	34 - 80	13C-1,2,3,4,7,8-HxCDF	49.4	26 - 152
1,2,3,4,7,8-HxCDF	50.0	42.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	52.7	26 - 123
1,2,3,6,7,8-HxCDF	50.0	43.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	55.2	28 - 136
2,3,4,6,7,8-HxCDF	50.0	42.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	53.4	29 - 147
1,2,3,7,8,9-HxCDF	50.0	43.5	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	45.6	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41.8	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	49.6	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	42.7	39 - 69	13C-OCDF	49.0	17 - 157
OCDF	100	88.8	63 - 170	CRS 37Cl-2,3,7,8-TCDD	76.2	35 - 197

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:36



Sample ID: IOB1572-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25782-001
Project:	IOB1572	Sample Size:	1.035 L	QC Batch No.:	6543
Date Collected:	18-Feb-05			Date Analyzed DB-5:	28-Feb-05
Time Collected:	1204			Date Analyzed DB-225:	NA
		DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.811			IS 13C-2,3,7,8-TCDD	71.2	25 - 164
1,2,3,7,8-PeCDD	ND	1.84			13C-1,2,3,7,8-PeCDD	75.9	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.75			13C-1,2,3,4,7,8-HxCDD	69.6	32 - 141
1,2,3,6,7,8-HxCDD	2.30		J		13C-1,2,3,6,7,8-HxCDD	69.8	28 - 130
1,2,3,7,8,9-HxCDD	ND	2.26			13C-1,2,3,4,6,7,8-HpCDD	69.9	23 - 140
1,2,3,4,6,7,8-HpCDD	64.4				13C-OCDD	61.4	17 - 157
OCDD	537						
2,3,7,8-TCDF	ND	0.735			13C-2,3,7,8-TCDF	72.7	24 - 169
1,2,3,7,8-PeCDF	ND	1.14			13C-1,2,3,7,8-PeCDF	69.0	24 - 185
2,3,4,7,8-PeCDF	ND	1.04			13C-2,3,4,7,8-PeCDF	71.4	21 - 178
1,2,3,4,7,8-HxCDF	ND	0.695			13C-1,2,3,4,7,8-HxCDF	61.5	26 - 152
1,2,3,6,7,8-HxCDF	ND	0.668			13C-1,2,3,6,7,8-HxCDF	61.0	26 - 123
2,3,4,6,7,8-HxCDF	ND	1.14			13C-2,3,4,6,7,8-HxCDF	61.6	28 - 136
1,2,3,7,8,9-HxCDF	ND	1.77			13C-1,2,3,7,8,9-HxCDF	65.5	29 - 147
1,2,3,4,6,7,8-HpCDF	4.01		J		13C-1,2,3,4,6,7,8-HpCDF	57.5	28 - 143
1,2,3,4,7,8,9-HpCDF	ND	1.53			13C-1,2,3,4,7,8,9-HpCDF	64.4	26 - 138
OCDF	12.8		J		13C-OCDF	62.0	17 - 157

Totals	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
Total TCDD	ND	0.811					
Total PeCDD	ND	1.84					
Total HxCDD	17.4						
Total HpCDD	139						
Total TCDF	1.88						
Total PeCDF	0.651		1.67				
Total HxCDF	1.62		3.47				
Total HpCDF	11.9						

Footnotes

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

Analyst: MS

Approved By:

William J. Luksemburg 01-Mar-2005 16:36

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS



NELAP — (Primary AA: California, Certificate No. 02102CA)
Department of the Navy
U.S. Army Corps of Engineers
U.S. EPA Region 5
Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)
Commonwealth of Kentucky — (Certificate No. 90063)
Commonwealth of Virginia — (Certificate No. 00013)
State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)
State of Arizona — (Certificate No. AZ0639)
State of Arkansas, Department of Health — (Approval granted through CA certification)
State of Arkansas, Department of Environmental Quality
State of California — (Certificate No. 1640)
State of Colorado
State of Connecticut — (Certificate No. PH-0182)
State of Florida — (Certificate No. 87456)
State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)
State of Louisiana, Department of Environmental Quality
State of Maine
State of Michigan (Certificate No. 81178087)
State of Mississippi — (Approval granted through CA certification)
State of Nevada — (Certificate No. CA413)
State of New Jersey — (Certificate No. CA003)
State of New York, Department of Health — (Certificate No. 11411)
State of North Carolina — (Certification No. 06700)
State of North Dakota, Department of Health — (Certificate No. R-078)
State of New Mexico
State of Oklahoma — (D9919)
State of Oregon — (Certificate No. CA413)
State of Pennsylvania — (Certificate No. 68-490)
State of South Carolina — (Certificate No. 87002001)
State of Tennessee — (Certificate No. 02996)
State of Texas — (Certificate No. TX247-1000A)
State of Utah — (Certificate No. E-201)
State of Washington — (Certification No. C091)
State of Wisconsin — (Certificate No. 998036160)
State of Wyoming — (USEPA Region 8 Ref. 8TMS-Q)



17461 Derian Ave, Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. 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) 505-9889
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0881
 2520 E. Sunset Pk., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB1572

SENDING LABORATORY:

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

RECEIVING LABORATORY:

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

25782
0.8°C

Standard TAT is requested unless specific due date is requested => Due Date: 2 weeks Initials: VB

Analysis	Expiration	Comments
Sample ID: IOB1572-01 Water	Sampled: 02/18/05 12:04	Instant Notification J flags, 17 congeners, no TEQ, sub to Alta Excel EDD email to pm, include Std logs for Lvl IV
1613-Dioxin-HR	02/25/05 12:04	
EDD + Level 4	03/18/05 12:04	
Containers Supplied:		
1 L Amber (IOB1572-01C)		
1 L Amber (IOB1572-01D)		

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	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: V. B. Baker Date: 2-23-05 Time: 1700 Received By: Letitia J. Benedict Date: 2/24/05 Time: 0905

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

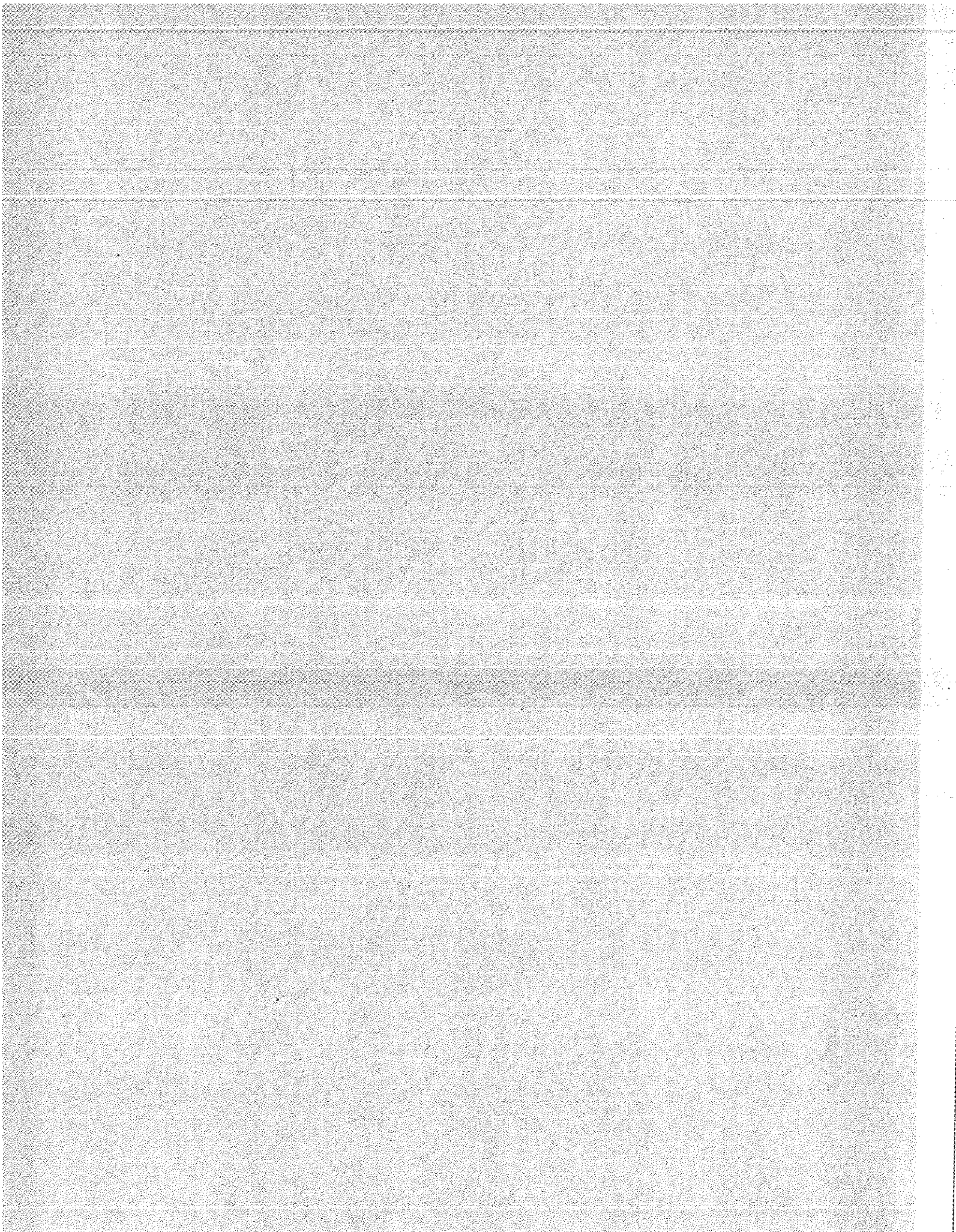
ALTA Project No.: 25782

1. Date Samples Arrived: <u>2/24/05</u> <u>0905</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1240</u> <u>2/24/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> / <u>Blue Ice</u> / Dry Ice / None Temp °C <u>0.8</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7904 3642 7349</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. Intact? If not intact, describe condition in comment section.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. Sample Container Intact? If no, indicate sample condition in comment section.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Chain of Custody (COC) or other Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

Sampler's initials found on sample label

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



APPENDIX G

Section 22

February Outfall 008

AMEC Data Validation Reports

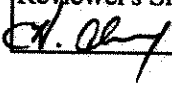
Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID 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


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	Detects below the calibration range were qualified "J." False negative and false positives noted. Several transcription errors were noted.
COMMENTS^b	
<p>^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple 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 I were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 1)*, *EPA Method 1613*, and the *National Functional Guidelines For Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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: IOB0997-01 Outfall 008

Method 1613

Client Data		Sample Data		Laboratory Data	
Name: Pace Inc. General Analytical HRMS 11 Feb 05	Matrix: Aqueous Weight/Volume: 1.05 L pH: 6	Project No.: P5072	Date Received: 01 Mar 05	Project No.: P5072	Date Received: 01 Mar 05
Date Collected: 11 Feb 05		Sample ID: P5072_2989_004	Date Extracted: 01 Mar 05	Sample ID: P5072_2989_004	Date Extracted: 01 Mar 05
		QC Batch No.: 2989	Date Analyzed: 03 Mar 05	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	1.34			65.8	77.1
1,2,3,7,8-PeCDD	ND	2.11			62.8	79.6
1,2,3,4,7,8-HxCDD	ND	2.48			66.4	79.4
1,2,3,6,7,8-HxCDD	ND	2.34			71.2	79.4
1,2,3,7,8,9-HxCDD	ND	2.82			67.2	79.4
1,2,3,4,6,7,8-HpCDD	ND	9.38			55.3	65
OCDD	70.4	6.96			48.1	65
2,3,7,8-TCDF	ND	0.995			68.3	77.1
1,2,3,7,8-PeCDF	ND	2.33			70.6	77.3
2,3,4,7,8-PeCDF	ND	2.42			62.6	77.3
1,2,3,4,7,8-HxCDF	ND	0.943			62.6	79.4
1,2,3,6,7,8-HxCDF	ND	0.871			68.5	79.4
2,3,4,6,7,8-HxCDF	ND	1.12			61.8	79.4
1,2,3,7,8,9-HxCDF	ND	1.73			57.8	79.4
1,2,3,4,6,7,8-HpCDF	ND	1.9			53.5	65
1,2,3,4,7,8,9-HpCDF	ND	3.25			49.3	65
OCDF	ND	12.4			47.2	65

Totals & TEQs			
TCDDs	ND	1.34	
PeCDDs	ND	2.11	
HxCDDs	ND	2.55	
HpCDDs	9.46	9.38	
TCDFs	ND	0.995	
PeCDFs	ND	2.37	
HxCDFs	ND	1.13	
HpCDFs	ND	2.5	
Total PCDD/Fs	79.9		79.9



2714 Exchange Drive
Wilmington
North Carolina 28405
USA

Tel: 910 794-1613
Fax: 910 794-3919
e-mail: yf@ultratrace.com
web: www.ultratrace.com

AMEC VALIDATED

LEVEL IV

AAP 2005 Rev. B

Checkcode: 5239

Reviewer
Date



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB0997, IOB1001, & IOB1008

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#: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 28, 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 008	Outfall 008	IOB0997-01	water	ILM04
Outfall 010	Outfall 010	IOB1001-01	water	ILM04
Outfall 018	Outfall 018	IOB1008-01	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 requested analytes for Outfall 018 were changed in a memo from MWH personnel dated 02/17/05. The COCs accounted for the remaining samples and analyses presented in these SDGs. Duplicate samples were submitted for all samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. Silver was recovered below the control limit in the ICP reporting limit check standard associated with Outfall 008 and Outfall 010; therefore, nondetected silver in these samples was qualified as estimated, "UJ." Antimony was recovered below the control limit in the ICP/MS 0.2 ppb reporting limit check standard associated with Outfall 010; therefore, nondetected antimony in Outfall 010 (see

section 2.4) was qualified as estimated, "UJ." Copper was not recovered in the ICP/MS 1.0 ppb reporting limit check standard and was recovered below the control limit in the ICP/MS 2.0 ppb reporting limit check standard; however, as copper was detected in the associated sample, Outfall 018, at $\geq 3 \times RL$, no qualifications were required. The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Arsenic was reported in method blank 5B17127 at -0.0071 mg/L; therefore, nondetected arsenic in Outfall 010 was qualified as estimated, "UJ." Antimony was detected in the CCBs bracketing Outfall 008 and Outfall 010 at approximately 0.95 and 0.50 $\mu\text{g/L}$, respectively and antimony was detected in Outfall 008 and Outfall 010 at concentrations below the level reported in the CCBs. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the MDLs in the site samples to the level reported in the respective CCBs and qualified the results as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. The results for sodium and potassium were above the calibration range of the instrument in all the ICSA and ICSAB analyses and aluminum was above the calibration range in the ICSA and ICSAB analyses associated with Outfall 010; however, as these analytes were not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the 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.

ICSA and ICSAB analyses were included in the raw data for the ICP analyses, but were not run on the days the site samples were analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. In the ICSA analyses there were negative results for chromium and positive results for thallium and zinc that were above the applicable reporting limits. The validator reviewed the raw data for the site sample ICP analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the level of reported interferents were not high enough to cause matrix affects. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5B12041-BS1, 5B17098-BS1, and 5B17129-BS1 and the ICP LCS samples were identified as 5B17097-BS1 and 5B17127-BS1. The mercury LCS samples were identified as 5B12033-BS1 and 5B15070-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

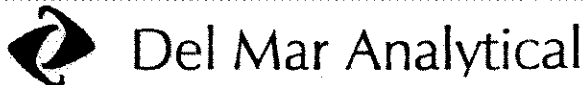
Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8536 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: Annual Outfall 008

Report Number: IOB0997

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: IOB0997-01 (DRAFT: Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Arsenic	EPA 200.7	5B17097	0.0038	0.0050	ND	1	02/17/05	02/17/05	U
Beryllium	EPA 200.7	5B17097	0.00062	0.0020	ND	1	02/17/05	02/17/05	U
Chromium	EPA 200.7	5B17097	0.00068	0.0050	0.0095	1	02/17/05	02/17/05	U
Nickel	EPA 200.7	5B17097	0.0020	0.010	0.0078	1	02/17/05	02/17/05	J J DNR
Selenium	EPA 200.7	5B17097	0.0046	0.0050	ND	1	02/17/05	02/17/05	U U
Silver	EPA 200.7	5B17097	0.0013	0.010	ND	1	02/17/05	02/17/05	U J *3
Thallium	EPA 200.7	5B17097	0.0031	0.0050	ND	1	02/17/05	02/18/05	U
Zinc	EPA 200.7	5B17097	0.0037	0.020	0.022	1	02/17/05	02/17/05	U

LEVEL IV
AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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



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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) 370-4637 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) 785-0013 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 008

Report Number: IOB0997

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	Rev Qual	Qual Code
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water) - cont.											
Reporting Units: ug/l											
Aluminum	EPA 200.7	5B17097	47	50	6500	1	02/17/05	02/17/05			
Antimony	EPA 200.8	5B17098	0.18	2.0	0.26 0.95	1	02/17/05	02/20/05	US J		B, \$
Cadmium	EPA 200.8	5B17098	0.015	1.0	0.087	1	02/17/05	02/20/05	J J		DNQ
Copper	EPA 200.8	5B17098	0.49	2.0	5.5	1	02/17/05	02/20/05			
Lead	EPA 200.8	5B17098	0.13	1.0	3.7	1	02/17/05	02/20/05			
Mercury	EPA 245.1	5B15070	0.063	0.20	0.17	1	02/15/05	02/15/05	J J		DNQ
Vanadium	EPA 200.7	5B17097	1.4	10	17	1	02/17/05	02/17/05			

mm 3/20/05

LEVEL IV

AMEC VALIDATED

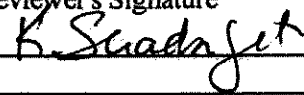
DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP17
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 3

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method Pesticides

Date March 28, 2005
 Reviewer's Signature


ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for %D continuing calibration outliers
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS^b	
Acceptable as reviewed.	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: 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
SDG#: Multiple SDGs
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 25, 2005

The samples listed in Table 1 were validated based on the 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 008	Outfall 008	IOB0997-01	water	608
Outfall 010	Outfall 010	IOB1001-01	water	608
Outfall 018	Outfall 018	IOB1008-01	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 coolers were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There were two initial calibrations dated 02/15/05 and 02/17/05 associated with the pesticide analyses of the samples in these SDGs, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analyses of the samples in these SDGs which consisted of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242 and Aroclor 1254 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

Of the continuing calibrations associated with the pesticide analyses for the samples in these SDGs there were several %D outliers. The %Ds for beta-BHC, endosulfan II, endrin aldehyde, and endrin ketone exceeded 15% in one of the three calibrations standards bracketing sample Outfall 008; therefore, the aforementioned target compounds were qualified as estimated, "UJ," in Outfall 008.

The continuing calibrations associated with sample Outfall 010 were bracketed by four continuing calibrations, two preceding and two following the analyses. The %Ds for target compounds endrin aldehyde (02/17/05), 4,4'-DDT and methoxychlor (02/18/05 at 03:14 a.m. and 03:41 a.m.) and heptachlor, endrin aldehyde, and endrin ketone (02/18/05 at 03:41 a.m.) exceeded 15% on the primary channel; therefore, the aforementioned target compounds were qualified as estimated, "UJ," in sample Outfall 010.

The remaining %Ds were within the Method QC limit of $\pm 15\%$ for the remaining calibrations. Each of the PCB analyses for the samples in these SDGs were bracketed by two CCVs and the %Ds for Aroclor 1016 and Aroclor 1260 were $\leq 15\%$. 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

Three water method blanks (5B15038-BLK1, 5B17042-BLK1, and 5B13028-BLK1) were extracted and analyzed with these SDGs. There were no pesticide target compounds or Aroclors detected in any of the method blanks. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three blank spike/blank spike duplicate pairs (5B15038-BS1/BSD1, 5B17042-BS1/BSD, and 5B13028-BS1/BSD) were 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 the samples were within the laboratory-established. 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 blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL studies. The water reporting limits were not adjusted for sample amounts on the result summaries; however, the dilution factors listed on the summaries reflected the sample volumes extracted. Results were reported in ug/L (ppb). No qualifications were required.



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) 505-8396 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: Annual Outfall 008

Report Number: IOB0997

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
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/22/05	u
alpha-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u
beta-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u S C
delta-BHC	EPA 608	5B15038	0.020	0.20	ND	0.962	02/15/05	02/22/05	u
gamma-BHC (Lindane)	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u
Chlordane	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/22/05	u
4,4'-DDD	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u
4,4'-DDE	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/22/05	u
4,4'-DDT	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/22/05	u
Dieldrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u
Endosulfan I	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u
Endosulfan II	EPA 608	5B15038	0.040	0.10	ND	0.962	02/15/05	02/22/05	u S C
Endosulfan sulfate	EPA 608	5B15038	0.015	0.20	ND	0.962	02/15/05	02/22/05	u
Endrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	u
Endrin aldehyde	EPA 608	5B15038	0.045	0.10	ND	0.962	02/15/05	02/22/05	u S C
Endrin ketone	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/22/05	u S C
Heptachlor	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/22/05	u
Heptachlor epoxide	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/22/05	u
Methoxychlor	EPA 608	5B15038	0.035	0.10	ND	0.962	02/15/05	02/22/05	u
Toxaphene	EPA 608	5B15038	1.5	5.0	ND	0.962	02/15/05	02/22/05	u
Surrogate: Tetrachloro-m-xylene (35-120%)									35 %
Surrogate: Decachlorobiphenyl (45-120%)									61 %

AMEC VALIDATED
~~LEVEL III~~ **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 008

Report Number: IOB0997

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
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/15/05	u
Aroclor 1221	EPA 608	5B15038	0.10	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1232	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1242	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1248	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1254	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1260	EPA 608	5B15038	0.40	1.0	ND	0.962	02/15/05	02/15/05	
Surrogate: Decachlorobiphenyl (45-120%)					67 %				

Rev
Qual
Qual
Date

**AMEC VALIDATED
 LEVEL IV**

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE



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. These 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>8266</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502137-01</u>	Contract <u>PROJECT# IOB0997</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
Client <u>Sample ID</u> outfall 008 IOB0997-01	8266-001		02/11/05	03/01/05	GrossAlpha	6.07 ± 1.7	pCi/L	1.06	J	R, Q
				03/01/05	Gross Beta	7.48 ± 1.5	pCi/L	1.88		
				03/03/05	H3	110 ± 150	pCi/L	242	R	*1
				02/25/05	Sr90	-0.107 ± 0.22	pCi/L	0.458	U	

PM 3/24/05

AMEC VALIDATED

LEVEL IV

Certified by <i>[Signature]</i>
Report Date <u>03/08/05</u>
Page 1



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB0997, IOB1001,
IOB1008

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#: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
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 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 008	Outfall 008	IOB0997-01	water	625
Outfall 010	Outfall 010	IOB1001-01	water	625
Outfall 018	Outfall 018	IOB1008-01	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

Extraction of the water samples was performed within seven days of collection. The samples were analyzed within 40 days of extraction. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tune met the ion abundance criteria specified in Method 625. No qualifications were required.

2.3 CALIBRATION

The initial calibrations associated with these SDGs were dated 02/15/05 and 02/17/05. The average RRFs for were ≥ 0.05 for all applicable target compounds. The %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ with the exception of the r^2 values for benzoic acid, hexachlorocyclopentadiene, and 2,4-dinitrophenol. The nondetect results for the aforementioned compounds were qualified as estimated, "UJ," in site samples Outfall 008 and Outfall 010. The continuing calibrations associated with the sample analyses were analyzed 02/15/05, 02/17/05, and 02/22/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$ except for the %D for NDMA in the calibration dated 02/17/05. The nondetect for NDMA was qualified as estimated, "UJ," for sample Outfall 018. 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 further qualifications were required.

2.4 BLANKS

Two method blanks (5B13024-BLK1, 5B17041-BLK1/benzidine only, and 5B14010-BLK1) were extracted and analyzed with these SDGs. There were no detects above the MDLs for any target compounds. Review of the raw data indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three blank spike/ blank spike duplicate pairs (5B13024-BS1/BSD1, 5B17041-BS1/BSD1, and 5B14010-BS1/BSD1) were 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.

For 5B13024-BS1/BSD1 and 5B17041-BS1/BSD1, all applicable target compounds were recovered within the QC limits and all RPDs were below the QC limits.

For 5B14010-BS1/BSD1, all percent recoveries were within the QC limits and all RPDs were below the QC limits except for the RPD for n-nitrosodimethylamine (NDMA). The nondetect for NDMA was qualified as estimated, "UJ," for sample Outfall 018.

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 all samples were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for semivolatile target compounds by EPA Method 625. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial 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). No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



Del Mar Analytical

17461 Denan Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9630 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 796-3620 FAX (702) 798-3621

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

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B13024	4.3	10	ND	0.962	02/13/05	02/16/05	U
Acenaphthylene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	U
Aniline	EPA 625	5B13024	2.9	10	ND	0.962	02/13/05	02/16/05	U
Anthracene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	U
Benzoic acid	EPA 625	5B13024	2.6	20	ND	0.962	02/13/05	02/16/05	U
Benzo(a)anthracene	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	U
Benzo(b)fluoranthene	EPA 625	5B13024	2.7	10	ND	0.962	02/13/05	02/16/05	U
Benzo(k)fluoranthene	EPA 625	5B13024	3.4	10	ND	0.962	02/13/05	02/16/05	U
Benzo(g,h,i)perylene	EPA 625	5B13024	5.3	10	ND	0.962	02/13/05	02/16/05	U
Benzo(a)pyrene	EPA 625	5B13024	3.5	10	ND	0.962	02/13/05	02/16/05	U
Benzyl alcohol	EPA 625	5B13024	2.5	20	ND	0.962	02/13/05	02/16/05	U
Bis(2-chloroethoxy)methane	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	U
Bis(2-chloroethyl)ether	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5B13024	5.2	50	ND	0.962	02/13/05	02/16/05	U
4-Bromophenyl phenyl ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	U
Butyl benzyl phthalate	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	U
4-Chloroaniline	EPA 625	5B13024	6.0	10	ND	0.962	02/13/05	02/16/05	U
2-Chloronaphthalene	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	U
4-Chloro-3-methylphenol	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	U
2-Chlorophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	U
4-Chlorophenyl phenyl ether	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05	U
Chrysene	EPA 625	5B13024	2.8	10	ND	0.962	02/13/05	02/16/05	U
Dibenz(a,h)anthracene	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	U
Dibenzofuran	EPA 625	5B13024	2.6	10	ND	0.962	02/13/05	02/16/05	U
Di-n-butyl phthalate	EPA 625	5B13024	2.8	20	ND	0.962	02/13/05	02/16/05	U
1,3-Dichlorobenzene	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	U
1,4-Dichlorobenzene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	U
1,2-Dichlorobenzene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05	U
3,3-Dichlorobenzidine	EPA 625	5B13024	11	20	ND	0.962	02/13/05	02/16/05	U
2,4-Dichlorophenol	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	U
Diethyl phthalate	EPA 625	5B13024	3.1	10	ND	0.962	02/13/05	02/16/05	U
2,4-Dimethylphenol	EPA 625	5B13024	4.4	20	ND	0.962	02/13/05	02/16/05	U
Dimethyl phthalate	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05	U
4,6-Dinitro-2-methylphenol	EPA 625	5B13024	5.1	20	ND	0.962	02/13/05	02/16/05	U
2,4-Dinitrophenol	EPA 625	5B13024	5.3	20	ND	0.962	02/13/05	02/16/05	U
2,4-Dinitrotoluene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	U
2,6-Dinitrotoluene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	U
Di-n-octyl phthalate	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	U
Fluoranthene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	U
Fluorene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	U

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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

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AMEC VALIDATED

12/11/05



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

Project ID: Annual Outfall 008

Report Number: IOB0997

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	RES QUAL	QUAL CODE
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water) - cont.											
Reporting Units: ug/l.											
Hexachlorobenzene	EPA 625	5B13024	4.8	10	ND	0.962	02/13/05	02/16/05	U		
Hexachlorobutadiene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	U		
Hexachlorocyclopentadiene	EPA 625	5B13024	3.4	20	ND	0.962	02/13/05	02/16/05	U		C
Hexachloroethane	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	U		
Indeno(1,2,3-cd)pyrene	EPA 625	5B13024	5.4	20	ND	0.962	02/13/05	02/16/05			
Isophorone	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05			
2-Methylnaphthalene	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05			
2-Methylphenol	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05			
4-Methylphenol	EPA 625	5B13024	3.8	10	ND	0.962	02/13/05	02/16/05			
Naphthalene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05			
2-Nitroaniline	EPA 625	5B13024	3.9	20	ND	0.962	02/13/05	02/16/05			
3-Nitroaniline	EPA 625	5B13024	4.5	20	ND	0.962	02/13/05	02/16/05			
4-Nitroaniline	EPA 625	5B13024	4.9	20	ND	0.962	02/13/05	02/16/05			
Nitrobenzene	EPA 625	5B13024	4.2	20	ND	0.962	02/13/05	02/16/05			
2-Nitrophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05			
4-Nitrophenol	EPA 625	5B13024	6.6	20	ND	0.962	02/13/05	02/16/05			
N-Nitrosodiphenylamine	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05			
N-Nitroso-di-n-propylamine	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05			
Pentachlorophenol	EPA 625	5B13024	4.0	20	ND	0.962	02/13/05	02/16/05			
Phenanthrene	EPA 625	5B13024	3.3	10	ND	0.962	02/13/05	02/16/05			
Phenol	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05			
Pyrene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05			
1,2,4-Trichlorobenzene	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05			
2,4,5-Trichlorophenol	EPA 625	5B13024	3.6	20	ND	0.962	02/13/05	02/16/05			
2,4,6-Trichlorophenol	EPA 625	5B13024	4.1	20	ND	0.962	02/13/05	02/16/05			
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B13024	5.0	20	ND	0.962	02/13/05	02/16/05			
N-Nitrosodimethylamine	EPA 625	5B13024	3.7	20	ND	0.962	02/13/05	02/16/05			
Surrogate: 2-Fluorophenol (35-120%)											66 %
Surrogate: Phenol-d6 (45-120%)											70 %
Surrogate: 2,4,6-Tribromophenol (50-125%)											88 %
Surrogate: Nitrobenzene-d5 (45-120%)											77 %
Surrogate: 2-Fluorobiphenyl (45-120%)											80 %
Surrogate: Terphenyl-d14 (45-135%)											93 %

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

Project ID: Annual Outfall 008
 Report Number: IOB0997

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
Sample ID: IOB0997-01RE1 (DRAFT: Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.966	02/17/05	02/22/05	U
Surrogate: 2-Fluorophenol (35-120%)					62 %				
Surrogate: Phenol-d6 (45-120%)					66 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					87 %				
Surrogate: Nitrobenzene-d5 (45-120%)					74 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					79 %				
Surrogate: Terphenyl-d14 (45-135%)					80 %				

REF	QUAL
QUAL	CODE
U	

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1 REFI TV

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

Package ID T711VO61
 Task Order 313150010
 SDG No. IOB0997, 1001, 1008
 No. of Analyses 6

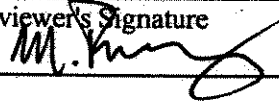
Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: March 30, 2005

Reviewer's Signature



ACTION ITEMS^a

1. **Case Narrative Deficiencies** _____
2. **Out of Scope Analyses** _____
3. **Analyses Not Conducted** _____
4. **Missing Hardcopy Deliverables** _____
5. **Incorrect Hardcopy Deliverables** _____
6. **Deviations from Analysis Protocol, e.g.,**
 - Holding Times _____
 - GC/MS Tune/Inst. Perform _____
 - Calibrations _____
 - Blanks _____
 - Surrogates _____
 - Matrix Spike/Dup LCS _____
 - Field QC _____
 - Internal Standard Performance _____
 - Compound Identification and Quantitation _____
 - System Performance _____

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUPs: IOB0997, IOB1001,
IOB1008

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#: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
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 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 008	Outfall 008	IOB0997-01	water	624
Trip Blank	Trip Blank	IOB0997-02	water	624
Outfall 010	Outfall 010	IOB1001-01	water	624
Trip Blank	Trip Blank	IOB1001-02	water	624
Outfall 018	Outfall 018	IOB1008-01	water	624
Trip Blank	Trip Blank	IOB1008-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the 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

Three initial calibrations dated 10/14/04 (acrolein and acrylonitrile only), 02/01/05, and 02/07/05, were associated with these SDGs. The average RRF for acrolein was <0.05 ; therefore, the nondetect results for acrolein were rejected, "R," in samples Outfall 008, Trip Blank (IOB 0997-02), Outfall 010, and Trip blank (IOB 1001-02). The remaining average RRFs were ≥ 0.05 and all %RSDs were $\leq 35\%$ for the target compounds listed on the sample result summaries. Three continuing calibrations analyzed 02/17/05 and 02/18/05 (08:37 and 17:45) were associated with the sample analyses. The RRF for acrolein was <0.05 in the continuing calibration dated 02/17/05; therefore, the nondetect results for acrolein were rejected, "R," in samples Outfall 008, Trip Blank (IOB 0997-02), Outfall 010, and Trip blank (IOB 1001-02). The %Ds for acrolein and acrylonitrile exceeded 20%; therefore, nondetect results for acrolein and acrylonitrile were qualified as estimated, "UJ," in samples Outfall 008 and Outfall 010, unless otherwise rejected. The trip blanks were not qualified for %D calibration outliers. For all remaining target compounds the %Ds were $\leq 20\%$ and the RRFs were ≥ 0.05 . A representative number of %RSDs and average RRFs from the

initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Three water method blanks (5B17014-BLK1, 5B18008-BLK1, and 5B12011-BLK1) were associated with these SDGs. 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 (5B17014-BS1, 5B18008-BS1, and 5B12011-BS1) were associated with these SDGs. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 010 was the MS/MSD analyses performed with the site samples in these SDGs. All 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 (IOB0997), Trip Blank (IOB1001), and Trip Blank (IOB1008) were the trip blanks associated with the site samples in these SDGs. There were no target compounds detected above the MDLs in any of 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 ± 0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration 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 ug/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.



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-1297
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B18008	0.28	1.0	ND	1	02/18/05	02/18/05	REV QUAL U
Bromodichloromethane	EPA 624	5B18008	0.30	2.0	ND	1	02/18/05	02/18/05	↓
Bromoform	EPA 624	5B18008	0.32	5.0	ND	1	02/18/05	02/18/05	
Bromomethane	EPA 624	5B18008	0.34	5.0	ND	1	02/18/05	02/18/05	
Carbon tetrachloride	EPA 624	5B18008	0.28	0.50	ND	1	02/18/05	02/18/05	
Chlorobenzene	EPA 624	5B18008	0.36	2.0	ND	1	02/18/05	02/18/05	
Chloroethane	EPA 624	5B18008	0.33	5.0	ND	1	02/18/05	02/18/05	
Chloroform	EPA 624	5B18008	0.33	2.0	ND	1	02/18/05	02/18/05	
Chloromethane	EPA 624	5B18008	0.30	5.0	ND	1	02/18/05	02/18/05	
Dibromochloromethane	EPA 624	5B18008	0.28	2.0	ND	1	02/18/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B18008	0.32	2.0	ND	1	02/18/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B18008	0.35	2.0	ND	1	02/18/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B18008	0.37	2.0	ND	1	02/18/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B18008	0.27	2.0	ND	1	02/18/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B18008	0.28	0.50	ND	1	02/18/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B18008	0.32	5.0	ND	1	02/18/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B18008	0.27	2.0	ND	1	02/18/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B18008	0.35	2.0	ND	1	02/18/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B18008	0.22	2.0	ND	1	02/18/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B18008	0.24	2.0	ND	1	02/18/05	02/18/05	
Ethylbenzene	EPA 624	5B18008	0.25	2.0	ND	1	02/18/05	02/18/05	
Methylene chloride	EPA 624	5B18008	0.48	5.0	ND	1	02/18/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B18008	0.24	2.0	ND	1	02/18/05	02/18/05	
Tetrachloroethene	EPA 624	5B18008	0.32	2.0	ND	1	02/18/05	02/18/05	
Toluene	EPA 624	5B18008	0.36	2.0	ND	1	02/18/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B18008	0.30	2.0	ND	1	02/18/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B18008	0.30	2.0	ND	1	02/18/05	02/18/05	
Trichloroethene	EPA 624	5B18008	0.26	2.0	ND	1	02/18/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B18008	0.34	5.0	ND	1	02/18/05	02/18/05	
Vinyl chloride	EPA 624	5B18008	0.26	0.50	ND	1	02/18/05	02/18/05	
Xylenes, Total	EPA 624	5B18008	0.52	4.0	ND	1	02/18/05	02/18/05	
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Sample ID: IOB0997-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/18/05	REV QUAL QUAL CODE U ↓
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/18/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/18/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/18/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/18/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/18/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/18/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/18/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/18/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/18/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/18/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/18/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/18/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/18/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/18/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/18/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/18/05	
Surrogate: Dibromofluoromethane (80-120%)					112 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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LEVEL TV



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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (619) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0831
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Annual Outfall 008
 Report Number: IOB0997

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
Sample ID: IOB0997-01 (DRAFT: Outfall 008 - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	U 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%)					93 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
Sample ID: IOB0997-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	U 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%)					93 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %				

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DRAFT REPORT
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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


Package ID T711WC86
 Task Order 313150010
 SDG No. IOB0997/1001/1008

No. of Analyses 3

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 03/24/05
 Reviewer's Signature 

ACTION ITEMS*

1. Case Narrative Deficiencies
2. Out of Scope Analyses
3. Analyses Not Conducted
4. Missing Hardcopy Deliverables
5. Incorrect Hardcopy Deliverables
6. Deviations from Analysis Protocol, e.g.,
 - Qualifications applied for detects below the reporting limit.
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOB0997, IOB1001, & IOB1008

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 #: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 3
Reviewer: L. Jarusewic
Date of Review: March 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 300.0, 350.2, 405.1, 335.2, 413.1, 425.1, 218.6, 120.1, 160.2, 160.5, 180.1, and 160.1, Standard Methods for the Examination of Water and Wastewater Method SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOB0997-01	Water	General Minerals
Outfall 010	Outfall 010	IOB1001-01	Water	General Minerals
Outfall 018	Outfall 018	IOB1008-01	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. A memo from MWH personnel dated 02/17/05 requested a change of analysis for sample Outfall 018 from annual to routine constituent analysis. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for all analytes. 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 total settleable solids. No qualifications were required.

The total cyanide reporting limit check standards were recovered above the control limits of 70-130% at 137.9% and 155.9%; however, as cyanide was not detected in any of the samples, no qualifications were required.

2.3 BLANKS

Turbidity was detected in the associated method blank for Outfall 018 at 0.040 NTU; however, the result was insufficient to qualify the Outfall 018 result. 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 oil and grease only) recoveries and RPDs were within the laboratory-established control limits. The LCS is not applicable to turbidity, conductivity, or total 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

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 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. Surfactant detected below the reporting limit in Outfall 018 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.



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: Annual Outfall 008

Report Number: IOB0997

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: IOB0997-01 (DRAFT: Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	U
Total Suspended Solids	EPA 160.2	5B17069	10	10	150	1	02/17/05	02/17/05	

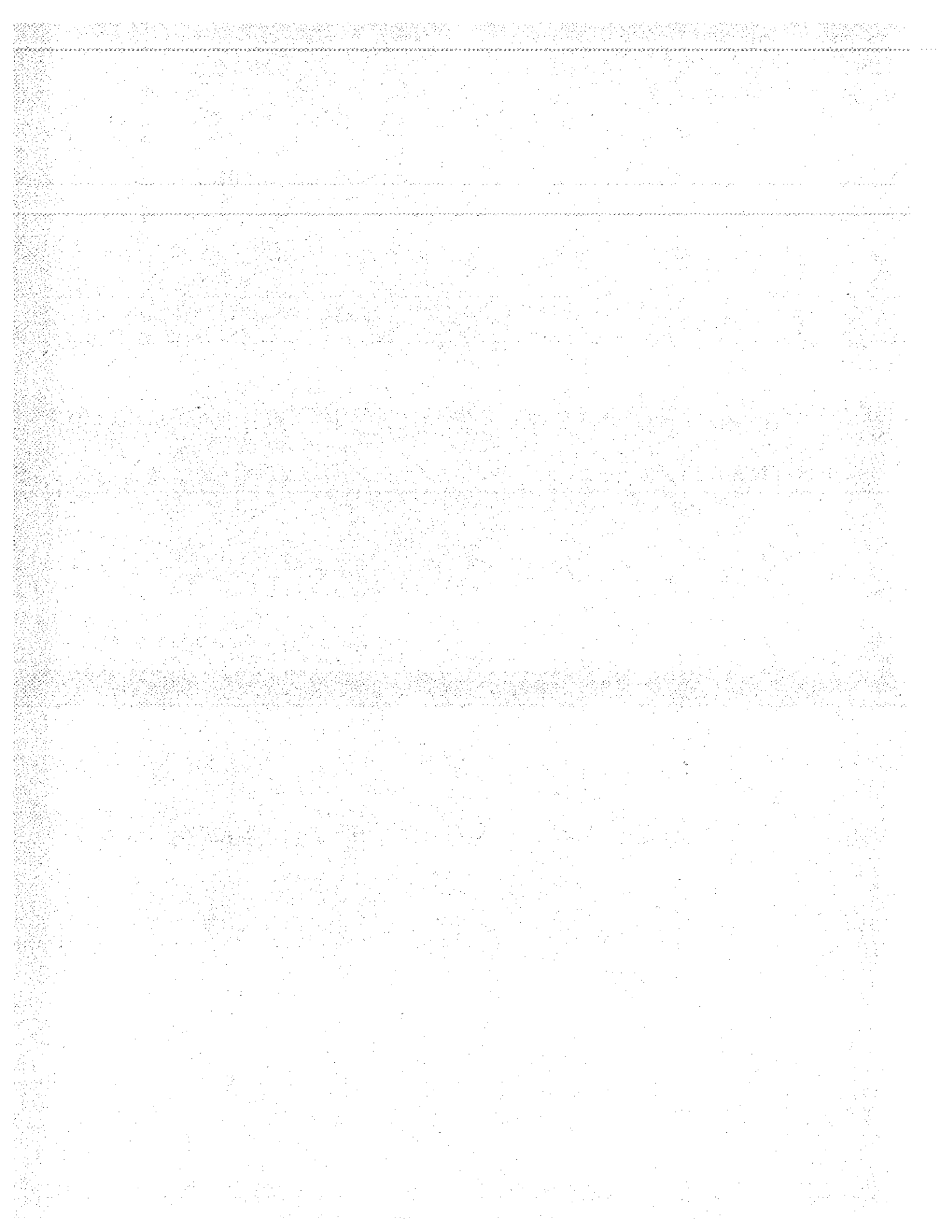
REV
QUAL
CODE

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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LABORATORY REPORT

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

Project: Annual Outfall 008

Sampled: 02/11/05
 Received: 02/11/05
 Issued: 03/28/05 10:21

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.

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOB0997-01	Outfall 008	Water
IOB0997-02	Trip Blanks	Water

Reviewed By:

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



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

Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 02/16/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B13024

Identification and Definition of Problem:

The percent recovery for benzidine in the BS 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 BSD was within the acceptance limits. All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval: _____

Dave Dawes

Date: 02/18/2005 04:36 PM

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



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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

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: IOB0997-01 (Outfall 008 - Water)									
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	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					93 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					104 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					98 %				
Sample ID: IOB0997-02 (Trip Blanks - Water)									
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	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					93 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					106 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					99 %				

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

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PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0997-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B18008	0.28	1.0	ND	1	02/18/05	02/18/05	
Bromodichloromethane	EPA 624	5B18008	0.30	2.0	ND	1	02/18/05	02/18/05	
Bromoform	EPA 624	5B18008	0.32	5.0	ND	1	02/18/05	02/18/05	
Bromomethane	EPA 624	5B18008	0.34	5.0	ND	1	02/18/05	02/18/05	
Carbon tetrachloride	EPA 624	5B18008	0.28	0.50	ND	1	02/18/05	02/18/05	
Chlorobenzene	EPA 624	5B18008	0.36	2.0	ND	1	02/18/05	02/18/05	
Chloroethane	EPA 624	5B18008	0.33	5.0	ND	1	02/18/05	02/18/05	
Chloroform	EPA 624	5B18008	0.33	2.0	ND	1	02/18/05	02/18/05	
Chloromethane	EPA 624	5B18008	0.30	5.0	ND	1	02/18/05	02/18/05	
Dibromochloromethane	EPA 624	5B18008	0.28	2.0	ND	1	02/18/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B18008	0.32	2.0	ND	1	02/18/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B18008	0.35	2.0	ND	1	02/18/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B18008	0.37	2.0	ND	1	02/18/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B18008	0.27	2.0	ND	1	02/18/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B18008	0.28	0.50	ND	1	02/18/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B18008	0.32	5.0	ND	1	02/18/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B18008	0.27	2.0	ND	1	02/18/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B18008	0.35	2.0	ND	1	02/18/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B18008	0.22	2.0	ND	1	02/18/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B18008	0.24	2.0	ND	1	02/18/05	02/18/05	
Ethylbenzene	EPA 624	5B18008	0.25	2.0	ND	1	02/18/05	02/18/05	
Methylene chloride	EPA 624	5B18008	0.48	5.0	ND	1	02/18/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B18008	0.24	2.0	ND	1	02/18/05	02/18/05	
Tetrachloroethene	EPA 624	5B18008	0.32	2.0	ND	1	02/18/05	02/18/05	
Toluene	EPA 624	5B18008	0.36	2.0	ND	1	02/18/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B18008	0.30	2.0	ND	1	02/18/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B18008	0.30	2.0	ND	1	02/18/05	02/18/05	
Trichloroethene	EPA 624	5B18008	0.26	2.0	ND	1	02/18/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B18008	0.34	5.0	ND	1	02/18/05	02/18/05	
Vinyl chloride	EPA 624	5B18008	0.26	0.50	ND	1	02/18/05	02/18/05	
Xylenes, Total	EPA 624	5B18008	0.52	4.0	ND	1	02/18/05	02/18/05	

Surrogate: Dibromofluoromethane (80-120%) 106 %

Surrogate: Toluene-d8 (80-120%) 105 %

Surrogate: 4-Bromofluorobenzene (80-120%) 98 %

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

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

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: IOB0997-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/18/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/18/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/18/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/18/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/18/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/18/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/18/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/18/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/18/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/18/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/18/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/18/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/18/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/18/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/18/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/18/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/18/05	

Surrogate: Dibromofluoromethane (80-120%)

112 %

Surrogate: Toluene-d8 (80-120%)

103 %

Surrogate: 4-Bromofluorobenzene (80-120%)

96 %

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

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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: IOB0997-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B13024	4.3	10	ND	0.962	02/13/05	02/16/05	
Acenaphthylene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	
Aniline	EPA 625	5B13024	2.9	10	ND	0.962	02/13/05	02/16/05	
Anthracene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	
Benzoic acid	EPA 625	5B13024	2.6	20	ND	0.962	02/13/05	02/16/05	
Benzo(a)anthracene	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	
Benzo(b)fluoranthene	EPA 625	5B13024	2.7	10	ND	0.962	02/13/05	02/16/05	
Benzo(k)fluoranthene	EPA 625	5B13024	3.4	10	ND	0.962	02/13/05	02/16/05	
Benzo(g,h,i)perylene	EPA 625	5B13024	5.3	10	ND	0.962	02/13/05	02/16/05	
Benzo(a)pyrene	EPA 625	5B13024	3.5	10	ND	0.962	02/13/05	02/16/05	
Benzyl alcohol	EPA 625	5B13024	2.5	20	ND	0.962	02/13/05	02/16/05	
Bis(2-chloroethoxy)methane	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	
Bis(2-chloroethyl)ether	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B13024	5.2	50	ND	0.962	02/13/05	02/16/05	
4-Bromophenyl phenyl ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	
Butyl benzyl phthalate	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	
4-Chloroaniline	EPA 625	5B13024	6.0	10	ND	0.962	02/13/05	02/16/05	
2-Chloronaphthalene	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	
4-Chloro-3-methylphenol	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	
2-Chlorophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
4-Chlorophenyl phenyl ether	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05	
Chrysene	EPA 625	5B13024	2.8	10	ND	0.962	02/13/05	02/16/05	
Dibenz(a,h)anthracene	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	
Dibenzofuran	EPA 625	5B13024	2.6	10	ND	0.962	02/13/05	02/16/05	
Di-n-butyl phthalate	EPA 625	5B13024	2.8	20	ND	0.962	02/13/05	02/16/05	
1,3-Dichlorobenzene	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	
1,4-Dichlorobenzene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	
1,2-Dichlorobenzene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05	
3,3-Dichlorobenzidine	EPA 625	5B13024	11	20	ND	0.962	02/13/05	02/16/05	
2,4-Dichlorophenol	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	
Diethyl phthalate	EPA 625	5B13024	3.1	10	ND	0.962	02/13/05	02/16/05	
2,4-Dimethylphenol	EPA 625	5B13024	4.4	20	ND	0.962	02/13/05	02/16/05	
Dimethyl phthalate	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B13024	5.1	20	ND	0.962	02/13/05	02/16/05	
2,4-Dinitrophenol	EPA 625	5B13024	5.3	20	ND	0.962	02/13/05	02/16/05	
2,4-Dinitrotoluene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
2,6-Dinitrotoluene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	
Di-n-octyl phthalate	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	
Fluoranthene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
Fluorene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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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 008

Report Number: IOB0997

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: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Hexachlorobenzene	EPA 625	5B13024	4.8	10	ND	0.962	02/13/05	02/16/05	
Hexachlorobutadiene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
Hexachlorocyclopentadiene	EPA 625	5B13024	3.4	20	ND	0.962	02/13/05	02/16/05	
Hexachloroethane	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B13024	5.4	20	ND	0.962	02/13/05	02/16/05	
Isophorone	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	
2-Methylnaphthalene	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05	
2-Methylphenol	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	
4-Methylphenol	EPA 625	5B13024	3.8	10	ND	0.962	02/13/05	02/16/05	
Naphthalene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05	
2-Nitroaniline	EPA 625	5B13024	3.9	20	ND	0.962	02/13/05	02/16/05	
3-Nitroaniline	EPA 625	5B13024	4.5	20	ND	0.962	02/13/05	02/16/05	
4-Nitroaniline	EPA 625	5B13024	4.9	20	ND	0.962	02/13/05	02/16/05	
Nitrobenzene	EPA 625	5B13024	4.2	20	ND	0.962	02/13/05	02/16/05	
2-Nitrophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
4-Nitrophenol	EPA 625	5B13024	6.6	20	ND	0.962	02/13/05	02/16/05	
N-Nitrosodiphenylamine	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	
N-Nitroso-di-n-propylamine	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05	
Pentachlorophenol	EPA 625	5B13024	4.0	20	ND	0.962	02/13/05	02/16/05	
Phenanthrene	EPA 625	5B13024	3.3	10	ND	0.962	02/13/05	02/16/05	
Phenol	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	
Pyrene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	
1,2,4-Trichlorobenzene	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05	
2,4,5-Trichlorophenol	EPA 625	5B13024	3.6	20	ND	0.962	02/13/05	02/16/05	
2,4,6-Trichlorophenol	EPA 625	5B13024	4.1	20	ND	0.962	02/13/05	02/16/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B13024	5.0	20	ND	0.962	02/13/05	02/16/05	
N-Nitrosodimethylamine	EPA 625	5B13024	3.7	20	ND	0.962	02/13/05	02/16/05	
Surrogate: 2-Fluorophenol (35-120%)					66 %				
Surrogate: Phenol-d6 (45-120%)					70 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					88 %				
Surrogate: Nitrobenzene-d5 (45-120%)					77 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					80 %				
Surrogate: Terphenyl-d14 (45-135%)					93 %				

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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: Annual Outfall 008

Report Number: IOB0997

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: IOB0997-01RE1 (Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.966	02/17/05	02/22/05	
<i>Surrogate: 2-Fluorophenol (35-120%)</i>					62 %				
<i>Surrogate: Phenol-d6 (45-120%)</i>					66 %				
<i>Surrogate: 2,4,6-Tribromophenol (50-125%)</i>					87 %				
<i>Surrogate: Nitrobenzene-d5 (45-120%)</i>					74 %				
<i>Surrogate: 2-Fluorobiphenyl (45-120%)</i>					79 %				
<i>Surrogate: Terphenyl-d14 (45-135%)</i>					80 %				

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Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05
 Received: 02/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/22/05	
alpha-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
beta-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
delta-BHC	EPA 608	5B15038	0.020	0.20	ND	0.962	02/15/05	02/22/05	
gamma-BHC (Lindane)	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
Chlordane	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/22/05	
4,4'-DDD	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
4,4'-DDE	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/22/05	
4,4'-DDT	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/22/05	
Dieldrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
Endosulfan I	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
Endosulfan II	EPA 608	5B15038	0.040	0.10	ND	0.962	02/15/05	02/22/05	
Endosulfan sulfate	EPA 608	5B15038	0.015	0.20	ND	0.962	02/15/05	02/22/05	
Endrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/22/05	
Endrin aldehyde	EPA 608	5B15038	0.045	0.10	ND	0.962	02/15/05	02/22/05	
Endrin ketone	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/22/05	
Heptachlor	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/22/05	
Heptachlor epoxide	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/22/05	
Methoxychlor	EPA 608	5B15038	0.035	0.10	ND	0.962	02/15/05	02/22/05	
Toxaphene	EPA 608	5B15038	1.5	5.0	ND	0.962	02/15/05	02/22/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					35 %				
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 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1221	EPA 608	5B15038	0.10	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1232	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1242	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1248	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1254	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1260	EPA 608	5B15038	0.40	1.0	ND	0.962	02/15/05	02/15/05	

Surrogate: Decachlorobiphenyl (45-120%)

67 %

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

Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05
 Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	5B17097	0.0074	0.050	0.051	1	02/17/05	02/17/05	

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Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B17097	47	50	6500	1	02/17/05	02/17/05	
Antimony	EPA 200.8	5B17098	0.18	2.0	0.26	1	02/17/05	02/20/05	J
Arsenic	EPA 200.7	5B17097	3.8	5.0	ND	1	02/17/05	02/17/05	
Beryllium	EPA 200.7	5B17097	0.62	2.0	ND	1	02/17/05	02/17/05	
Cadmium	EPA 200.8	5B17098	0.015	1.0	0.087	1	02/17/05	02/20/05	J
Chromium	EPA 200.7	5B17097	0.68	5.0	9.5	1	02/17/05	02/17/05	
Copper	EPA 200.8	5B17098	0.49	2.0	5.5	1	02/17/05	02/20/05	
Lead	EPA 200.8	5B17098	0.13	1.0	3.7	1	02/17/05	02/20/05	
Mercury	EPA 245.1	5B15070	0.063	0.20	0.17	1	02/15/05	02/15/05	J
Nickel	EPA 200.7	5B17097	2.0	10	7.8	1	02/17/05	02/17/05	J
Selenium	EPA 200.7	5B17097	4.6	5.0	ND	1	02/17/05	02/17/05	
Silver	EPA 200.7	5B17097	1.3	10	ND	1	02/17/05	02/17/05	
Thallium	EPA 200.7	5B17097	3.1	5.0	ND	1	02/17/05	02/18/05	
Vanadium	EPA 200.7	5B17097	1.4	10	17	1	02/17/05	02/17/05	
Zinc	EPA 200.7	5B17097	3.7	20	22	1	02/17/05	02/17/05	

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

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: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B11120	0.26	0.50	5.4	1	02/11/05	02/12/05	
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	1.9	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B17117	0.94	5.0	ND	1	02/17/05	02/17/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	4.2	1	02/11/05	02/12/05	
Total Dissolved Solids	SM2540C	5B17104	10	10	130	1	02/17/05	02/17/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	150	1	02/17/05	02/17/05	

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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: Annual Outfall 008

Report Number: IOB0997

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: IOB0997-01 (Outfall 008 - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B16069	0.80	4.0	ND	1	02/16/05	02/17/05	

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Sampled: 02/11/05
 Received: 02/11/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 008 (IOB0997-01) - Water					
EPA 300.0	2	02/11/2005 15:16	02/11/2005 20:30	02/11/2005 23:00	02/12/2005 05:55
EPA 624	3	02/11/2005 15:16	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 16:23
Sample ID: Trip Blanks (IOB0997-02) - Water					
EPA 624	3	02/11/2005 17:00	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 16:54

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Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B12011 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12011-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	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			
LCS Analyzed: 02/12/2005 (5B12011-BS1)											
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			
Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1) Source: IOB0980-01											
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			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1) Source: IOB0980-01											
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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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B17014 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17014-BLK1)											
Benzene	ND	1.0	0.28	ug/l							
Bromodichloromethane	ND	2.0	0.30	ug/l							
Bromoform	ND	5.0	0.32	ug/l							
Bromomethane	ND	5.0	0.34	ug/l							
Carbon tetrachloride	ND	0.50	0.28	ug/l							
Chlorobenzene	ND	2.0	0.36	ug/l							
Chloroethane	ND	5.0	0.33	ug/l							
Chloroform	ND	2.0	0.33	ug/l							
Chloromethane	ND	5.0	0.30	ug/l							
Dibromochloromethane	ND	2.0	0.28	ug/l							
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l							
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l							
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l							
1,1-Dichloroethane	ND	2.0	0.27	ug/l							
1,2-Dichloroethane	ND	0.50	0.28	ug/l							
1,1-Dichloroethene	ND	5.0	0.32	ug/l							
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l							
1,2-Dichloropropane	ND	2.0	0.35	ug/l							
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l							
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l							
Ethylbenzene	ND	2.0	0.25	ug/l							
Methylene chloride	ND	5.0	0.48	ug/l							
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l							
Tetrachloroethene	ND	2.0	0.32	ug/l							
Toluene	ND	2.0	0.36	ug/l							
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l							
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l							
Trichloroethene	ND	2.0	0.26	ug/l							
Trichlorofluoromethane	ND	5.0	0.34	ug/l							
Vinyl chloride	ND	0.50	0.26	ug/l							
Xylenes, Total	ND	4.0	0.52	ug/l							
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B17014 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17014-BS1)											
Benzene	24.9	1.0	0.28	ug/l	25.0		100	70-120			
Bromodichloromethane	25.7	2.0	0.30	ug/l	25.0		103	70-140			
Bromoform	24.2	5.0	0.32	ug/l	25.0		97	55-135			
Bromomethane	29.1	5.0	0.34	ug/l	25.0		116	60-140			
Carbon tetrachloride	26.2	0.50	0.28	ug/l	25.0		105	70-140			
Chlorobenzene	23.4	2.0	0.36	ug/l	25.0		94	80-125			
Chloroethane	27.4	5.0	0.33	ug/l	25.0		110	60-145			
Chloroform	26.2	2.0	0.33	ug/l	25.0		105	75-130			
Chloromethane	25.8	5.0	0.30	ug/l	25.0		103	40-145			
Dibromochloromethane	24.7	2.0	0.28	ug/l	25.0		99	65-145			
1,2-Dichlorobenzene	23.3	2.0	0.32	ug/l	25.0		93	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0		94	80-120			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0		92	80-120			
1,1-Dichloroethane	25.5	2.0	0.27	ug/l	25.0		102	70-135			
1,2-Dichloroethane	25.9	0.50	0.28	ug/l	25.0		104	60-150			
1,1-Dichloroethene	24.6	5.0	0.32	ug/l	25.0		98	75-135			
trans-1,2-Dichloroethene	25.4	2.0	0.27	ug/l	25.0		102	70-130			
1,2-Dichloropropane	24.8	2.0	0.35	ug/l	25.0		99	70-120			
cis-1,3-Dichloropropene	25.6	2.0	0.22	ug/l	25.0		102	75-130			
trans-1,3-Dichloropropene	25.7	2.0	0.24	ug/l	25.0		103	75-135			
Ethylbenzene	26.4	2.0	0.25	ug/l	25.0		106	80-120			
Methylene chloride	25.4	5.0	0.48	ug/l	25.0		102	60-135			
1,1,2,2-Tetrachloroethane	23.2	2.0	0.24	ug/l	25.0		93	60-135			
Tetrachloroethene	23.2	2.0	0.32	ug/l	25.0		93	75-125			
Toluene	24.6	2.0	0.36	ug/l	25.0		98	75-120			
1,1,1-Trichloroethane	27.1	2.0	0.30	ug/l	25.0		108	75-140			
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0		100	70-125			
Trichloroethene	23.4	2.0	0.26	ug/l	25.0		94	80-120			
Trichlorofluoromethane	28.0	5.0	0.34	ug/l	25.0		112	65-145			
Vinyl chloride	27.7	0.50	0.26	ug/l	25.0		111	50-130			
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			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 008

Report Number: IOB0997

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
Batch: 5B17014 Extracted: 02/17/05											
Matrix Spike Analyzed: 02/17/2005 (5B17014-MS1)						Source: IOB1001-01					
Benzene	25.2	1.0	0.28	ug/l	25.0	ND	101	70-120			
Bromodichloromethane	26.3	2.0	0.30	ug/l	25.0	ND	105	70-140			
Bromoform	23.7	5.0	0.32	ug/l	25.0	ND	95	55-140			
Bromomethane	28.7	5.0	0.34	ug/l	25.0	ND	115	50-145			
Carbon tetrachloride	26.8	0.50	0.28	ug/l	25.0	ND	107	70-145			
Chlorobenzene	23.0	2.0	0.36	ug/l	25.0	ND	92	80-125			
Chloroethane	26.4	5.0	0.33	ug/l	25.0	ND	106	50-145			
Chloroform	26.9	2.0	0.33	ug/l	25.0	ND	108	70-135			
Chloromethane	24.7	5.0	0.30	ug/l	25.0	ND	99	35-145			
Dibromochloromethane	24.8	2.0	0.28	ug/l	25.0	ND	99	65-145			
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130			
1,3-Dichlorobenzene	23.4	2.0	0.35	ug/l	25.0	ND	94	75-130			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0	ND	92	80-120			
1,1-Dichloroethane	26.4	2.0	0.27	ug/l	25.0	ND	106	65-135			
1,2-Dichloroethane	27.2	0.50	0.28	ug/l	25.0	ND	109	60-150			
1,1-Dichloroethene	25.2	5.0	0.32	ug/l	25.0	ND	101	65-140			
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135			
1,2-Dichloropropane	24.9	2.0	0.35	ug/l	25.0	ND	100	65-130			
cis-1,3-Dichloropropene	26.0	2.0	0.22	ug/l	25.0	ND	104	70-140			
trans-1,3-Dichloropropene	26.3	2.0	0.24	ug/l	25.0	ND	105	70-140			
Ethylbenzene	26.1	2.0	0.25	ug/l	25.0	ND	104	70-130			
Methylene chloride	26.0	5.0	0.48	ug/l	25.0	ND	104	60-135			
1,1,2,2-Tetrachloroethane	23.1	2.0	0.24	ug/l	25.0	ND	92	60-145			
Tetrachloroethene	22.7	2.0	0.32	ug/l	25.0	ND	91	70-130			
Toluene	25.2	2.0	0.36	ug/l	25.0	ND	101	70-120			
1,1,1-Trichloroethane	28.0	2.0	0.30	ug/l	25.0	ND	112	75-140			
1,1,2-Trichloroethane	25.1	2.0	0.30	ug/l	25.0	ND	100	60-135			
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125			
Trichlorofluoromethane	28.7	5.0	0.34	ug/l	25.0	ND	115	55-145			
Vinyl chloride	26.3	0.50	0.26	ug/l	25.0	ND	105	40-135			
Surrogate: Dibromofluoromethane	27.5			ug/l	25.0		110	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	26.5			ug/l	25.0		106	80-120			

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B17014 Extracted: 02/17/05											
Matrix Spike Dup Analyzed: 02/17/2005 (5B17014-MSD1)						Source: IOB1001-01					
Benzene	25.1	1.0	0.28	ug/l	25.0	ND	100	70-120	0	20	
Bromodichloromethane	25.4	2.0	0.30	ug/l	25.0	ND	102	70-140	3	20	
Bromoform	21.6	5.0	0.32	ug/l	25.0	ND	86	55-140	9	25	
Bromomethane	31.0	5.0	0.34	ug/l	25.0	ND	124	50-145	8	25	
Carbon tetrachloride	26.5	0.50	0.28	ug/l	25.0	ND	106	70-145	1	25	
Chlorobenzene	23.9	2.0	0.36	ug/l	25.0	ND	96	80-125	4	20	
Chloroethane	29.6	5.0	0.33	ug/l	25.0	ND	118	50-145	11	25	
Chloroform	26.4	2.0	0.33	ug/l	25.0	ND	106	70-135	2	20	
Chloromethane	28.0	5.0	0.30	ug/l	25.0	ND	112	35-145	13	25	
Dibromochloromethane	23.4	2.0	0.28	ug/l	25.0	ND	94	65-145	6	25	
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130	0	20	
1,3-Dichlorobenzene	24.0	2.0	0.35	ug/l	25.0	ND	96	75-130	3	20	
1,4-Dichlorobenzene	23.6	2.0	0.37	ug/l	25.0	ND	94	80-120	3	20	
1,1-Dichloroethane	26.1	2.0	0.27	ug/l	25.0	ND	104	65-135	1	20	
1,2-Dichloroethane	24.5	0.50	0.28	ug/l	25.0	ND	98	60-150	10	20	
1,1-Dichloroethene	24.9	5.0	0.32	ug/l	25.0	ND	100	65-140	1	20	
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135	0	20	
1,2-Dichloropropane	24.3	2.0	0.35	ug/l	25.0	ND	97	65-130	2	20	
cis-1,3-Dichloropropene	25.2	2.0	0.22	ug/l	25.0	ND	101	70-140	3	20	
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140	7	25	
Ethylbenzene	27.0	2.0	0.25	ug/l	25.0	ND	108	70-130	3	20	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	ND	102	60-135	2	20	
1,1,2,2-Tetrachloroethane	20.8	2.0	0.24	ug/l	25.0	ND	83	60-145	10	30	
Tetrachloroethene	23.9	2.0	0.32	ug/l	25.0	ND	96	70-130	5	20	
Toluene	24.9	2.0	0.36	ug/l	25.0	ND	100	70-120	1	20	
1,1,1-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	75-140	1	20	
1,1,2-Trichloroethane	22.8	2.0	0.30	ug/l	25.0	ND	91	60-135	10	25	
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125	0	20	
Trichlorofluoromethane	28.5	5.0	0.34	ug/l	25.0	ND	114	55-145	1	25	
Vinyl chloride	30.0	0.50	0.26	ug/l	25.0	ND	120	40-135	13	30	
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.4			ug/l	25.0		106	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 008

Report Number: IOB0997

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
Batch: 5B18008 Extracted: 02/18/05										
Blank Analyzed: 02/18/2005 (5B18008-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	27.5			ug/l	25.0		110	80-120		
Surrogate: Toluene-d8	27.1			ug/l	25.0		108	80-120		
Surrogate: 4-Bromofluorobenzene	25.9			ug/l	25.0		104	80-120		

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 008 Report Number: IOB0997	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
Batch: 5B18008 Extracted: 02/18/05											
LCS Analyzed: 02/18/2005 (5B18008-BS1)											
Benzene	23.4	1.0	0.28	ug/l	25.0		94	70-120			
Bromodichloromethane	23.6	2.0	0.30	ug/l	25.0		94	70-140			
Bromoform	23.1	5.0	0.32	ug/l	25.0		92	55-135			
Bromomethane	26.0	5.0	0.34	ug/l	25.0		104	60-140			
Carbon tetrachloride	23.4	0.50	0.28	ug/l	25.0		94	70-140			
Chlorobenzene	23.2	2.0	0.36	ug/l	25.0		93	80-125			
Chloroethane	24.5	5.0	0.33	ug/l	25.0		98	60-145			
Chloroform	24.1	2.0	0.33	ug/l	25.0		96	75-130			
Chloromethane	22.3	5.0	0.30	ug/l	25.0		89	40-145			
Dibromochloromethane	23.4	2.0	0.28	ug/l	25.0		94	65-145			
1,2-Dichlorobenzene	22.9	2.0	0.32	ug/l	25.0		92	80-120			
1,3-Dichlorobenzene	22.9	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	23.4	2.0	0.27	ug/l	25.0		94	70-135			
1,2-Dichloroethane	24.9	0.50	0.28	ug/l	25.0		100	60-150			
1,1-Dichloroethene	23.8	5.0	0.32	ug/l	25.0		95	75-135			
trans-1,2-Dichloroethene	23.5	2.0	0.27	ug/l	25.0		94	70-130			
1,2-Dichloropropane	23.2	2.0	0.35	ug/l	25.0		93	70-120			
cis-1,3-Dichloropropene	23.6	2.0	0.22	ug/l	25.0		94	75-130			
trans-1,3-Dichloropropene	24.0	2.0	0.24	ug/l	25.0		96	75-135			
Ethylbenzene	24.7	2.0	0.25	ug/l	25.0		99	80-120			
Methylene chloride	24.0	5.0	0.48	ug/l	25.0		96	60-135			
1,1,2,2-Tetrachloroethane	22.3	2.0	0.24	ug/l	25.0		89	60-135			
Tetrachloroethene	22.3	2.0	0.32	ug/l	25.0		89	75-125			
Toluene	23.8	2.0	0.36	ug/l	25.0		95	75-120			
1,1,1-Trichloroethane	23.6	2.0	0.30	ug/l	25.0		94	75-140			
1,1,2-Trichloroethane	23.0	2.0	0.30	ug/l	25.0		92	70-125			
Trichloroethene	23.4	2.0	0.26	ug/l	25.0		94	80-120			
Trichlorofluoromethane	23.6	5.0	0.34	ug/l	25.0		94	65-145			
Vinyl chloride	24.3	0.50	0.26	ug/l	25.0		97	50-130			
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	26.2			ug/l	25.0		105	80-120			
Surrogate: 4-Bromofluorobenzene	26.0			ug/l	25.0		104	80-120			

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 Project Manager

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

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B18008 Extracted: 02/18/05											
Matrix Spike Analyzed: 02/18/2005 (5B18008-MS1)						Source: IOB1255-02					
Benzene	22.2	1.0	0.28	ug/l	25.0	ND	89	70-120			
Bromodichloromethane	23.0	2.0	0.30	ug/l	25.0	ND	92	70-140			
Bromoform	24.0	5.0	0.32	ug/l	25.0	ND	96	55-140			
Bromomethane	23.6	5.0	0.34	ug/l	25.0	ND	94	50-145			
Carbon tetrachloride	22.0	0.50	0.28	ug/l	25.0	ND	88	70-145			
Chlorobenzene	22.2	2.0	0.36	ug/l	25.0	ND	89	80-125			
Chloroethane	22.9	5.0	0.33	ug/l	25.0	ND	92	50-145			
Chloroform	23.0	2.0	0.33	ug/l	25.0	ND	92	70-135			
Chloromethane	19.4	5.0	0.30	ug/l	25.0	ND	78	35-145			
Dibromochloromethane	23.4	2.0	0.28	ug/l	25.0	ND	94	65-145			
1,2-Dichlorobenzene	22.4	2.0	0.32	ug/l	25.0	ND	90	75-130			
1,3-Dichlorobenzene	21.7	2.0	0.35	ug/l	25.0	ND	87	75-130			
1,4-Dichlorobenzene	22.0	2.0	0.37	ug/l	25.0	ND	88	80-120			
1,1-Dichloroethane	21.9	2.0	0.27	ug/l	25.0	ND	88	65-135			
1,2-Dichloroethane	24.6	0.50	0.28	ug/l	25.0	ND	98	60-150			
1,1-Dichloroethene	22.4	5.0	0.32	ug/l	25.0	ND	90	65-140			
trans-1,2-Dichloroethene	22.2	2.0	0.27	ug/l	25.0	ND	89	65-135			
1,2-Dichloropropane	22.3	2.0	0.35	ug/l	25.0	ND	89	65-130			
cis-1,3-Dichloropropene	23.0	2.0	0.22	ug/l	25.0	ND	92	70-140			
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140			
Ethylbenzene	23.5	2.0	0.25	ug/l	25.0	ND	94	70-130			
Methylene chloride	24.5	5.0	0.48	ug/l	25.0	2.1	90	60-135			
1,1,2,2-Tetrachloroethane	25.6	2.0	0.24	ug/l	25.0	ND	102	60-145			
Tetrachloroethene	20.6	2.0	0.32	ug/l	25.0	ND	82	70-130			
Toluene	22.8	2.0	0.36	ug/l	25.0	ND	91	70-120			
1,1,1-Trichloroethane	21.7	2.0	0.30	ug/l	25.0	ND	87	75-140			
1,1,2-Trichloroethane	23.8	2.0	0.30	ug/l	25.0	ND	95	60-135			
Trichloroethene	21.7	2.0	0.26	ug/l	25.0	ND	87	70-125			
Trichlorofluoromethane	21.3	5.0	0.34	ug/l	25.0	ND	85	55-145			
Vinyl chloride	21.9	0.50	0.26	ug/l	25.0	ND	88	40-135			
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	26.0			ug/l	25.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	26.1			ug/l	25.0		104	80-120			

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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: Annual Outfall 008

Report Number: IOB0997

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B18008 Extracted: 02/18/05										
Matrix Spike Dup Analyzed: 02/18/2005 (5B18008-MSD1)					Source: IOB1255-02					
Benzene	23.2	1.0	0.28	ug/l	25.0	ND	93 70-120	4	20	
Bromodichloromethane	23.0	2.0	0.30	ug/l	25.0	ND	92 70-140	0	20	
Bromoform	24.2	5.0	0.32	ug/l	25.0	ND	97 55-140	1	25	
Bromomethane	24.8	5.0	0.34	ug/l	25.0	ND	99 50-145	5	25	
Carbon tetrachloride	22.4	0.50	0.28	ug/l	25.0	ND	90 70-145	2	25	
Chlorobenzene	23.2	2.0	0.36	ug/l	25.0	ND	93 80-125	4	20	
Chloroethane	24.3	5.0	0.33	ug/l	25.0	ND	97 50-145	6	25	
Chloroform	23.3	2.0	0.33	ug/l	25.0	ND	93 70-135	1	20	
Chloromethane	21.3	5.0	0.30	ug/l	25.0	ND	85 35-145	9	25	
Dibromochloromethane	23.5	2.0	0.28	ug/l	25.0	ND	94 65-145	0	25	
1,2-Dichlorobenzene	23.2	2.0	0.32	ug/l	25.0	ND	93 75-130	4	20	
1,3-Dichlorobenzene	22.7	2.0	0.35	ug/l	25.0	ND	91 75-130	5	20	
1,4-Dichlorobenzene	22.7	2.0	0.37	ug/l	25.0	ND	91 80-120	3	20	
1,1-Dichloroethane	22.6	2.0	0.27	ug/l	25.0	ND	90 65-135	3	20	
1,2-Dichloroethane	22.4	0.50	0.28	ug/l	25.0	ND	90 60-150	9	20	
1,1-Dichloroethene	23.5	5.0	0.32	ug/l	25.0	ND	94 65-140	5	20	
trans-1,2-Dichloroethene	23.2	2.0	0.27	ug/l	25.0	ND	93 65-135	4	20	
1,2-Dichloropropane	22.9	2.0	0.35	ug/l	25.0	ND	92 65-130	3	20	
cis-1,3-Dichloropropene	23.5	2.0	0.22	ug/l	25.0	ND	94 70-140	2	20	
trans-1,3-Dichloropropene	24.2	2.0	0.24	ug/l	25.0	ND	97 70-140	1	25	
Ethylbenzene	24.6	2.0	0.25	ug/l	25.0	ND	98 70-130	5	20	
Methylene chloride	25.7	5.0	0.48	ug/l	25.0	2.1	94 60-135	5	20	
1,1,2,2-Tetrachloroethane	25.1	2.0	0.24	ug/l	25.0	ND	100 60-145	2	30	
Tetrachloroethene	21.8	2.0	0.32	ug/l	25.0	ND	87 70-130	6	20	
Toluene	23.4	2.0	0.36	ug/l	25.0	ND	94 70-120	3	20	
1,1,1-Trichloroethane	21.9	2.0	0.30	ug/l	25.0	ND	88 75-140	1	20	
1,1,2-Trichloroethane	23.6	2.0	0.30	ug/l	25.0	ND	94 60-135	1	25	
Trichloroethene	22.3	2.0	0.26	ug/l	25.0	ND	89 70-125	3	20	
Trichlorofluoromethane	21.9	5.0	0.34	ug/l	25.0	ND	88 55-145	3	25	
Vinyl chloride	23.2	0.50	0.26	ug/l	25.0	ND	93 40-135	6	30	
Surrogate: Dibromofluoromethane	26.0			ug/l	25.0		104 80-120			
Surrogate: Toluene-d8	26.1			ug/l	25.0		104 80-120			
Surrogate: 4-Bromofluorobenzene	26.1			ug/l	25.0		104 80-120			

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 Project Manager

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

Project ID: Annual Outfall 008

Report Number: IOB0997

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
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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 Wendy Kirkeeng For 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: Annual Outfall 008

Report Number: IOB0997

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	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
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	141			ug/l	200		70		35-120	

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Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B13024 Extracted: 02/13/05											
Blank Analyzed: 02/15/2005 (5B13024-BLK1)											
Surrogate: Phenol-d6	152			ug/l	200		76	45-120			
Surrogate: 2,4,6-Tribromophenol	189			ug/l	200		94	50-125			
Surrogate: Nitrobenzene-d5	82.2			ug/l	100		82	45-120			
Surrogate: 2-Fluorobiphenyl	86.8			ug/l	100		87	45-120			
Surrogate: Terphenyl-d14	87.1			ug/l	100		87	45-135			
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
Acenaphthene	83.0	10	4.3	ug/l	100		83	55-120			
Acenaphthylene	88.0	10	3.2	ug/l	100		88	55-120			
Aniline	67.5	10	2.9	ug/l	100		68	30-120			
Anthracene	82.9	10	3.2	ug/l	100		83	60-120			
Benzidine	11.3	20	5.2	ug/l	100		11	20-180			L2, J
Benzoic acid	72.6	20	2.6	ug/l	100		73	30-125			
Benzo(a)anthracene	89.4	10	3.7	ug/l	100		89	65-120			
Benzo(b)fluoranthene	84.9	10	2.7	ug/l	100		85	50-125			
Benzo(k)fluoranthene	84.1	10	3.4	ug/l	100		84	50-125			
Benzo(g,h,i)perylene	83.3	10	5.3	ug/l	100		83	35-160			
Benzo(a)pyrene	87.3	10	3.5	ug/l	100		87	55-125			
Benzyl alcohol	77.6	20	2.5	ug/l	100		78	40-130			
Bis(2-chloroethoxy)methane	83.2	10	3.9	ug/l	100		83	55-120			
Bis(2-chloroethyl)ether	68.3	10	4.4	ug/l	100		68	50-120			
Bis(2-chloroisopropyl)ether	73.7	10	4.6	ug/l	100		74	50-120			
Bis(2-ethylhexyl)phthalate	77.2	50	5.2	ug/l	100		77	65-125			
4-Bromophenyl phenyl ether	79.7	10	4.6	ug/l	100		80	55-125			
Butyl benzyl phthalate	77.4	20	3.5	ug/l	100		77	60-125			
4-Chloroaniline	80.1	10	6.0	ug/l	100		80	55-120			
2-Chloronaphthalene	81.0	10	4.0	ug/l	100		81	60-120			
4-Chloro-3-methylphenol	83.6	20	3.5	ug/l	100		84	60-120			
2-Chlorophenol	71.0	10	4.2	ug/l	100		71	45-120			
4-Chlorophenyl phenyl ether	84.8	10	3.0	ug/l	100		85	55-120			
Chrysene	85.3	10	2.8	ug/l	100		85	65-120			
Dibenz(a,h)anthracene	88.7	20	4.7	ug/l	100		89	40-160			
Dibenzofuran	83.4	10	2.6	ug/l	100		83	60-120			
Di-n-butyl phthalate	81.1	20	2.8	ug/l	100		81	65-125			
1,3-Dichlorobenzene	63.4	10	4.1	ug/l	100		63	40-120			
1,4-Dichlorobenzene	61.8	10	3.9	ug/l	100		62	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 008 Report Number: IOB0997	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	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
1,2-Dichlorobenzene	63.4	10	4.5	ug/l	100	63	40-120				M-NR1
3,3-Dichlorobenzidine	101	20	11	ug/l	100	101	50-170				
2,4-Dichlorophenol	81.8	10	4.1	ug/l	100	82	55-120				
Diethyl phthalate	76.5	10	3.1	ug/l	100	76	60-120				
2,4-Dimethylphenol	65.9	20	4.4	ug/l	100	66	35-120				
Dimethyl phthalate	80.9	10	3.6	ug/l	100	81	60-120				
4,6-Dinitro-2-methylphenol	80.0	20	5.1	ug/l	100	80	55-120				
2,4-Dinitrophenol	77.4	20	5.3	ug/l	100	77	40-140				
2,4-Dinitrotoluene	81.4	10	4.2	ug/l	100	81	60-140				
2,6-Dinitrotoluene	77.3	10	3.2	ug/l	100	77	65-125				
Di-n-octyl phthalate	86.1	20	4.7	ug/l	100	86	60-130				
Fluoranthene	91.5	10	4.2	ug/l	100	92	55-125				
Fluorene	87.4	10	3.9	ug/l	100	87	60-120				
Hexachlorobenzene	83.3	10	4.8	ug/l	100	83	50-120				
Hexachlorobutadiene	71.6	10	4.2	ug/l	100	72	45-120				
Hexachlorocyclopentadiene	63.9	20	3.4	ug/l	100	64	10-130				
Hexachloroethane	60.9	10	4.2	ug/l	100	61	40-120				
Indeno(1,2,3-cd)pyrene	85.2	20	5.4	ug/l	100	85	35-150				
Isophorone	77.0	10	3.7	ug/l	100	77	55-120				
2-Methylnaphthalene	82.7	10	3.0	ug/l	100	83	50-120				
2-Methylphenol	72.5	10	3.7	ug/l	100	72	45-120				
4-Methylphenol	74.6	10	3.8	ug/l	100	75	45-120				
Naphthalene	80.2	10	4.5	ug/l	100	80	50-120				
2-Nitroaniline	88.9	20	3.9	ug/l	100	89	60-130				
3-Nitroaniline	83.1	20	4.5	ug/l	100	83	50-140				
4-Nitroaniline	85.5	20	4.9	ug/l	100	86	45-160				
Nitrobenzene	72.2	20	4.2	ug/l	100	72	50-120				
2-Nitrophenol	80.7	10	4.2	ug/l	100	81	55-120				
4-Nitrophenol	78.9	20	6.6	ug/l	100	79	50-135				
N-Nitrosodiphenylamine	76.0	10	4.0	ug/l	100	76	60-120				
N-Nitroso-di-n-propylamine	71.2	10	3.6	ug/l	100	71	50-120				
Pentachlorophenol	88.6	20	4.0	ug/l	100	89	50-125				
Phenanthrene	80.8	10	3.3	ug/l	100	81	55-120				
Phenol	74.0	10	4.0	ug/l	100	74	45-120				
Pyrene	85.3	10	3.9	ug/l	100	85	50-120				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 008 Report Number: IOB0997	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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
1,2,4-Trichlorobenzene	72.0	10	4.4	ug/l	100	72	50-120				M-NR1
2,4,5-Trichlorophenol	85.4	20	3.6	ug/l	100	85	60-120				
2,4,6-Trichlorophenol	87.6	20	4.1	ug/l	100	88	60-120				
1,2-Diphenylhydrazine/Azobenzene	85.6	20	5.0	ug/l	100	86	60-120				
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120				
Surrogate: 2-Fluorophenol	133			ug/l	200	66	35-120				
Surrogate: Phenol-d6	143			ug/l	200	72	45-120				
Surrogate: 2,4,6-Tribromophenol	177			ug/l	200	88	50-125				
Surrogate: Nitrobenzene-d5	75.4			ug/l	100	75	45-120				
Surrogate: 2-Fluorobiphenyl	79.5			ug/l	100	80	45-120				
Surrogate: Terphenyl-d14	78.6			ug/l	100	79	45-135				
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Acenaphthene	86.2	10	4.3	ug/l	100	86	55-120	4	20		
Acenaphthylene	90.7	10	3.2	ug/l	100	91	55-120	3	20		
Aniline	81.2	10	2.9	ug/l	100	81	30-120	18	25		
Anthracene	88.7	10	3.2	ug/l	100	89	60-120	7	20		
Benzidine	137	20	5.2	ug/l	100	137	20-180	170	35		R-2
Benzoic acid	66.6	20	2.6	ug/l	100	67	30-125	9	30		
Benzo(a)anthracene	95.6	10	3.7	ug/l	100	96	65-120	7	20		
Benzo(b)fluoranthene	92.5	10	2.7	ug/l	100	92	50-125	9	25		
Benzo(k)fluoranthene	88.6	10	3.4	ug/l	100	89	50-125	5	20		
Benzo(g,h,i)perylene	97.4	10	5.3	ug/l	100	97	35-160	16	25		
Benzo(a)pyrene	93.6	10	3.5	ug/l	100	94	55-125	7	25		
Benzyl alcohol	80.5	20	2.5	ug/l	100	80	40-130	4	20		
Bis(2-chloroethoxy)methane	85.9	10	3.9	ug/l	100	86	55-120	3	20		
Bis(2-chloroethyl)ether	70.9	10	4.4	ug/l	100	71	50-120	4	20		
Bis(2-chloroisopropyl)ether	76.8	10	4.6	ug/l	100	77	50-120	4	20		
Bis(2-ethylhexyl)phthalate	84.3	50	5.2	ug/l	100	84	65-125	9	20		
4-Bromophenyl phenyl ether	85.8	10	4.6	ug/l	100	86	55-125	7	25		
Butyl benzyl phthalate	82.9	20	3.5	ug/l	100	83	60-125	7	20		
4-Chloroaniline	84.5	10	6.0	ug/l	100	84	55-120	5	25		
2-Chloronaphthalene	83.6	10	4.0	ug/l	100	84	60-120	3	20		
4-Chloro-3-methylphenol	87.2	20	3.5	ug/l	100	87	60-120	4	25		
2-Chlorophenol	72.1	10	4.2	ug/l	100	72	45-120	2	25		
4-Chlorophenyl phenyl ether	90.4	10	3.0	ug/l	100	90	55-120	6	20		

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Report Number: IOB0997

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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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Chrysene	90.6	10	2.8	ug/l	100	91	65-120	6	20		
Dibenz(a,h)anthracene	103	20	4.7	ug/l	100	103	40-160	15	25		
Dibenzofuran	87.2	10	2.6	ug/l	100	87	60-120	4	20		
Di-n-butyl phthalate	86.8	20	2.8	ug/l	100	87	65-125	7	20		
1,3-Dichlorobenzene	59.7	10	4.1	ug/l	100	60	40-120	6	25		
1,4-Dichlorobenzene	63.0	10	3.9	ug/l	100	63	40-120	2	25		
1,2-Dichlorobenzene	62.9	10	4.5	ug/l	100	63	40-120	1	25		
3,3-Dichlorobenzidine	114	20	11	ug/l	100	114	50-170	12	25		
2,4-Dichlorophenol	84.2	10	4.1	ug/l	100	84	55-120	3	20		
Diethyl phthalate	80.6	10	3.1	ug/l	100	81	60-120	5	20		
2,4-Dimethylphenol	72.1	20	4.4	ug/l	100	72	35-120	9	25		
Dimethyl phthalate	84.3	10	3.6	ug/l	100	84	60-120	4	20		
4,6-Dinitro-2-methylphenol	84.0	20	5.1	ug/l	100	84	55-120	5	25		
2,4-Dinitrophenol	80.3	20	5.3	ug/l	100	80	40-140	4	25		
2,4-Dinitrotoluene	86.3	10	4.2	ug/l	100	86	60-140	6	20		
2,6-Dinitrotoluene	80.3	10	3.2	ug/l	100	80	65-125	4	20		
Di-n-octyl phthalate	96.4	20	4.7	ug/l	100	96	60-130	11	20		
Fluoranthene	96.3	10	4.2	ug/l	100	96	55-125	5	20		
Fluorene	91.9	10	3.9	ug/l	100	92	60-120	5	20		
Hexachlorobenzene	87.5	10	4.8	ug/l	100	88	50-120	5	20		
Hexachlorobutadiene	73.2	10	4.2	ug/l	100	73	45-120	2	25		
Hexachlorocyclopentadiene	66.5	20	3.4	ug/l	100	66	10-130	4	30		
Hexachloroethane	60.4	10	4.2	ug/l	100	60	40-120	1	25		
Indeno(1,2,3-cd)pyrene	98.6	20	5.4	ug/l	100	99	35-150	15	25		
Isophorone	81.3	10	3.7	ug/l	100	81	55-120	5	20		
2-Methylnaphthalene	86.1	10	3.0	ug/l	100	86	50-120	4	20		
2-Methylphenol	75.6	10	3.7	ug/l	100	76	45-120	4	20		
4-Methylphenol	78.2	10	3.8	ug/l	100	78	45-120	5	20		
Naphthalene	83.1	10	4.5	ug/l	100	83	50-120	4	20		
2-Nitroaniline	91.5	20	3.9	ug/l	100	92	60-130	3	20		
3-Nitroaniline	88.6	20	4.5	ug/l	100	89	50-140	6	25		
4-Nitroaniline	94.4	20	4.9	ug/l	100	94	45-160	10	20		
Nitrobenzene	74.6	20	4.2	ug/l	100	75	50-120	3	25		
2-Nitrophenol	83.0	10	4.2	ug/l	100	83	55-120	3	25		
4-Nitrophenol	81.6	20	6.6	ug/l	100	82	50-135	3	25		

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

Sampled: 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	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
N-Nitrosodiphenylamine	80.6	10	4.0	ug/l	100	81	60-120	6	20		
N-Nitroso-di-n-propylamine	75.1	10	3.6	ug/l	100	75	50-120	5	20		
Pentachlorophenol	92.7	20	4.0	ug/l	100	93	50-125	5	25		
Phenanthrene	86.6	10	3.3	ug/l	100	87	55-120	7	20		
Phenol	75.1	10	4.0	ug/l	100	75	45-120	1	25		
Pyrene	88.4	10	3.9	ug/l	100	88	50-120	4	25		
1,2,4-Trichlorobenzene	73.0	10	4.4	ug/l	100	73	50-120	1	20		
2,4,5-Trichlorophenol	88.6	20	3.6	ug/l	100	89	60-120	4	20		
2,4,6-Trichlorophenol	89.5	20	4.1	ug/l	100	90	60-120	2	20		
1,2-Diphenylhydrazine/Azobenzene	90.2	20	5.0	ug/l	100	90	60-120	5	25		
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120	0	20		
Surrogate: 2-Fluorophenol	128			ug/l	200	64	35-120				
Surrogate: Phenol-d6	141			ug/l	200	70	45-120				
Surrogate: 2,4,6-Tribromophenol	185			ug/l	200	92	50-125				
Surrogate: Nitrobenzene-d5	76.5			ug/l	100	76	45-120				
Surrogate: 2-Fluorobiphenyl	79.4			ug/l	100	79	45-120				
Surrogate: Terphenyl-d14	82.3			ug/l	100	82	45-135				

Batch: 5B17041 Extracted: 02/17/05

Blank Analyzed: 02/22/2005 (5B17041-BLK1)

Benzidine	ND	20	5.2	ug/l							
Surrogate: 2-Fluorophenol	110			ug/l	200	55	35-120				
Surrogate: Phenol-d6	121			ug/l	200	60	45-120				
Surrogate: 2,4,6-Tribromophenol	144			ug/l	200	72	50-125				
Surrogate: Nitrobenzene-d5	66.4			ug/l	100	66	45-120				
Surrogate: 2-Fluorobiphenyl	70.0			ug/l	100	70	45-120				
Surrogate: Terphenyl-d14	67.5			ug/l	100	68	45-135				

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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 008

Report Number: IOB0997

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 Limit	Data Qualifiers
Batch: 5B17041 Extracted: 02/17/05											
LCS Analyzed: 02/22/2005 (5B17041-BS1)											
Benzidine	145	20	5.2	ug/l	100	145	20-180				M-NR1
Surrogate: 2-Fluorophenol	120			ug/l	200	60	35-120				
Surrogate: Phenol-d6	138			ug/l	200	69	45-120				
Surrogate: 2,4,6-Tribromophenol	164			ug/l	200	82	50-125				
Surrogate: Nitrobenzene-d5	74.1			ug/l	100	74	45-120				
Surrogate: 2-Fluorobiphenyl	73.0			ug/l	100	73	45-120				
Surrogate: Terphenyl-d14	85.2			ug/l	100	85	45-135				
LCS Dup Analyzed: 02/22/2005 (5B17041-BSD1)											
Benzidine	149	20	5.2	ug/l	100	149	20-180		3	35	
Surrogate: 2-Fluorophenol	120			ug/l	200	60	35-120				
Surrogate: Phenol-d6	132			ug/l	200	66	45-120				
Surrogate: 2,4,6-Tribromophenol	163			ug/l	200	82	50-125				
Surrogate: Nitrobenzene-d5	76.0			ug/l	100	76	45-120				
Surrogate: 2-Fluorobiphenyl	74.0			ug/l	100	74	45-120				
Surrogate: Terphenyl-d14	84.4			ug/l	100	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 Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5B15038 Extracted: 02/15/05

Blank Analyzed: 02/15/2005-02/16/2005 (5B15038-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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	0.329			ug/l	0.500		66		35-120	
Surrogate: Decachlorobiphenyl	0.459			ug/l	0.500		92		45-120	

LCS Analyzed: 02/16/2005 (5B15038-BS1)

M-NR1

Aldrin	0.248	0.10	0.030	ug/l	0.500		50		45-115	
alpha-BHC	0.267	0.10	0.015	ug/l	0.500		53		45-115	
beta-BHC	0.328	0.10	0.015	ug/l	0.500		66		50-115	
delta-BHC	0.322	0.20	0.020	ug/l	0.500		64		55-120	
gamma-BHC (Lindane)	0.283	0.10	0.015	ug/l	0.500		57		45-115	
4,4'-DDD	0.346	0.10	0.015	ug/l	0.500		69		60-120	
4,4'-DDE	0.331	0.10	0.020	ug/l	0.500		66		55-120	
4,4'-DDT	0.328	0.10	0.030	ug/l	0.500		66		60-130	
Dieldrin	0.330	0.10	0.015	ug/l	0.500		66		55-120	
Endosulfan I	0.319	0.10	0.015	ug/l	0.500		64		50-115	
Endosulfan II	0.337	0.10	0.040	ug/l	0.500		67		60-125	
Endosulfan sulfate	0.354	0.20	0.015	ug/l	0.500		71		60-120	

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

Project ID: Annual Outfall 008

Report Number: IOB0997

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
Batch: 5B15038 Extracted: 02/15/05											
LCS Analyzed: 02/16/2005 (5B15038-BS1)											
Endrin	0.329	0.10	0.015	ug/l	0.500		66	55-125			M-NR1
Endrin aldehyde	0.346	0.10	0.045	ug/l	0.500		69	55-115			
Endrin ketone	0.364	0.10	0.020	ug/l	0.500		73	60-120			
Heptachlor	0.278	0.10	0.030	ug/l	0.500		56	45-115			
Heptachlor epoxide	0.315	0.10	0.020	ug/l	0.500		63	50-120			
Methoxychlor	0.365	0.10	0.035	ug/l	0.500		73	60-135			
Surrogate: Tetrachloro-m-xylene	0.241			ug/l	0.500		48	35-120			
Surrogate: Decachlorobiphenyl	0.337			ug/l	0.500		67	45-120			
LCS Dup Analyzed: 02/16/2005 (5B15038-BSD1)											
Aldrin	0.288	0.10	0.030	ug/l	0.500		58	45-115	15	30	
alpha-BHC	0.282	0.10	0.015	ug/l	0.500		56	45-115	5	30	
beta-BHC	0.395	0.10	0.015	ug/l	0.500		79	50-115	19	30	
delta-BHC	0.395	0.20	0.020	ug/l	0.500		79	55-120	20	30	
gamma-BHC (Lindane)	0.320	0.10	0.015	ug/l	0.500		64	45-115	12	30	
4,4'-DDD	0.435	0.10	0.015	ug/l	0.500		87	60-120	23	30	
4,4'-DDE	0.413	0.10	0.020	ug/l	0.500		83	55-120	22	30	
4,4'-DDT	0.411	0.10	0.030	ug/l	0.500		82	60-130	22	30	
Dieldrin	0.407	0.10	0.015	ug/l	0.500		81	55-120	21	30	
Endosulfan I	0.387	0.10	0.015	ug/l	0.500		77	50-115	19	30	
Endosulfan II	0.420	0.10	0.040	ug/l	0.500		84	60-125	22	30	
Endosulfan sulfate	0.437	0.20	0.015	ug/l	0.500		87	60-120	21	30	
Endrin	0.407	0.10	0.015	ug/l	0.500		81	55-125	21	30	
Endrin aldehyde	0.420	0.10	0.045	ug/l	0.500		84	55-115	19	30	
Endrin ketone	0.452	0.10	0.020	ug/l	0.500		90	60-120	22	30	
Heptachlor	0.311	0.10	0.030	ug/l	0.500		62	45-115	11	30	
Heptachlor epoxide	0.377	0.10	0.020	ug/l	0.500		75	50-120	18	30	
Methoxychlor	0.455	0.10	0.035	ug/l	0.500		91	60-135	22	30	
Surrogate: Tetrachloro-m-xylene	0.190			ug/l	0.500		38	35-120			
Surrogate: Decachlorobiphenyl	0.412			ug/l	0.500		82	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 008 Report Number: IOB0997	Sampled: 02/11/05 Received: 02/11/05
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METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B15038 Extracted: 02/15/05										
Blank Analyzed: 02/15/2005-02/16/2005 (5B15038-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.410			ug/l	0.500		82 45-120			
LCS Analyzed: 02/15/2005 (5B15038-BS2)										
Aroclor 1016	2.88	1.0	0.20	ug/l	4.00		72 50-115			M-NR1
Aroclor 1260	3.29	1.0	0.40	ug/l	4.00		82 60-115			
Surrogate: Decachlorobiphenyl	0.444			ug/l	0.500		89 45-120			
LCS Dup Analyzed: 02/15/2005 (5B15038-BSD2)										
Aroclor 1016	2.51	1.0	0.20	ug/l	4.00		63 50-115	14	30	
Aroclor 1260	2.99	1.0	0.40	ug/l	4.00		75 60-115	10	25	
Surrogate: Decachlorobiphenyl	0.404			ug/l	0.500		81 45-120			

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B15070 Extracted: 02/15/05										
Blank Analyzed: 02/15/2005 (5B15070-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 02/15/2005 (5B15070-BS1)										
Mercury	8.18	0.20	0.063	ug/l	8.00		102 85-115			
Matrix Spike Analyzed: 02/15/2005 (5B15070-MS1)										
						Source: IOB1088-01				
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103 70-130			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15070-MSD1)										
						Source: IOB1088-01				
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103 70-130	0	20	
Batch: 5B17097 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005-02/18/2005 (5B17097-BLK1)										
Aluminum	ND	50	47	ug/l						
Arsenic	ND	5.0	3.8	ug/l						
Beryllium	ND	2.0	0.62	ug/l						
Boron	ND	0.050	0.0074	mg/l						
Chromium	ND	5.0	0.68	ug/l						
Nickel	ND	10	2.0	ug/l						
Selenium	ND	5.0	4.6	ug/l						
Silver	ND	10	1.3	ug/l						
Thallium	ND	5.0	3.1	ug/l						
Vanadium	ND	10	1.4	ug/l						
Zinc	ND	20	3.7	ug/l						
LCS Analyzed: 02/17/2005-02/18/2005 (5B17097-BS1)										
Aluminum	464	50	47	ug/l	500		93 85-115			
Arsenic	514	5.0	3.8	ug/l	500		103 85-115			
Beryllium	502	2.0	0.62	ug/l	500		100 85-115			
Boron	0.474	0.050	0.0074	mg/l	0.500		95 85-115			
Chromium	517	5.0	0.68	ug/l	500		103 85-115			
Nickel	508	10	2.0	ug/l	500		102 85-115			
Selenium	514	5.0	4.6	ug/l	500		103 85-115			
Silver	258	10	1.3	ug/l	250		103 85-115			
Thallium	523	5.0	3.1	ug/l	500		105 85-115			
Vanadium	512	10	1.4	ug/l	500		102 85-115			

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B17097 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005-02/18/2005 (5B17097-BS1)											
Zinc	503	20	3.7	ug/l	500	101	85-115				
Matrix Spike Analyzed: 02/17/2005-02/18/2005 (5B17097-MS1) Source: IOB1000-01											
Aluminum	1690	50	47	ug/l	500	880	162	70-130			MI
Arsenic	516	5.0	3.8	ug/l	500	ND	103	70-130			
Beryllium	506	2.0	0.62	ug/l	500	ND	101	70-130			
Boron	0.499	0.050	0.0074	mg/l	0.500	0.017	96	70-130			
Chromium	522	5.0	0.68	ug/l	500	3.4	104	70-130			
Nickel	526	10	2.0	ug/l	500	2.9	105	70-130			
Selenium	509	5.0	4.6	ug/l	500	4.7	101	70-130			
Silver	262	10	1.3	ug/l	250	ND	105	70-130			
Thallium	525	5.0	3.1	ug/l	500	ND	105	70-130			
Vanadium	524	10	1.4	ug/l	500	3.1	104	70-130			
Zinc	640	20	3.7	ug/l	500	120	104	70-130			
Matrix Spike Dup Analyzed: 02/17/2005-02/18/2005 (5B17097-MSD1) Source: IOB1000-01											
Aluminum	1590	50	47	ug/l	500	880	142	70-130	6	20	MI
Arsenic	515	5.0	3.8	ug/l	500	ND	103	70-130	0	20	
Beryllium	504	2.0	0.62	ug/l	500	ND	101	70-130	0	20	
Boron	0.495	0.050	0.0074	mg/l	0.500	0.017	96	70-130	1	20	
Chromium	519	5.0	0.68	ug/l	500	3.4	103	70-130	1	20	
Nickel	514	10	2.0	ug/l	500	2.9	102	70-130	2	20	
Selenium	512	5.0	4.6	ug/l	500	4.7	101	70-130	1	20	
Silver	260	10	1.3	ug/l	250	ND	104	70-130	1	20	
Thallium	516	5.0	3.1	ug/l	500	ND	103	70-130	2	20	
Vanadium	520	10	1.4	ug/l	500	3.1	103	70-130	1	20	
Zinc	630	20	3.7	ug/l	500	120	102	70-130	2	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 008 Report Number: IOB0997	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	Data Limit	Qualifiers
Batch: 5B17098 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17098-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 02/17/2005 (5B17098-BS1)											
Antimony	87.4	2.0	0.18	ug/l	80.0		109	85-115			
Cadmium	75.2	1.0	0.015	ug/l	80.0		94	85-115			
Copper	85.2	2.0	0.49	ug/l	80.0		106	85-115			
Lead	86.3	1.0	0.13	ug/l	80.0		108	85-115			
Matrix Spike Analyzed: 02/17/2005 (5B17098-MS1) Source: IOB0960-01											
Antimony	87.5	2.0	0.18	ug/l	80.0	ND	109	70-130			
Cadmium	71.6	1.0	0.015	ug/l	80.0	0.031	89	70-130			
Copper	93.8	2.0	0.49	ug/l	80.0	15	98	70-130			
Lead	80.5	1.0	0.13	ug/l	80.0	0.21	100	70-130			
Matrix Spike Analyzed: 02/17/2005 (5B17098-MS2) Source: IOB1052-01											
Antimony	92.7	2.0	0.18	ug/l	80.0	ND	116	70-130			
Cadmium	72.4	1.0	0.015	ug/l	80.0	0.24	90	70-130			
Copper	80.9	2.0	0.49	ug/l	80.0	6.0	94	70-130			
Lead	78.8	1.0	0.13	ug/l	80.0	ND	98	70-130			
Matrix Spike Dup Analyzed: 02/17/2005 (5B17098-MSD1) Source: IOB0960-01											
Antimony	86.6	2.0	0.18	ug/l	80.0	ND	108	70-130	1	20	
Cadmium	71.5	1.0	0.015	ug/l	80.0	0.031	89	70-130	0	20	
Copper	93.3	2.0	0.49	ug/l	80.0	15	98	70-130	1	20	
Lead	83.5	1.0	0.13	ug/l	80.0	0.21	104	70-130	4	20	

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

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

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 008 Report Number: IOB0997	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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B11120 Extracted: 02/11/05										
Blank Analyzed: 02/11/2005 (5B11120-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 02/11/2005 (5B11120-BS1)										
Chloride	4.84	0.50	0.26	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			
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	
Sulfate	39.3	0.50	0.18	mg/l	10.0	29	103 80-120	2	20	
Batch: 5B14107 Extracted: 02/14/05										
Blank Analyzed: 02/14/2005 (5B14107-BLK1)										
Total Cyanide	ND	0.0050	0.0022	mg/l						
LCS Analyzed: 02/14/2005 (5B14107-BS1)										
Total Cyanide	0.200	0.0050	0.0022	mg/l	0.200		100 90-110			
Matrix Spike Analyzed: 02/14/2005 (5B14107-MS1) Source: IOB0888-01										
Total Cyanide	0.167	0.0050	0.0022	mg/l	0.200	ND	84 70-115			

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 008 Report Number: IOB0997	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
Batch: 5B14107 Extracted: 02/14/05											
Matrix Spike Dup Analyzed: 02/14/2005 (5B14107-MSD1)						Source: IOB0888-01					
Total Cyanide	0.190	0.0050	0.0022	mg/l	0.200	ND	95	70-115	13	15	
Batch: 5B16069 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16069-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/16/2005 (5B16069-BS1)											
Perchlorate	52.0	4.0	0.80	ug/l	50.0		104	85-115			
Matrix Spike Analyzed: 02/16/2005 (5B16069-MS1)						Source: IOB1060-02					
Perchlorate	51.9	4.0	0.80	ug/l	50.0	ND	104	80-120			
Matrix Spike Dup Analyzed: 02/16/2005 (5B16069-MSD1)						Source: IOB1060-02					
Perchlorate	51.6	4.0	0.80	ug/l	50.0	ND	103	80-120	1	20	
Batch: 5B17069 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17069-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/17/2005 (5B17069-BS1)											
Total Suspended Solids	977	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 02/17/2005 (5B17069-DUP1)						Source: IOB0990-01					
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: Annual Outfall 008 Report Number: IOB0997	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	Limit Limits	RPD Limit	Data Qualifiers
Batch: 5B17104 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17104-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/17/2005 (5B17104-BS1)											
Total Dissolved Solids	1050	10	10	mg/l	1000		105		90-110		
Duplicate Analyzed: 02/17/2005 (5B17104-DUP1)											
						Source: IOB1273-03					
Total Dissolved Solids	483	10	10	mg/l		490		1		10	
Batch: 5B17117 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17117-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/17/2005 (5B17117-BS1)											
Oil & Grease	17.6	5.0	0.94	mg/l	20.0		88		65-120		M-NR1
LCS Dup Analyzed: 02/17/2005 (5B17117-BSD1)											
Oil & Grease	16.4	5.0	0.94	mg/l	20.0		82		65-120	7	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: Annual Outfall 008 Report Number: IOB0997	Sampled: 02/11/05 Received: 02/11/05
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Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOB0997-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOB0997-01	Boron-200.7	Boron	mg/l	0.051	0.050	1.00
IOB0997-01	Chloride - 300.0	Chloride	mg/l	5.40	0.50	150
IOB0997-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.90	0.26	8.00
IOB0997-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB0997-01	Sulfate-300.0	Sulfate	mg/l	4.20	0.50	300
IOB0997-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	130	10	950

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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: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

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.
- L2** Laboratory Control Sample recovery was below method control limits.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- 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.
- 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: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 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 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	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.

Subcontracted Laboratories

Alfa Analytical Perspectives

Analysis Performed: 1613-Dioxin-HR

Samples: IOB0997-01

Analysis Performed: EDD + Level 4

Samples: IOB0997-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr

Samples: IOB0997-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4

Samples: IOB0997-01

Analysis Performed: Gross Alpha

Samples: IOB0997-01

Analysis Performed: Gross Beta

Samples: IOB0997-01

Analysis Performed: Strontium 90

Samples: IOB0997-01

Analysis Performed: Tritium

Samples: IOB0997-01

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: Annual Outfall 008

Report Number: IOB0997

Sampled: 02/11/05

Received: 02/11/05

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

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1080997

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 Annual Outfall 008 Stormwater at Happy Valley																Temp = 55.4 pH = 6.6	
Project Manager: Bronwyn Kelly SAMPLER: RICK DANAGIA RUBEN BARRASO				Phone Number: (626) 568-6691 Fax Number: (626) 568-6515																Comments	
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Sampling Date/Time	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, + PP	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl, SO4, NO3+NO2-N, Perchlorate	TDS, TSS	VOCs (624), NPDES + PP	VOCs A+A+2C+E	Pesticides/PCBs - PP	Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90 Radium 226 & 228)	SVOCs - PP	Acute Toxicity	Cyanide			
Outfall 008	W	1L Poly	1	HNO3	1A	2-11-05 15:16	X														
Outfall 008-Dup	W	1L Poly	1	HNO3	1B		X														
Outfall 008	W	1L Amber	2	None	2A, 2B			X													
Outfall 008	W	1L Amber	2	HCl	3A, 3B			X													
Outfall 008	W	Poly-500 ml	2	None	4A, 4B			X													
Outfall 008	W	Poly-500 ml	2	None	5A, 5B			X													
Outfall 008	W	VOAs	3	HCl	6A, 6B, 6C				X												
Outfall 008	W	VOA	3	None	7A, 7B, 7C								X								
Outfall 008	W	1L Amber	2	None	8A, 8B									X							
Outfall 008	W	1 Gal Poly VOAs	2	None	9A, 9B, 9C										X						
Outfall 008	W	1L Amber	2	None	10A, 10B											X					
Outfall 008	W	1 Gal Poly	1	None	11A																
Outfall 008	W	500ml Poly	1	NaOH	12																
Trip Blanks	W	VOA	3	None	13A, 13B, 13C	2-11-05 15:16															
Trip Blank	W	VOAs	3	HCl	14A, 14B, 14C																
Relinquished By	Date/Time:		Received By		Date/Time:														Turn around Time: (check)		
<i>Bronwyn Kelly</i>	2-11-05 1700		<i>Rick Danagia</i>		2-11-05 1700														24 Hours _____ 5 Days _____		
Relinquished By	Date/Time:		Received By		Date/Time:														48 Hours _____ 10 Days _____		
<i>Ruben Barraso</i>	2-11-05 2030		<i>Rick Danagia</i>		2-11-05 2030														72 Hours _____ Normal _____		
Relinquished By	Date/Time:		Received By		Date/Time:														Perchlorate Only 72 Hours _____		
<i>Rick Danagia</i>	2-11-05 2030		<i>Rick Danagia</i>		2-11-05 2030														Metals Only 72 Hours _____		
																		Sample Intact: (Check) _____ On Ice: _____			
																		3.1			

Analyze for Total Combined RA-226 & RA-228 only if Gross Alpha/Beta > 15pCi/L

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal _____
Perchlorate Only 72 Hours _____
Metals Only 72 Hours _____

Sample Intact: (Check) _____ On Ice: _____

3.1

March 25, 2005

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

Attention: Bronwyn Kelly

Project: Annual Outfall 008
Sampled: 02/11/05
Del Mar Analytical Number: IOB0997

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0), Eberline Services tested gross/alpha gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) and Alta Analytical Perspectives performed Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	EBERLINE ID	ALTA ID
Outfall 008	IOB0997-01	A-05021206-001	R502137-8266-001	P5072 2989 004

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

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: February 16, 2005
Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05021206-001
Sample ID.: IOB0997-01

Sample Control: The samples were received by ATL in a chilled state, with the chain of custody record attached.

Date Sampled: 02/11/05
Date Received: 02/12/05
Date Tested: 02/12/05 to 02/16/05

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>
IOB0997-01	100% Survival (TUa = 0.0)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05021206-001

Client/ID: Del Mar IOB0997-01

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	<u>RM</u> 1200
	100%	20.9	9.9	6.6	0	0	
24 Hr	Control	20.3	6.9	7.7	0	0	<u>RM</u> 1100
	100%	20.3	6.3	7.2	0	0	
48 Hr	Control	20.1	7.4	7.5	0	0	<u>RM</u> 1200
	100%	20.1	7.3	7.1	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	<u>RM</u> 1200
	100%	20.2	8.3	7.0	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	<u>RM</u> 1100
	100%	19.6	7.9	7.0	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	<u>RM</u> 1100
	100%	20.5	7.3	7.0	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.6; Conductivity: 97 umho; Temp: 4°C;

DO: 9.9 mg/l; Alkalinity: 32 mg/l; Hardness: 52 mg/l; NH₃-N: 0.6 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 %



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

2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB0997

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Aquatic Testing Laboratories-SUB
4350 Transport Street, Unit 107
Ventura, CA 93003
Phone : (805) 650-0546
Fax: (805) 650-0756

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

Analysis	Expiration	Comments
Sample ID: IOB0997-01 Water Bioassay-Acute 96hr	Sampled: 02/11/05 15:16 02/13/05 03:16	FH minnow, EPA/821-R02-012, Sub to AqTox Labs
Containers Supplied: 1 gal Poly (IOB0997-01X)		

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): 4°C

~~Released By: [Signature] Date: 2/11/05 Time: 0700~~ Received By: [Signature] Date: 2/11/05 Time: 0700
 Released By: [Signature] Date: 2/10/05 Time: 0900 Received By: [Signature] Date: 2-12-05 Time: 0900



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. IOB0997
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502137-8266

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

MCM/njv

*Enclosure: Report
Subcontract Form
Receipt checklist
Invoice*

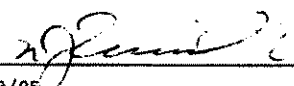
Analytical Services
2030 Wright Avenue
P.O. Box 4640
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

Eberline Services

ANALYSIS RESULTS

SDG <u>8266</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502137-01</u>	Contract <u>PROJECT# IOB0997</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>
IOB0997-01	8266-001	02/11/05	03/01/05	GrossAlpha	6.07 ± 1.7	pCi/L	1.06
			03/01/05	Gross Beta	7.48 ± 1.5	pCi/L	1.88
		02/25/05	03/03/05	H3	110 ± 150	pCi/L	242
			02/25/05	Sr90	-0.107 ± 0.22	pCi/L	0.458

Certified by 
Report Date 03/08/05
Page 1

Eberline Services

QC RESULTS

SDG <u>8266</u> Work Order <u>R502137-01</u> Received Date <u>02/15/05</u>	Client <u>DEL MAR ANAL</u> Contract <u>PROJECT# IOB0997</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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 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 786-3620 Fax (702) 786-3621

SUBCONTRACT ORDER - PROJECT # IOB0997

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: IOB0997-01 Water Sampled: 02/11/05 15:16		
EDD + Level 4-OUT	03/11/05 15:16	
Gross Alpha-O	02/11/06 15:16	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 15:16	900.0, IF RESULT>50 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/11/06 15:16	HOLD for Gross A&B results; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 15:16	EPA 905.0
Tritium-O	02/11/06 15:16	EPA 906.0

Containers Supplied:

1 gal Poly (IOB0997-01S) *w/HNO₃*

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	2-14-05	1730	2/14	2/15/05	10:00
Released By	Date	Time	Received By	Date	Time
Released By	Date	Time	Received By	Date	Time



EBERLINE
SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client Del Mar City Irvine State CA

Date/Time received 2/15/05 10:00 CoC No. IOR0997

sample # 015

Container I.D. No. Blue Lady #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: 1 (Or see CoC 1)
- 8. Samples are in correct container Yes No
- 9. Paperwork agrees with samples? Yes No
- 10. Samples have: Taps 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 Z/vp 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 _____


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

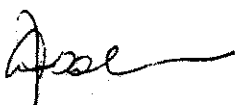
2714 EXCHANGE DRIVE
 WILMINGTON
 NORTH CAROLINA 28405
 TEL: 910-794-1613 FAX 910-794-3919

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: IOB0997-01

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:	1.05 L	Sample ID:	P5072_2989_004	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	1.34			65.8	77.1																																																	
1,2,3,7,8-PeCDD	ND	2.11			62.8	79.6																																																	
1,2,3,4,7,8-HxCDD	ND	2.48			66.4	79.4																																																	
1,2,3,6,7,8-HxCDD	ND	2.34			71.2	79.4																																																	
1,2,3,7,8,9-HxCDD	ND	2.82			67.2	79.4																																																	
1,2,3,4,6,7,8-HpCDD	ND	9.38			55.3	65																																																	
OCDD	70.4	6.98			48.1	65																																																	
2,3,7,8-TCDF	ND	0.995			68.3	77.1																																																	
1,2,3,7,8-PeCDF	ND	2.33			70.6	77.3																																																	
2,3,4,7,8-PeCDF	ND	2.42			62.6	77.3																																																	
1,2,3,4,7,8-HxCDF	ND	0.943			62.6	79.4																																																	
1,2,3,6,7,8-HxCDF	ND	0.871			68.5	79.4																																																	
2,3,4,6,7,8-HxCDF	ND	1.12			61.8	79.4																																																	
1,2,3,7,8,9-HxCDF	ND	1.73			57.8	79.4																																																	
1,2,3,4,6,7,8-HpCDF	ND	1.9			53.5	65																																																	
1,2,3,4,7,8,9-HpCDF	ND	3.25			49.3	65																																																	
OCDF	ND	12.4			47.2	65																																																	
<p>Totals & TEQs</p> <table border="0"> <tr> <td>TCDDs</td> <td>ND</td> <td>1.34</td> <td></td> <td></td> <td colspan="3" rowspan="10">  <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> </td> </tr> <tr> <td>PeCDDs</td> <td>ND</td> <td>2.11</td> <td></td> <td></td> </tr> <tr> <td>HxCDDs</td> <td>ND</td> <td>2.55</td> <td></td> <td></td> </tr> <tr> <td>HpCDDs</td> <td>9.46</td> <td>8.38</td> <td></td> <td></td> </tr> <tr> <td>TCDFs</td> <td>ND</td> <td>0.995</td> <td></td> <td></td> </tr> <tr> <td>PeCDFs</td> <td>ND</td> <td>2.37</td> <td></td> <td></td> </tr> <tr> <td>HxCDFs</td> <td>ND</td> <td>1.13</td> <td></td> <td></td> </tr> <tr> <td>HpCDFs</td> <td>ND</td> <td>2.5</td> <td></td> <td></td> </tr> <tr> <td>Total PCDD/Fs</td> <td>79.9</td> <td></td> <td>79.9</td> <td></td> </tr> </table>								TCDDs	ND	1.34			 <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	2.11			HxCDDs	ND	2.55			HpCDDs	9.46	8.38			TCDFs	ND	0.995			PeCDFs	ND	2.37			HxCDFs	ND	1.13			HpCDFs	ND	2.5			Total PCDD/Fs	79.9		79.9	
TCDDs	ND	1.34			 <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>																																																		
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HpCDFs	ND	2.5																																																					
Total PCDD/Fs	79.9		79.9																																																				


Checkcode: 5239

AAP 2005 Rev. B

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	0.764			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	
1,2,3,4,7,8,9-HpCDF	ND	2.67			65.1	69.8	
OCDF	ND	11.1			67.2	69.8	
Totals & TEQs							
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					
Total PCDD/Fs	0		0				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer
Date

[Signature]
03.11.05

Sample Summary Part 1		Method 1613												
Analyte	6_2888_MB 001	IOB1001-01	IOB0983-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1008-01	IOB1002-01	IOB0982-01	IOB1004-01	IOB0988-01	IOB0981-01
	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L
2,3,7,8-TCDF	(1.85)	(2.28)	(2.06)	(2.02)	(1.34)	(1.71)	(2.29)	(2.55)	(1.81)	(1.44)	(2.47)	(1.79)	(3.24)	(3.01)
1,2,3,7,8-PeCDD	(1.58)	(1.65)	(1.79)	(2.09)	(2.11)	(1.73)	(3.2)	(1.88)	(1.82)	(2.04)	(3.14)	(2.62)	(2.16)	(5.38)
1,2,3,4,7,8-HxCDD	(2.37)	(3.45)	(2.58)	(2.71)	(2.48)	(3.86)	(4.18)	(2.42)	3.37	(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)	(3.8)	(4.11)	(2.41)	8.47	(2.98)	(5.98)	(12)	(4.84)	(4.7)
1,2,3,7,8,9-HxCDD	(2.8)	(3.83)	(3.13)	(3.33)	(2.82)	(4.66)	(4.95)	(2.99)	5.27	(3.13)	(7.12)	(13.8)	(5.54)	(5.81)
1,2,3,4,6,7,8-HxCDD	(1.98)	75.4	31.5	10	(9.38)	12.2	(8.34)	49.8	207	12.1	(10.8)	20.8	(3.19)	(8.5)
OCDD	(4.78)	883	267	134	70.4	157	56.1	471	2120	163	70.2	213	80.3	50
2,3,7,8-TCDF	(1.04)	(1.24)	(1.84)	(1.85)	(0.996)	(2.08)	(1.37)	(1.54)	(1.49)	(1.03)	(2.58)	(2.71)	(2.38)	(2.51)
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.75)	(1.44)	(2.33)	(1.84)	(3.71)	(1.88)	(2.35)	(2.11)	(4.02)	(2.52)	(2.98)	(2.48)
2,3,4,7,8-PeCDF	(1.98)	(1.88)	(2.8)	(1.48)	(2.42)	(1.89)	(3.88)	(2.03)	(2.31)	(1.95)	(3.97)	(2.53)	(3)	(2.49)
1,2,3,4,7,8-HxCDF	(0.812)	(0.857)	(0.9)	(0.785)	(0.943)	(1.38)	(1.38)	(1.47)	(0.87)	(0.815)	(1.55)	(6.65)	(1.62)	(1.13)
1,2,3,6,7,8-HxCDF	(0.784)	(0.843)	(0.827)	(0.706)	(0.871)	(1.31)	(1.3)	(1.51)	(0.898)	(0.78)	(1.42)	(8.24)	(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)	(1.8)	(1.1)	(0.89)	(1.91)	(8.23)	(2.03)	(1.46)
1,2,3,7,8,9-HxCDF	(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)	(2.65)
1,2,3,4,6,7,8-HxCDF	(1.78)	16.8	(1.89)	(4.57)	(1.8)	4.04	(3.26)	10.5	27.2	(1.88)	(4.35)	(3.42)	(2.09)	(3.28)
1,2,3,4,7,8,9-HxCDF	(2.87)	(3.48)	(2.95)	(7.47)	(3.29)	(2.63)	(4.59)	(2.56)	(4.43)	(2.59)	(7.3)	(5.49)	(3.04)	(4.88)
OCDF	(11.1)	155	(11)	(22.4)	(12.4)	(9.53)	(14.9)	34.6	97.1	(10.1)	(7.89)	(20.8)	(13.1)	(8.59)
Chemcodes	3385	4361	4661	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

() = DL
 [] = EMPC

Reviewed Date: *[Signature]* 2/2/00 -6

P5072 - Totals
Project ID: General Analytical HRMS

Analyte	9_2989_NB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0990-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0998-01	IOB0991-01
	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
Total														
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	7.38	4.44	0	0	0	0	0	38.8	0	0	0	0	0
HxCDDs	0	153	65.1	25.2	9.46	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
HxCDFs	0	92.9	0	0	0	10.2	0	36.5	96.7	5.96	0	0	0	0
OCDF	0	155	0	0	0	0	0	34.9	67.1	0	0	0	0	0
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	159	79.9	197	56.4	648	2,900	182	70.7	256	62.6	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	56.4	663	2,830	183	70.7	256	62.6	50
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	42.2	1,330	381	215	128	238	119	691	2,840	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	178	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.6	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,180	338	200	119	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	178	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.6	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,180	338	200	119	214	119	595	2,450	211	144	348	109	114
Checksum	3385	4361	4881	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

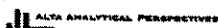
Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL
 [] = EMPC

Reviewer: ASMAKOS
 Date: _____

P5072 - Others
Project ID: General Analytical HRMS

Sample Summary
Part 3



Method 1613

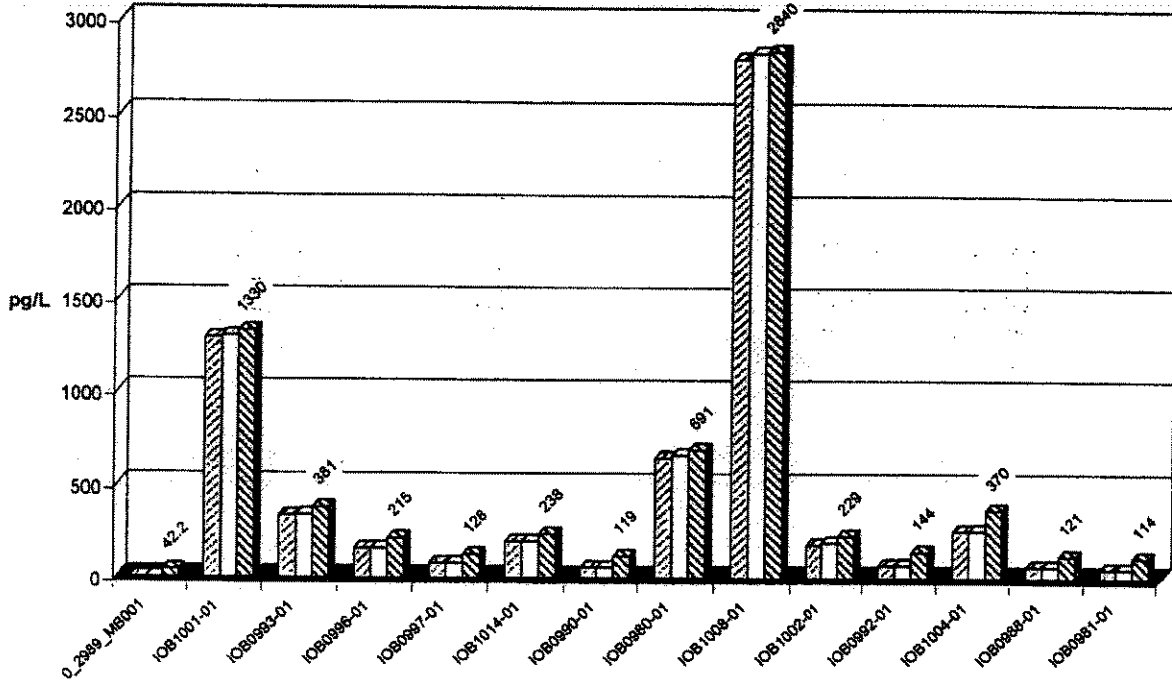
Analyte	0_2889_MB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0990-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0998-01	IOB0991-01
	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L
Other PCDD/Fs (ND=0, EMPC=0)														
Other TCDD	0	0	0	0	0	0	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	33.6	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	6.53	0	0	0	0	0
Other PeCDF	0	0	0.858	0	0	0.76	0.256	0	2.57	0	0.456	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
Other PCDD/Fs (ND=0, EMPC=EMPC)														
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	6.57	0	0	0	0	8.86	47.7	0	0	0	0	0
Other HpCDD	0	77.2	33.6	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	0.456	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
Checkcode	3365	4361	4681	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

() = DL
 [] = EMPC

Reviewer: *OSWALD*
 Date: *03/11/03*

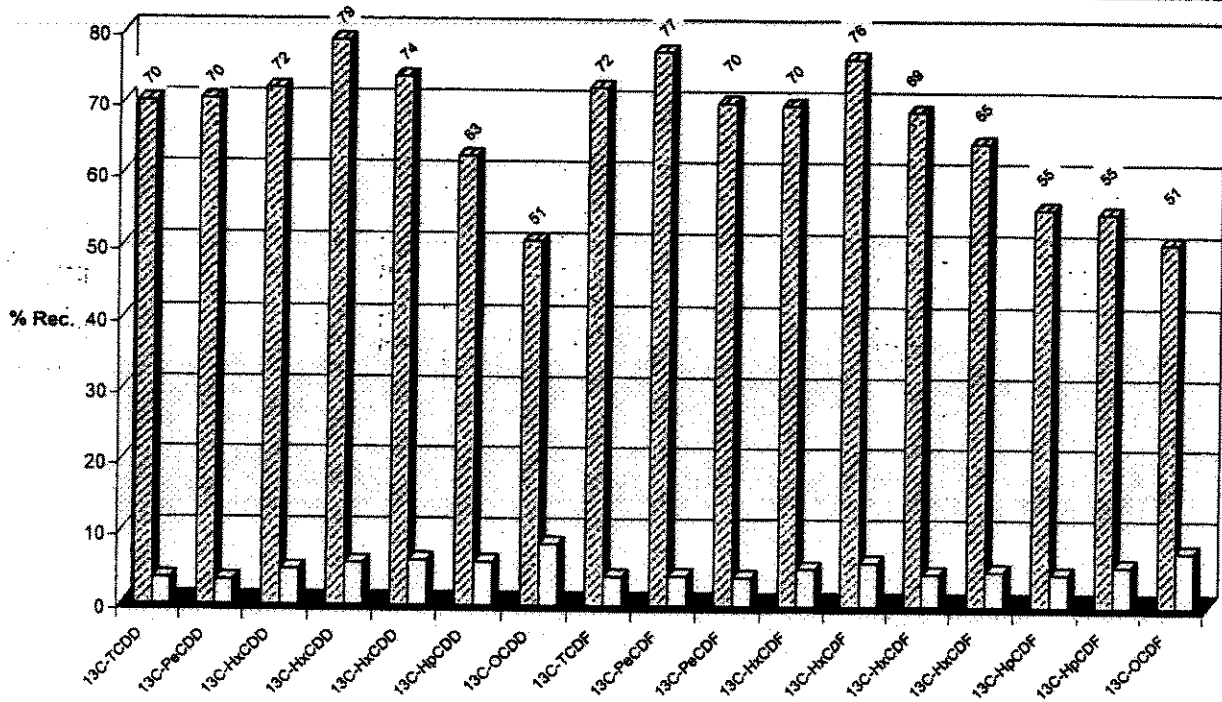
Totals
Project ID: General Analytical HRMS
P5072

- ▨ Total PCDD/Fs (ND=0; EMPC=0)
- ▤ Total PCDD/Fs (ND=0; EMPC=EMPC)
- ▩ Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



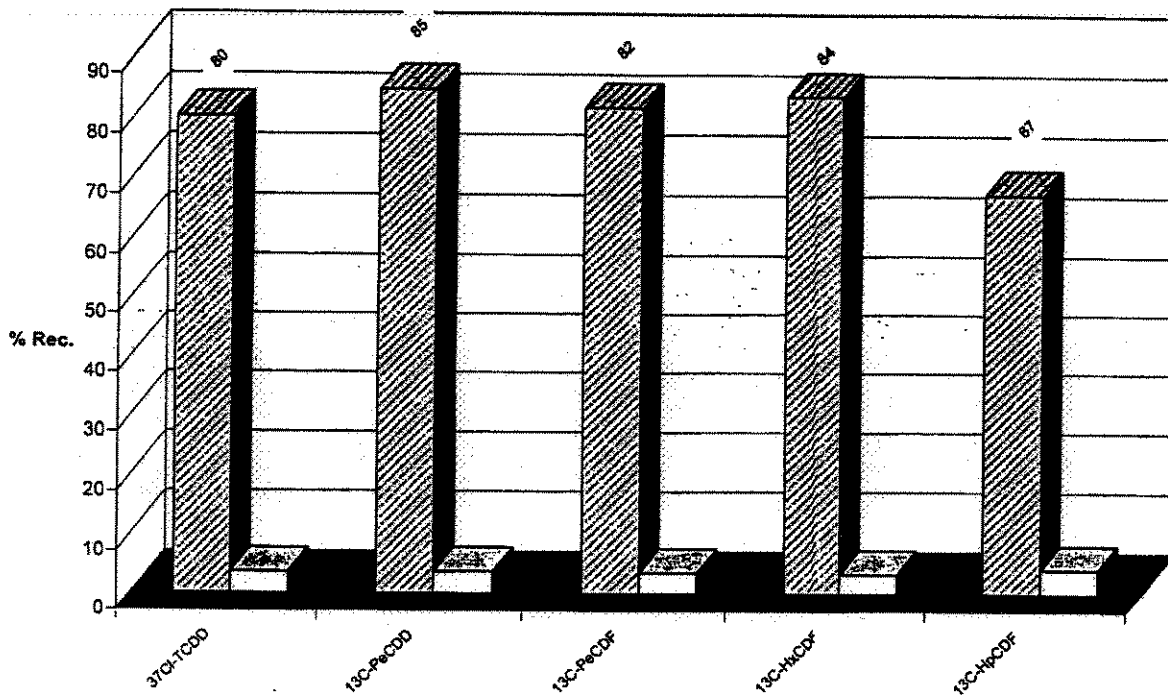
Mean Recoveries of Extraction Standards (N=14)
Project ID: General Analytical HRMS
P5072

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) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOB0997

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

107692

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

Analysis	Expiration	Comments
Sample ID: IOB0997-01 Water	Sampled: 02/11/05 15:16	00 /
1613-Dioxin-HR	02/18/05 15:16	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 15:16	

Containers Supplied:

- 1 L Amber (IOB0997-01C)
- 1 L Amber (IOB0997-01D)

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): 2

Released By: ~~_____~~ ²⁻¹⁴⁻⁰⁵ Time: 1700 Received By: Bright Fleury Date: 2-15-05 Time: 9:00

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



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information: **Section A** Company: Pace **Section B** Required Client Information: **Section C** Report To: SCOTT UNZE Page: 2 of 2 To Be Completed by Pace Analytical and Client **Section C** Quote Reference: 814592

Client Information (Check quote/contract):
 Requested Due Date: 3 Day (TAT)
 * Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
 Turn Around Time (TAT) in calendar days.

Project Name: 1700 Elm Street
 Project Number: 55414
 Project Manager: SCOTT UNZE
 Project #: 1612: PCCO/DR
 Profile #: 1612: PCCO/DR
 Requested Analytic: 1612: PCCO/DR

ITEM #	SAMPLE ID One character per box. (A-Z, 0-9, /, -) Sample IDs MUST BE UNIQUE	Matrix Code	Matrix Code	DATE COLLECTED mm/dd/yy	TIME COLLECTED hr:mm:ap	# Containers Collected	Preservatives							Remarks / Lab ID			
							H ₂ O	HNO ₃	HCl	H ₂ SO ₄	HNO ₂	NaOH	Na ₂ S ₂ O ₈		Method	Other	
1	10B0981-01	WT	WT	3/11/05	09:21	1	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

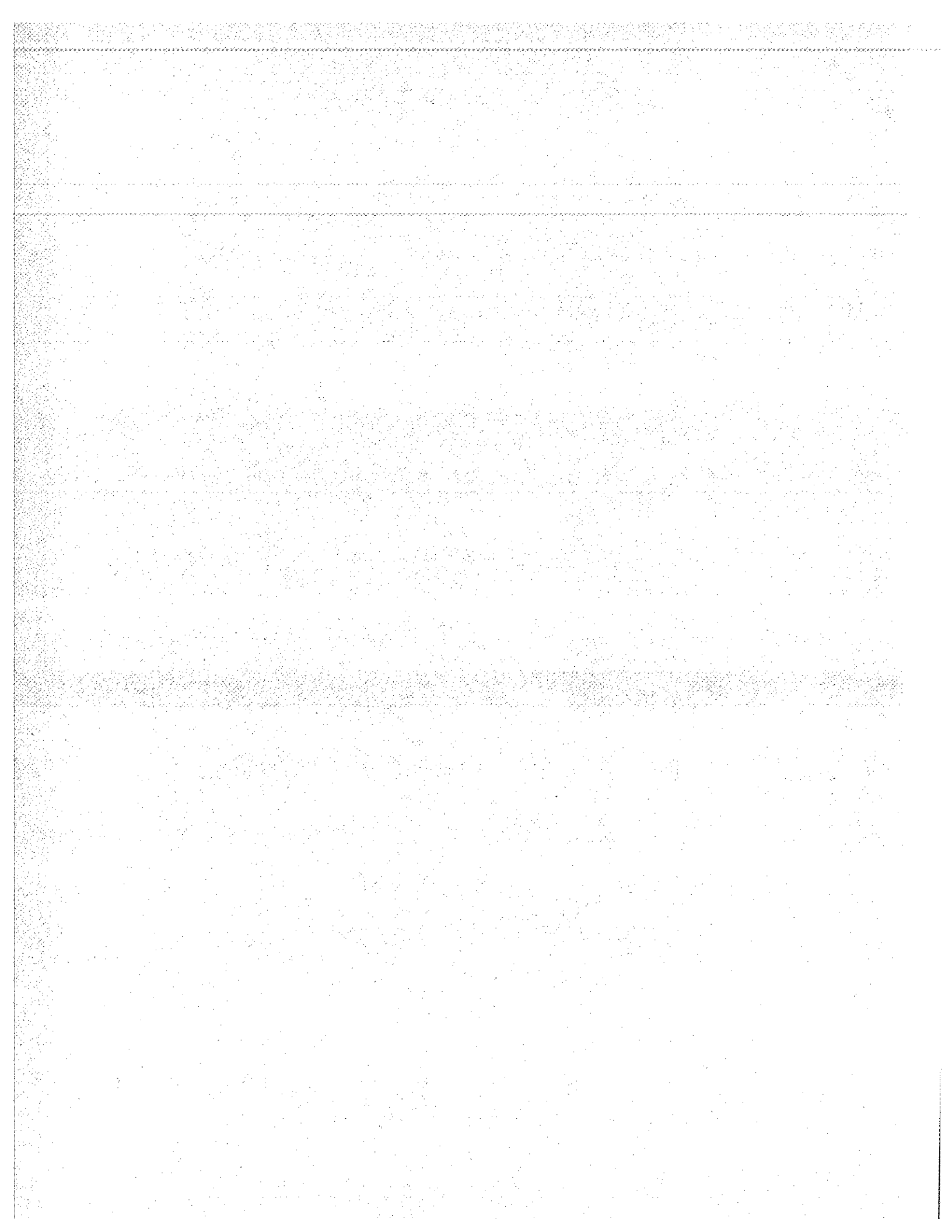
REGULATORY AGENCY: NC SC GA NPDES GROUND WATER DRINKING WATER RCRA UST Other

SAMPLE NOTES: Email to: Scott.Unze@pacelabs.com

RELINQUISHED BY / AFFILIATION: Scott Unze / Pace DATE: 3-11-05 TIME: 15:25

ACCEPTED BY / AFFILIATION: 3-11-05 DATE: 10:51 TIME: 10:51

SAMPLER NAME AND SIGNATURE: Scott Unze
 PRINT NAME OF SAMPLER: Scott Unze
 SIGNATURE OF SAMPLER: [Signature]
 DATE SIGNED: (MM/DD/YY)



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF28
 Task Order 313150010

SDG No. Multiple
 No. of Analyses 6

Laboratory Alta
 Reviewer K. Shadowlight

Date: March 7, 2005

Analysis/Method Dioxins

Reviewer's Signature

K. Shadowlight

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple SDGs
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOB1562-01	25779-001	water	1613
Outfall 003	IOB1571-01	25780-001	water	1613
Outfall 007	IOB1572-01	25782-001	water	1613
Outfall 008	IOB1573-01	25783-001	water	1613
Outfall 011	IOB1565-01	25781-001	water	1613
Outfall 018	IOB1570-01	25778-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 0.8°C ; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There were two initial calibrations, analyzed 08/30/04 and 10/04/04. The calibrations each consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6543-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 (6543-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 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. Compounds flagged by the laboratory with a "D" qualifier indicated possible diphenylether interference and were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.

Sample ID: IOB1573-01		Del Mar Analytical, Irvine		EPA Method 1613	
Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25783-001
Project:	IOB1573	Sample Size:	1.036 L	QC Batch No.:	6543
Date Collected:	18-Feb-05	DL ^a		Date Analyzed DB-5:	28-Feb-05
Time Collected:	1335	EMPC ^b		Date Analyzed DB-225:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	1.03		IS 13C-2,3,7,8-TCDD	72.0 25 - 164
1,2,3,7,8-PeCDD	ND	1.57		13C-1,2,3,7,8-PeCDD	73.2 25 - 181
1,2,3,4,7,8-HxCDD	ND	1.17		13C-1,2,3,4,7,8-HxCDD	73.9 32 - 141
1,2,3,6,7,8-HxCDD	1.75		J	13C-1,2,3,6,7,8-HxCDD	69.8 28 - 130
1,2,3,7,8,9-HxCDD	ND		1.52	13C-1,2,3,4,6,7,8-HpCDD	69.7 23 - 140
1,2,3,4,6,7,8-HpCDD	28.5			13C-OCDD	59.9 17 - 157
OCDD	446			13C-2,3,7,8-TCDF	73.4 24 - 169
2,3,7,8-TCDF	ND	0.952		13C-1,2,3,7,8-PeCDF	66.6 24 - 185
1,2,3,7,8-PeCDF	ND	2.14		13C-2,3,4,7,8-PeCDF	68.6 21 - 178
2,3,4,7,8-PeCDF	ND	2.07		13C-1,2,3,4,7,8-HxCDF	64.5 26 - 152
1,2,3,4,7,8-HxCDF	1.53		J	13C-1,2,3,6,7,8-HxCDF	66.1 26 - 123
1,2,3,6,7,8-HxCDF	1.26		J	13C-2,3,4,6,7,8-HxCDF	63.9 28 - 136
2,3,4,6,7,8-HxCDF	ND	1.20		13C-1,2,3,7,8,9-HxCDF	69.3 29 - 147
1,2,3,7,8,9-HxCDF	ND	0.840		13C-1,2,3,4,6,7,8-HpCDF	58.8 28 - 143
1,2,3,4,6,7,8-HpCDF	8.00		J	13C-1,2,3,4,7,8,9-HpCDF	64.4 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.28		13C-OCDF	59.5 17 - 157
OCDF	20.9		J	CRS 37Cl-2,3,7,8-TCDD	86.1 35 - 197
Totals					
Total TCDD	ND	1.03			
Total PeCDD	ND	1.57			
Total HxCDD	5.51		9.04		
Total HpCDD	82.1				
Total TCDF	1.67				
Total PeCDF	1.61				
Total HxCDF	10.9				
Total HpCDF	17.9				

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

AMEC VALIDATED

AMEC VALIDATED

LEVEL IV

Approved By: William J. Luksemburg 07-Mar-2005 08:35

AWL 4/11/05 Analyst: MS

AWL 4/11/05

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT45
 Task Order 313150010
 SDG No. IOB1572, IOB1573
 No. of Analyses 2

Laboratory Del Mar

Date: 03/29/05

Reviewer P. Meeks

Reviewer's Signature

Analysis/Method Metals

P. Meeks

ACTION ITEMS^a

1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications applied for:
Holding Times	1. Detects below the reporting limit.
GC/MS Tune/Inst. Performance	2. Antimony detects in the CCBs resulting in raised MDL.
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1572 & IOB1573

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#: IOB1572, IOB1573
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOB1572, 1573
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOB1573-01	water	ILM04
Outfall 007	Outfall 007	IOB1572-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 008 was analyzed and in an unreported method blank analysis. The detects ranged from 0.716 to 2.50 $\mu\text{g/L}$ and antimony was detected in Outfall 008 at a concentration well below these values, 0.34 $\mu\text{g/L}$. The CCB detects indicated the laboratory could not detect antimony at the reported MDL or RL. The reviewer raised the antimony MDL and RL for Outfall 008 MDL to the highest level of interference reported, 2.5 $\mu\text{g/L}$ and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. The results for sodium and potassium were above the calibration range of the instrument in the ICSA and ICSAB analyses. Aluminum was recovered below the control limit in the ICSA at 78% and above the calibration range in the ICSAB analyses. As aluminum, sodium, and potassium were not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B24099-BS1 and the mercury LCS sample was identified as 5B22063-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

Scandium was recovered above the control limit in Outfall 008; 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 samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 251-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1043
 9484 Chesapeake Dr., Suite 805, 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: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Raw Qual	Qual Code
Sample ID: IOB1573-01 (DRAFT: Outfall 008 - Water)										
Reporting Units: ug/l										
Antimony	EPA 200.8	5B24099	0.18	2.5	2.5	1	02/24/05	02/25/05	U J	KB, \$
Cadmium	EPA 200.8	5B24099	0.015	1.0	0.25	1	02/24/05	02/25/05	J J	DNQ
Copper	EPA 200.8	5B24099	0.49	2.0	15	1	02/24/05	02/25/05		
Lead	EPA 200.8	5B24099	0.13	1.0	13	1	02/24/05	02/25/05		
Mercury	EPA 245.1	5B22063	0.063	0.20	0.066	1	02/22/05	02/22/05	J J	DNQ

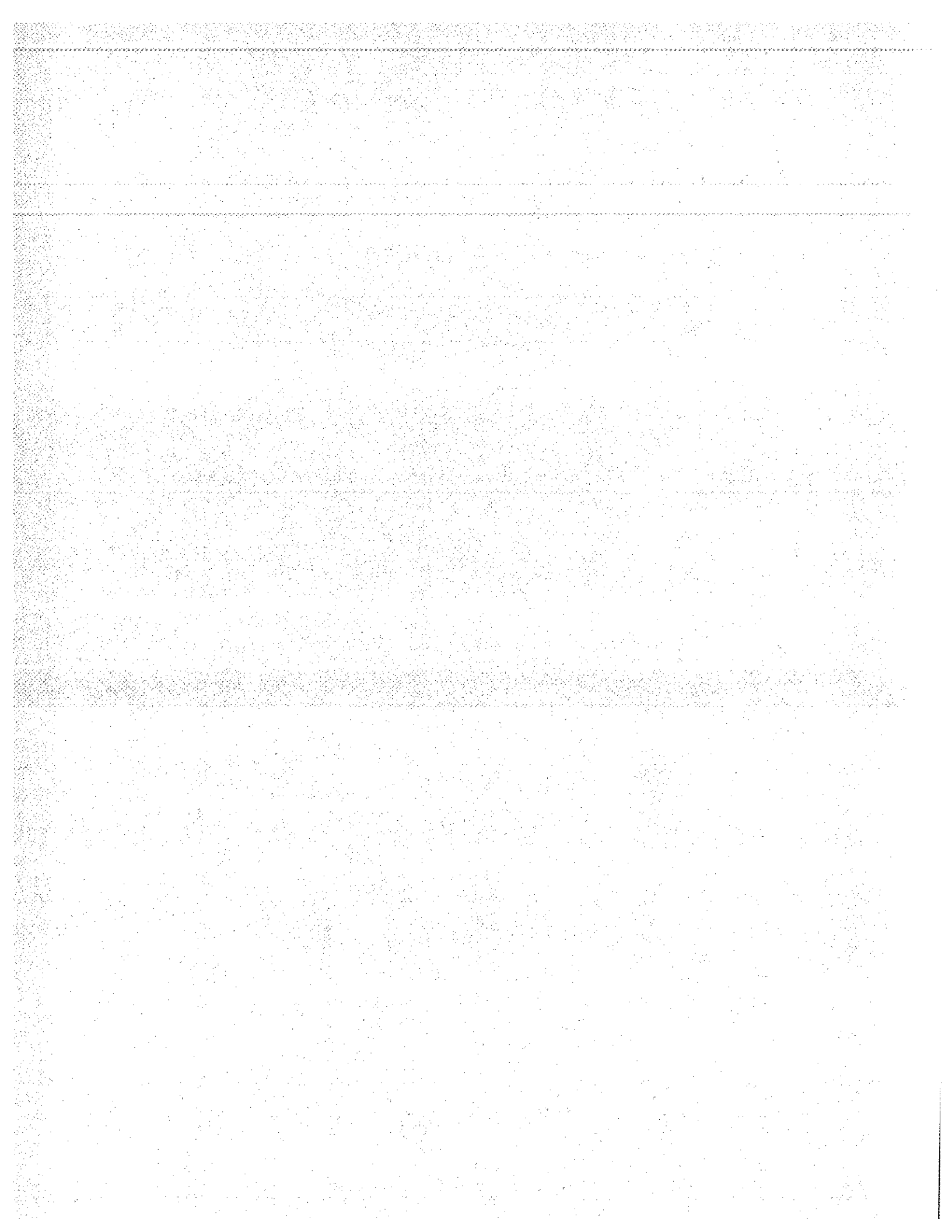
pm 3/24/05

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: Routine Outfall 008

Sampled: 02/18/05
Received: 02/18/05
Issued: 03/25/05 11:04

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
IOB1573-01

CLIENT ID
Outfall 008

MATRIX
Water

Reviewed By:

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



Del Mar Analytical

17461 Darian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05

Received: 02/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1573-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B24099	0.18	2.0	0.34	1	02/24/05	02/25/05	J
Cadmium	EPA 200.8	5B24099	0.015	1.0	0.25	1	02/24/05	02/25/05	J
Copper	EPA 200.8	5B24099	0.49	2.0	15	1	02/24/05	02/25/05	
Lead	EPA 200.8	5B24099	0.13	1.0	13	1	02/24/05	02/25/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	0.066	1	02/22/05	02/22/05	J

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

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Report Number: IOB1573

Sampled: 02/18/05
 Received: 02/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1573-01 (Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B18129	0.15	0.50	2.8	1	02/18/05	02/19/05	
Nitrate/Nitrite-N	EPA 300.0	5B18129	0.072	0.11	1.1	1	02/18/05	02/19/05	
Oil & Grease	EPA 413.1	5B28071	0.94	5.0	ND	1	02/28/05	02/28/05	
Sulfate	EPA 300.0	5B18129	0.25	0.50	2.4	1	02/18/05	02/19/05	
Total Dissolved Solids	SM2540C	5B24111	10	10	96	1	02/24/05	02/24/05	
Total Suspended Solids	EPA 160.2	5B25089	10	10	760	1	02/25/05	02/25/05	
Sample ID: IOB1573-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B25064	0.80	4.0	ND	1	02/25/05	02/26/05	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05

Received: 02/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 008 (IOB1573-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/18/2005 13:35	02/18/2005 18:30	02/18/2005 22:00	02/19/2005 02:01

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 Project Manager

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 Pasadena, CA 91101
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Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22063 Extracted: 02/22/05										
Blank Analyzed: 02/22/2005 (5B22063-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 02/22/2005 (5B22063-BS1)										
Mercury	8.32	0.20	0.063	ug/l	8.00		104 85-115			
Matrix Spike Analyzed: 02/22/2005 (5B22063-MS1) Source: IOB1443-01										
Mercury	8.36	0.20	0.063	ug/l	8.00	0.074	104 70-130			
Matrix Spike Dup Analyzed: 02/22/2005 (5B22063-MSD1) Source: IOB1443-01										
Mercury	8.38	0.20	0.063	ug/l	8.00	0.074	104 70-130	0	20	
Batch: 5B24099 Extracted: 02/24/05										
Blank Analyzed: 02/25/2005-02/26/2005 (5B24099-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 02/25/2005 (5B24099-BS1)										
Antimony	85.6	2.0	0.18	ug/l	80.0		107 85-115			
Cadmium	76.4	1.0	0.015	ug/l	80.0		96 85-115			
Copper	84.0	2.0	0.49	ug/l	80.0		105 85-115			
Lead	80.3	1.0	0.13	ug/l	80.0		100 85-115			
Matrix Spike Analyzed: 02/25/2005 (5B24099-MS1) Source: IOB1490-01										
Antimony	85.7	2.0	0.18	ug/l	80.0	0.50	106 70-130			
Cadmium	75.1	1.0	0.015	ug/l	80.0	0.016	94 70-130			
Copper	82.5	2.0	0.49	ug/l	80.0	1.0	102 70-130			
Lead	77.6	1.0	0.13	ug/l	80.0	ND	97 70-130			

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B24099 Extracted: 02/24/05											
Matrix Spike Analyzed: 02/25/2005 (5B24099-MS2)						Source: IOB1557-01					
Antimony	83.8	2.0	0.18	ug/l	80.0	0.20	104	70-130			
Cadmium	74.6	1.0	0.015	ug/l	80.0	ND	93	70-130			
Copper	83.9	2.0	0.49	ug/l	80.0	ND	105	70-130			
Lead	77.7	1.0	0.13	ug/l	80.0	0.15	97	70-130			
Matrix Spike Dup Analyzed: 02/25/2005 (5B24099-MSD1)						Source: IOB1490-01					
Antimony	85.0	2.0	0.18	ug/l	80.0	0.50	106	70-130	1	20	
Cadmium	75.2	1.0	0.015	ug/l	80.0	0.016	94	70-130	0	20	
Copper	81.2	2.0	0.49	ug/l	80.0	1.0	100	70-130	2	20	
Lead	76.3	1.0	0.13	ug/l	80.0	ND	95	70-130	2	20	

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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: 5B18129 Extracted: 02/18/05

Blank Analyzed: 02/18/2005 (5B18129-BLK1)

Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							

LCS Analyzed: 02/18/2005 (5B18129-BS1)

Chloride	5.11	0.50	0.26	mg/l	5.00		102	90-110			
Sulfate	10.6	0.50	0.18	mg/l	10.0		106	90-110			

Matrix Spike Analyzed: 02/18/2005 (5B18129-MS1)

Source: IOB1556-01

Chloride	7.47	0.50	0.26	mg/l	5.00	2.1	107	80-120			
Sulfate	15.3	0.50	0.18	mg/l	10.0	4.7	106	80-120			

Matrix Spike Dup Analyzed: 02/18/2005 (5B18129-MSD1)

Source: IOB1556-01

Chloride	7.43	0.50	0.26	mg/l	5.00	2.1	107	80-120	1	20	
Sulfate	14.3	0.50	0.18	mg/l	10.0	4.7	96	80-120	7	20	

Batch: 5B24111 Extracted: 02/24/05

Blank Analyzed: 02/24/2005 (5B24111-BLK1)

Total Dissolved Solids	ND	10	10	mg/l							
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LCS Analyzed: 02/24/2005 (5B24111-BS1)

Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110			
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Duplicate Analyzed: 02/24/2005 (5B24111-DUP1)

Source: IOB1821-01

Total Dissolved Solids	374	10	10	mg/l		380			2	10	
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Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B25064 Extracted: 02/25/05											
Blank Analyzed: 02/25/2005 (5B25064-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/25/2005 (5B25064-BS1)											
Perchlorate	48.4	4.0	0.80	ug/l	50.0		97	85-115			
Matrix Spike Analyzed: 02/25/2005 (5B25064-MS1)											
						Source: IOB1976-13					
Perchlorate	51.3	4.0	0.80	ug/l	50.0	1.5	100	80-120			
Matrix Spike Dup Analyzed: 02/26/2005 (5B25064-MSD1)											
						Source: IOB1976-13					
Perchlorate	51.4	4.0	0.80	ug/l	50.0	1.5	100	80-120	0	20	
Batch: 5B25089 Extracted: 02/25/05											
Blank Analyzed: 02/25/2005 (5B25089-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/25/2005 (5B25089-BS1)											
Total Suspended Solids	956	10	10	mg/l	1000		96	85-115			
Duplicate Analyzed: 02/25/2005 (5B25089-DUP1)											
						Source: IOB1979-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5B28071 Extracted: 02/28/05											
Blank Analyzed: 02/28/2005 (5B28071-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							

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



Del Mar Analytical

17461 Darian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B28071 Extracted: 02/28/05											
LCS Analyzed: 02/28/2005 (5B28071-BS1)											
Oil & Grease	16.7	5.0	0.94	mg/l	20.0		84	65-120			M-NR1
LCS Dup Analyzed: 02/28/2005 (5B28071-BSD1)											
Oil & Grease	17.7	5.0	0.94	mg/l	20.0		88	65-120	6	20	

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

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



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05
 Received: 02/18/05

Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOB1573-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.48	5.0	15
IOB1573-01	Chloride - 300.0	Chloride	mg/l	2.80	0.50	150
IOB1573-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.10	0.11	8.00
IOB1573-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB1573-01	Sulfate-300.0	Sulfate	mg/l	2.40	0.50	300
IOB1573-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	96	10	950

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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

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

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05

Received: 02/18/05

DATA QUALIFIERS AND DEFINITIONS

- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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

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IOB1573 <Page 11 of 12>



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

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

Project ID: Routine Outfall 008

Report Number: IOB1573

Sampled: 02/18/05

Received: 02/18/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	Water	X	X

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

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOB1573-01

Analysis Performed: EDD + Level 4

Samples: IOB1573-01

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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 008
Sampled: 02/18/05
Del Mar Analytical Number: IOB1573

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	Alta ID
Outfall 008	IOB1573-01	25783-001

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

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager



March 07, 2005

Alta Project I.D.: 25783

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

Dear Ms. Harper,

Enclosed are the amended results for the one aqueous sample received at Alta Analytical Laboratory on February 24, 2005 under your Project Name "IOB1573". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The original report gave a positive result for 1,2,3,4,7,8-HxCDD. This compound was not detected in the sample.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Martha M. Maier".

Martha M. Maier
HRMS Services Director



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

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

Section I: Sample Inventory Report

Date Received: 2/24/2005

Alta Lab. ID

Client Sample ID

25783-001

IOB1573-01

SECTION II



Method Blank

EPA Method 1613

Matrix: Aqueous		QC Batch No.: 6543	Lab Sample: 0-MB001					
Sample Size: 1.000 L		Date Extracted: 25-Feb-05	Date Analyzed DB-5: 28-Feb-05					
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers				
				Labeled Standard				
				%R				
				LCL-UCL ^d				
				Qualifiers				
2,3,7,8-TCDD	ND	0.866		IS	13C-2,3,7,8-TCDD	75.9	25 - 164	
1,2,3,7,8-PeCDD	ND	1.15			13C-1,2,3,7,8-PeCDD	73.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.88			13C-1,2,3,4,7,8-HxCDD	70.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.86			13C-1,2,3,6,7,8-HxCDD	73.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.84			13C-1,2,3,4,6,7,8-HpCDD	67.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.38			13C-OCDD	56.3	17 - 157	
OCDD	ND	8.88			13C-2,3,7,8-TCDF	78.7	24 - 169	
2,3,7,8-TCDF	ND	0.545			13C-1,2,3,7,8-PeCDF	68.1	24 - 185	
1,2,3,7,8-PeCDF	ND	1.62			13C-2,3,4,7,8-PeCDF	73.3	21 - 178	
2,3,4,7,8-PeCDF	ND	1.45			13C-1,2,3,4,7,8-HxCDF	60.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.24			13C-1,2,3,6,7,8-HxCDF	64.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.869			13C-2,3,4,6,7,8-HxCDF	63.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.958			13C-1,2,3,7,8,9-HxCDF	65.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.55			13C-1,2,3,4,6,7,8-HpCDF	54.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	2.22			13C-1,2,3,4,7,8,9-HpCDF	59.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.68			13C-OCDF	54.9	17 - 157	
OCDF	ND	4.49			CRS 37Cl-2,3,7,8-TCDD	77.4	35 - 197	
Totals					Footnotes			
Total TCDD	ND	0.866			a. Sample specific estimated detection limit.			
Total PeCDD	ND	1.15			b. Estimated maximum possible concentration.			
Total HxCDD	ND	1.86			c. Method detection limit.			
Total HpCDD	ND	3.38			d. Lower control limit - upper control limit.			
Total TCDF	ND	0.545						
Total PeCDF	ND	1.54						
Total HxCDF	ND	1.37						
Total HpCDF	ND	2.38						

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:41



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 28-Feb-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6543	Date Analyzed DB-5:	28-Feb-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	25-Feb-05				
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL		
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	67.4	25 - 164		
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	64.0	25 - 181		
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	58.2	32 - 141		
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	62.5	28 - 130		
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.2	23 - 140		
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	51.4	17 - 157		
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	72.5	24 - 169		
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.4	24 - 185		
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	64.8	21 - 178		
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	49.4	26 - 152		
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	52.7	26 - 123		
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	55.2	28 - 136		
1,2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	53.4	29 - 147		
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	45.6	28 - 143		
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	49.6	26 - 138		
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	49.0	17 - 157		
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	76.2	35 - 197		

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:41



Sample ID: **IOB1573-01**

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25783-001
Project:	IOB1573	Sample Size:	1.036 L	QC Batch No.:	6543
Date Collected:	18-Feb-05			Date Analyzed DB-5:	28-Feb-05
Time Collected:	1335			Date Analyzed DB-225:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	1.03		IS 13C-2,3,7,8-TCDD	72.0 25 - 164
1,2,3,7,8-PeCDD	ND	1.57		13C-1,2,3,7,8-PeCDD	73.2 25 - 181
1,2,3,4,7,8-HxCDD	ND	1.17		13C-1,2,3,4,7,8-HxCDD	73.9 32 - 141
1,2,3,6,7,8-HxCDD	1.75		J	13C-1,2,3,6,7,8-HxCDD	69.8 28 - 130
1,2,3,7,8,9-HxCDD	ND			13C-1,2,3,4,6,7,8-HpCDD	69.7 23 - 140
1,2,3,4,6,7,8-HpCDD	28.5		1.52	13C-OCDD	59.9 17 - 157
OCDD	446			13C-2,3,7,8-TCDF	73.4 24 - 169
2,3,7,8-TCDF	ND	0.952		13C-1,2,3,7,8-PeCDF	66.6 24 - 185
1,2,3,7,8-PeCDF	ND	2.14		13C-2,3,4,7,8-PeCDF	68.6 21 - 178
2,3,4,7,8-PeCDF	ND	2.07		13C-1,2,3,4,7,8-HxCDF	64.5 26 - 152
1,2,3,4,7,8-HxCDF	1.53		J	13C-1,2,3,6,7,8-HxCDF	66.1 26 - 123
1,2,3,6,7,8-HxCDF	1.26		J	13C-2,3,4,6,7,8-HxCDF	63.9 28 - 136
2,3,4,6,7,8-HxCDF	ND	1.20		13C-1,2,3,7,8,9-HxCDF	69.3 29 - 147
1,2,3,7,8,9-HxCDF	ND	0.840		13C-1,2,3,4,6,7,8-HpCDF	58.8 28 - 143
1,2,3,4,6,7,8-HpCDF	8.00		J	13C-1,2,3,4,7,8,9-HpCDF	64.4 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.28		13C-OCDF	59.5 17 - 157
OCDF	20.9		J	CRS 37Cl-2,3,7,8-TCDD	86.1 35 - 197
Totals				Footnotes	
Total TCDD	ND	1.03		a. Sample specific estimated detection limit.	
Total PeCDD	ND	1.57		b. Estimated maximum possible concentration.	
Total HxCDD	5.51		9.04	c. Method detection limit.	
Total HpCDD	82.1			d. Lower control limit - upper control limit.	
Total TCDF	1.67				
Total PeCDF	1.61				
Total HxCDF	10.9				
Total HpCDF	17.9				

Analyst: MS

Approved By: William J. Luksemburg 07-Mar-2005 08:35

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS



NELAP — (Primary AA: California, Certificate No. 02102CA)
Department of the Navy
U.S. Army Corps of Engineers
U.S. EPA Region 5
Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)
Commonwealth of Kentucky — (Certificate No. 90063)
Commonwealth of Virginia — (Certificate No. 00013)
State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)
State of Arizona — (Certificate No. AZ0639)
State of Arkansas, Department of Health — (Approval granted through CA certification)
State of Arkansas, Department of Environmental Quality
State of California — (Certificate No. 1640)
State of Colorado
State of Connecticut — (Certificate No. PH-0182)
State of Florida — (Certificate No. 87456)
State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)
State of Louisiana, Department of Environmental Quality
State of Maine
State of Michigan (Certificate No. 81178087)
State of Mississippi — (Approval granted through CA certification)
State of Nevada — (Certificate No. CA413)
State of New Jersey — (Certificate No. CA003)
State of New York, Department of Health — (Certificate No. 11411)
State of North Carolina — (Certification No. 06700)
State of North Dakota, Department of Health — (Certificate No. R-078)
State of New Mexico
State of Oklahoma — (D9919)
State of Oregon — (Certificate No. CA413)
State of Pennsylvania — (Certificate No. 68-490)
State of South Carolina — (Certificate No. 87002001)
State of Tennessee — (Certificate No. 02996)
State of Texas — (Certificate No. TX247-1000A)
State of Utah — (Certificate No. E-201)
State of Washington — (Certification No. C091)
State of Wisconsin — (Certificate No. 998036160)
State of Wyoming — (USEPA Region 8 Ref: 8TMS-Q)



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

1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046

9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 595-9596 Fax (619) 505-9699

9830 South 81st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851

2220 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB1573

SENDING LABORATORY:

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

RECEIVING LABORATORY:

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

25783 0.8°C

Standard TAT is requested unless specific due date is requested => Due Date: 2 Weeks Initials: VB

Analysis	Expiration	Comments
Sample ID: IOB1573-01 Water	Sampled: 02/18/05 13:35	Instant Notification
1613-Dioxin-HR	02/25/05 13:35	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	03/18/05 13:35	Excel EDD email to pm, Include Std logs for Lvl IV

Containers Supplied:
1 L Amber (IOB1573-01I)
1 L Amber (IOB1573-01J)

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): _____

Vu Banh 2-23-05 1700 *Bettina P. Benedict* 2/24/05 0905
 Released By Date Time Received By Date Time

Released By Date Time Received By Date Time

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25783

1. Date Samples Arrived: 2/24/05 0905	Initials: BB	Location: WR-2
2. Time / Date logged in: 1250 2/24/05	Initials: BB	Location: WR-2
3. Samples Arrived By: (circle) FedEx UPS World Courier Other:		
4. Shipping Preservation: (circle) Ice / Blue Ice / Dry Ice / None Temp °C 0.8		
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	YES	NO NA
7. Shipping Documentation Present? (circle) Shipping Label Airbill Tracking Number 7904 3642 7349	YES	NO NA
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. Intact? If not intact, describe condition in comment section.	YES	NO NA
9. Sample Container Intact? If no, indicate sample condition in comment section.	YES	NO NA
10. Chain of Custody (COC) or other Sample Documentation Present?	YES	NO NA
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	YES	NO NA
12. Shipping Container (circle): ALTA Client Retain or Return or Disposed		
13. Container(s) and/or Bottle(s) Requested?	YES	NO NA
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted	YES	NO NA

Comments: Sampler's initials found on sample label

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. 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

EXACT COPY OF ORIGINAL

Init VB 02/24/05 CONTRACT ORDER - PROJECT # IOB1573

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

RECEIVING LABORATORY:
 Alta Analytical
 1104 Windfield Way
 El Dorado Hills, CA 95762
 Phone: (916) 933-1640
 Fax: (916) 933-0940
25783 0.8°C

Standard TAT is requested unless specific due date is requested => Due Date: 2 Weeks Initials: VB

Analysis	Expiration	Comments
Sample ID: IOB1573-01 Water	Sampled: 02/18/05 13:35	Instant Notification
1613-Dioxin-HR	02/25/05 13:35	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	03/18/05 13:35	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOB1573-01I)		
1 L Amber (IOB1573-01J)		

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): _____

Released By Vu Bank 2-23-05 1700 Received By Bettina P. Benedict 2/24/05 0905

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

APPENDIX G

Section 23

February Outfall 009

AMEC Data Validation Reports


Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID 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


ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Detects below the calibration range were qualified "J."
Holding Times	False negative and false positives noted.
GC/MS Tune/Inst. Perform	Several transcription errors were noted.
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
COMMENTS^b	

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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: IOB0996-01 Outfall 009

Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Pace Inc.	Matrix:	Aqueous	Project No.:	P5072
Project ID:	General Analytical HRMS	Weight/Volume:	1.04 L	Sample ID:	P5072_2989_003
Date Collected:	11 Feb 05	pH	6	QC Batch No.:	2989
Analyte	Conc.	DL	EMPC	Recoveries	
	pg/L	pg/L	pg/L	ES	CS
2,3,7,8-TCDD	ND	2.02		64.7	78.7
1,2,3,7,8-PeCDD	ND	2.09		66	84.4
1,2,3,4,7,8-HxCDD	ND	2.71		68.1	84.8
1,2,3,6,7,8-HxCDD	ND	2.7		75.8	84.8
1,2,3,7,8,9-HxCDD	ND	3.33		68.5	84.8
1,2,3,4,6,7,8-HpCDD	10	6.63		54.6	67.6
OCDD	134	11.1		42.2	67.6
2,3,7,8-TCDF	ND	1.85		67	78.7
1,2,3,7,8-PeCDF	ND	1.44		75.4	85.4
2,3,4,7,8-PeCDF	ND	1.48		67.3	85.4
1,2,3,4,7,8-HxCDF	ND	0.785		62.8	84.8
1,2,3,6,7,8-HxCDF	ND	0.706		71.7	84.8
2,3,4,6,7,8-HxCDF	ND	0.933		63.9	84.8
1,2,3,7,8,9-HxCDF	ND	1.47		58.3	84.8
1,2,3,4,6,7,8-HpCDF	ND	4.57		47.6	67.6
1,2,3,4,7,8,9-HpCDF	ND	7.47		43.9	67.6
OCDF	ND	22.4		41.6	67.6
Totals & TEQs					
TCDDs	ND	2.02			
PeCDDs	ND	2.09			
HxCDDs	ND	2.92			
HpCDDs	25.2	6.63			
TCDFs	ND	1.85			
PeCDFs	ND	1.46	0.213		
HxCDFs	ND	0.935			
HpCDFs	ND	5.85			
Total PCDD/Fs	159		160		

ALTA ANALYTICAL PERSPECTIVES
 2714 Exchange Drive
 Wilmington
 North Carolina 28405
 USA
 Tel: 910 794-1613
 Fax: 910 794-3919
 e-mail: yf@ultratrace.com
 web: www.ultratrace.com

AAP 2005 Rev. B

AMEC VALIDATED

Checkcode: 4965

LEVEL IV

Reviewer: *[Signature]*
 Date: *[Signature]*

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

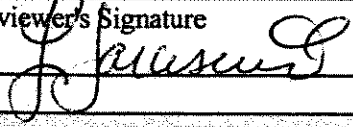
Package ID T711MT52
 Task Order 313150010/313150012
 SDG No. IOB0993/IOB0996

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Metals

Date: 03/23/05
 Reviewer's Signature 

ACTION ITEMS*

1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were applied for:
Holding Times	1) Detects below the reporting limit
GC/MS Tune/Inst. Performance	2) Reporting limit check standards low recoveries
Calibrations	3) Change of reporting limit and sample result by reviewer
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB0993 & IOB0996

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#: IOB0993/IOB0996
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 23, 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.: IOB0993/IOB0996
Analysis: METALS

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 007	Outfall 007	IOB0993-01	Water	ILM04
Outfall 009	Outfall 009	IOB0996-01	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

Sample Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and sample Outfall 009 was received above the temperature limits at 8°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP and ICP/MS and 80-120% for mercury. The ICP reporting limit check standard for silver was recovered below the control limits at 48%; therefore, nondetected silver in samples Outfall 007 and Outfall 009 was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further qualifications were required.

2.4 BLANKS

There were detects and negative results reported for the method blanks and bracketing CCBs associated with the samples in these SDGs; however, the blank results were insufficient to qualify either sample. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

Results were not provided for the ICP/MS spiked interferents phosphorus, sulfur, carbon, chloride, and titanium. The reviewer noted that positive results for cadmium and copper above the reporting limit were reported in the ICSA analyses. The results for potassium and sodium were above the calibration range of the instrument in both the ICSA and ICSAB analyses. The results for aluminum exceeded the calibration range of the instrument in the ICSA analysis and were low with a recovery of 78.3% in the ICSAB analysis; however, as aluminum was not reported from the ICP/MS, no qualifications were required. Antimony and lead were not spiked into the ICSAB solution; therefore, the ICSAB recoveries could not be assessed. The validator reviewed the raw data for the site sample ICS/MS analyses 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 assessment could be made with respect to possible interference from phosphorus, sulfur, carbon, chloride, and titanium. No qualifications were required.

The ICSA/AB analyses were not run on the same day as the site samples except for selenium in sample Outfall 007. The recoveries for the interferents and spiked analytes were within the control limits of 80-120% for the ICP analyses. Detects for zinc and negative results for chromium that were greater than the applicable reporting limits were reported in the ICSA analyses; however, 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 sample was identified as 5B17097-BS1 and the ICP/MS LCS sample was identified as 5B17099-BS1. The mercury LCS sample was identified as 5B15070-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD 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 evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP and ICP/MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits except for scandium; however, scandium was not associated with the site samples 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." A negative value greater than the reporting limit for selenium was reported at -0.0088 mg/L for sample Outfall 007, indicating the ICP/MS could not effectively detect selenium at the level reported; therefore, the reviewer raised the reporting limit and the MDL for selenium to the level of interference for Outfall 007. 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOB0993/IOB0996
Analysis: METALS

2.13.2 Field Duplicates

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



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-0222 FAX (949) 260-3229
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-3667 FAX (949) 370-1034
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 503-8596 FAX (619) 503-9668
 5830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0855
 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: Annual Outfall 009

Report Number: IOB0996

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	Qualifiers
Sample ID: IOB0996-01 (DRAFT: Outfall 009 - Water) - cont.										
Reporting Units: mg/l										
Arsenic	EPA 200.7	5B17097	0.0038	0.0050	ND	1	02/17/05	02/17/05	U	
Beryllium	EPA 200.7	5B17097	0.00062	0.0020	ND	1	02/17/05	02/17/05	U	
Chromium	EPA 200.7	5B17097	0.00068	0.0050	0.0011	1	02/17/05	02/17/05	J	DNQ
Nickel	EPA 200.7	5B17097	0.0020	0.010	0.0020	1	02/17/05	02/17/05	J	DNQ
Selenium	EPA 200.7	5B17097	0.0046	0.0050	ND	1	02/17/05	02/17/05	U	
Silver	EPA 200.7	5B17097	0.0013	0.010	ND	1	02/17/05	02/17/05	UJ	#3
Thallium	EPA 200.7	5B17097	0.0031	0.0050	ND	1	02/17/05	02/18/05	U	
Zinc	EPA 200.7	5B17097	0.0037	0.020	0.0063	1	02/17/05	02/17/05	J	DNQ

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-0222 FAX (949) 260-3227
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (919) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 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: Annual Outfall 009
 Report Number: IOB0996

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: IOB0996-01 (DRAFT: Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B17097	47	50	370	1	02/17/05	02/17/05	
Antimony	EPA 200.8	5B17099	0.18	2.0	ND	1	02/17/05	02/17/05	U
Cadmium	EPA 200.8	5B17099	0.015	1.0	0.035	1	02/17/05	02/17/05	J
Copper	EPA 200.8	5B17099	0.49	2.0	2.2	1	02/17/05	02/17/05	J
Lead	EPA 200.8	5B17099	0.13	1.0	0.83	1	02/17/05	02/17/05	J
Mercury	EPA 245.1	5B15070	0.063	0.20	0.13	1	02/15/05	02/15/05	
Vanadium	EPA 200.7	5B17097	1.4	10	1.4	1	02/17/05	02/17/05	

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 T711PP16
 Task Order 313150010
 SDG No. IOB0993, IOB996
 No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method Pesticides

Date March 23, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for %D continuing calibration outliers
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
COMMENTS^b	
Acceptable as reviewed.	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB0993, IOB0996

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#: IOB0993, IOB0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 23, 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 007	Outfall 007	IOB0993-01	water	608
Outfall 009	Outfall 009	IOB0996-01	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 cooler for sample Outfall 009 was received above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 8°C ; however, the sample was transported directly to the laboratory and had not completely cooled in transit. The cooler for sample Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 02/15/05 associated with the pesticide analyses of the samples, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analyses of samples Outfall 007 and Outfall 009, consisting of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No further qualifications were required.

2.3.3 Continuing Calibration

The pesticide analyses for samples Outfall 007 and Outfall 009 were bracketed by four continuing calibrations, two preceding and two following the analyses. The %Ds for target compound 4,4'-DDD (02/16/05 at 08:59) and for delta-BHC, aldrin, and 4,4'-DDT (02/16/05 at 09:28) exceeded 15% on Channel B. The %Ds for numerous target compounds exceeded 15% on Channel A in the bracketing calibration standard analyzed 02/16/05 (08:59 and 09:28); however, as all results for these samples were reported from channel B, only the nondetect results for the aforementioned %D outliers were qualified as estimated, "UJ," in samples Outfall 007 and Outfall 009. The remaining %Ds were within the Method QC limit of $\pm 15\%$ for the remaining calibrations. The PCB analyses of these samples were bracketed by two CCVs and the %Ds for Aroclor 1016 and Aroclor 1260 were $\leq 15\%$. 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 (5B15038-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 (5B15038-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 the samples were within the laboratory-established. 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: IOB0993, IOB0996
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.



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-0022 FAX (949) 260-3207
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4607 FAX (949) 370-1044
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 503-8596 FAX (619) 503-9685
 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 009

Report Number: IOB0996

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
Sample ID: IOB0996-01 (DRAFT: Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/16/05	US C
alpha-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
beta-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
delta-BHC	EPA 608	5B15038	0.020	0.20	ND	0.962	02/15/05	02/16/05	US C
gamma-BHC (Lindane)	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
Chlordane	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/16/05	U C
4,4'-DDD	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
4,4'-DDE	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/16/05	U C
4,4'-DDT	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/16/05	U C
Dieldrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
Endosulfan I	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
Endosulfan II	EPA 608	5B15038	0.040	0.10	ND	0.962	02/15/05	02/16/05	U C
Endosulfan sulfate	EPA 608	5B15038	0.015	0.20	ND	0.962	02/15/05	02/16/05	U C
Endrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	U C
Endrin aldehyde	EPA 608	5B15038	0.045	0.10	ND	0.962	02/15/05	02/16/05	U C
Endrin ketone	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/16/05	U C
Heptachlor	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/16/05	U C
Heptachlor epoxide	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/16/05	U C
Methoxychlor	EPA 608	5B15038	0.035	0.10	ND	0.962	02/15/05	02/16/05	U C
Toxaphene	EPA 608	5B15038	1.5	5.0	ND	0.962	02/15/05	02/16/05	U C
Surrogate: Tetrachloro-m-xylene (35-120%)									58 %
Surrogate: Decachlorobiphenyl (45-120%)									77 %

ANALYSIS VALIDATED

DRAFT REPORT
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 DATA SUBJECT TO CHANGE

LEVEL IV

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9685
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 783-0043 FAX (480) 783-0885
 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: Annual Outfall 009

Report Number: IOB0996

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
Sample ID: IOB0996-01 (DRAFT: Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/15/05	u
Aroclor 1221	EPA 608	5B15038	0.10	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1232	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1242	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1248	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1254	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1260	EPA 608	5B15038	0.40	1.0	ND	0.962	02/15/05	02/15/05	
Surrogate: Decachlorobiphenyl (45-120%)					87 %				

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AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

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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. These 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>8262</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502133-01</u>	Contract <u>PROJECT# IOB0996</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
Client <u>Sample ID</u> Out fall 009 IOB0996-01 pm 3/24/05		8262-001	02/11/05	03/01/05	GrossAlpha	0.812 ± 0.63	pCi/L	0.864	U	R,Q +1
				03/01/05	Gross Beta	1.76 ± 1.1	pCi/L	1.79	U	
				03/02/05	H3	59.8 ± 140	pCi/L	240	R	
				02/25/05	Sr90	0.078 ± 0.25	pCi/L	0.470	U	

AMEC VALIDATED

LEVEL IV

Certified by <u>[Signature]</u>
Report Date <u>03/08/05</u>
Page 1

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV31
 Task Order 313150010
 SDG No. IOB0993, IOB0996

No. of Analyses 2

Laboratory Del Mar Analytical.

Reviewer L. Calvin

Analysis/Method Semivolatiles by Method 625

Date: March 23, 2005

Reviewer's Signature



ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualification was assigned for the following: --initial calibration %RSD >15% and r ² values <0.995 --continuing calibration %Ds >15%
COMMENTS ^b	

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB0993, IOB0996

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#: IOB0993, IOB0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: March 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 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 007	Outfall 007	IOB0993-01	water	625
Outfall 009	Outfall 009	IOB0996-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Sample Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Sample Outfall 009 was received above the temperature limits at 8°C ; however, as the sample was couriered directly to the laboratory, it had not completely cooled in transit. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

Both the original extraction and reextraction of the water samples were performed within seven days of collection. The samples analyzed within 40 days of extraction. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tune met the ion abundance criteria specified in Method 625. No qualifications were required.

2.3 CALIBRATION

The initial calibrations associated with these SDGs were dated 02/15/05 and 02/17/05 (benzidine only). The average RRFs for were ≥ 0.05 for all applicable target compounds. The %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ with the exception of the %RSD for pentachlorophenol, and the r^2 for benzoic acid, hexachlorocyclopentadiene, and 2,4-dinitrophenol. The nondetect results for the aforementioned compounds were qualified as estimated, "UJ," in both site samples. The continuing calibrations associated with the sample analyses were analyzed 02/15/05 and 02/17/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$. 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 further qualifications were required.

2.4 BLANKS

Two method blanks (5B13024-BLK1 and 5B17041-BLK1/benzidine only) were extracted and analyzed with these SDGs. There were no detects above the MDLs for any target compounds. 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 (5A13024-BS1/BSD1) was originally 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 5A13024-BS1 benzidine was recovered below the QC limits but $\geq 10\%$, and in 5A12027-BSD1, benzidine was recovered above the QC limits. The RPD for benzidine exceeded the laboratory QC limit. The laboratory reextracted both samples for benzidine only with 5B17041-BS1/BSD1 with recoveries and the RPD for benzidine within the laboratory-established QC limits. The remaining recoveries and RPDs for 5A13024-BS1/BSD1 were within the 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 for both samples 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 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

±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 µg/L (ppb). No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1822 FAX (949) 260-329
 1014 E. Coolley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1044
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 503-8396 FAX (619) 505-9688
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0643 FAX (480) 785-0855
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-2620 FAX (702) 798-1627

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

Project ID: Annual Outfall 009

Report Number: IOB0996

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
Sample ID: IOB0996-01 (DRAFT: Outfall 009 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B13024	4.3	10	ND	0.962	02/13/05	02/16/05	u
Acenaphthylene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	u
Aniline	EPA 625	5B13024	2.9	10	ND	0.962	02/13/05	02/16/05	u
Anthracene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	u
Benzoic acid	EPA 625	5B13024	2.6	20	ND	0.962	02/13/05	02/16/05	u
Benzo(a)anthracene	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	u
Benzo(b)fluoranthene	EPA 625	5B13024	2.7	10	ND	0.962	02/13/05	02/16/05	u
Benzo(k)fluoranthene	EPA 625	5B13024	3.4	10	ND	0.962	02/13/05	02/16/05	u
Benzo(g,h,i)perylene	EPA 625	5B13024	5.3	10	ND	0.962	02/13/05	02/16/05	u
Benzo(a)pyrene	EPA 625	5B13024	3.5	10	ND	0.962	02/13/05	02/16/05	u
Benzyl alcohol	EPA 625	5B13024	2.5	20	ND	0.962	02/13/05	02/16/05	u
Bis(2-chloroethoxy)methane	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	u
Bis(2-chloroethyl)ether	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05	u
Bis(2-chloroisopropyl)ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	u
Bis(2-ethylhexyl)phthalate	EPA 625	5B13024	5.2	50	ND	0.962	02/13/05	02/16/05	u
4-Bromophenyl phenyl ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	u
Butyl benzyl phthalate	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	u
4-Chloroaniline	EPA 625	5B13024	6.0	10	ND	0.962	02/13/05	02/16/05	u
2-Chloronaphthalene	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	u
4-Chloro-3-methylphenol	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	u
2-Chlorophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	u
4-Chlorophenyl phenyl ether	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05	u
Chrysene	EPA 625	5B13024	2.8	10	ND	0.962	02/13/05	02/16/05	u
Dibenz(a,h)anthracene	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	u
Dibenzofuran	EPA 625	5B13024	2.6	10	ND	0.962	02/13/05	02/16/05	u
Di-n-butyl phthalate	EPA 625	5B13024	2.8	20	ND	0.962	02/13/05	02/16/05	u
1,3-Dichlorobenzene	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	u
1,4-Dichlorobenzene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	u
1,2-Dichlorobenzene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05	u
3,3-Dichlorobenzidine	EPA 625	5B13024	11	20	ND	0.962	02/13/05	02/16/05	u
2,4-Dichlorophenol	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	u
Diethyl phthalate	EPA 625	5B13024	3.1	10	ND	0.962	02/13/05	02/16/05	u
2,4-Dimethylphenol	EPA 625	5B13024	4.4	20	ND	0.962	02/13/05	02/16/05	u
Dimethyl phthalate	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05	u
4,6-Dinitro-2-methylphenol	EPA 625	5B13024	5.1	20	ND	0.962	02/13/05	02/16/05	u
2,4-Dinitrophenol	EPA 625	5B13024	5.3	20	ND	0.962	02/13/05	02/16/05	u
2,4-Dinitrotoluene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	u
2,6-Dinitrotoluene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	u
Di-n-octyl phthalate	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	u
Fluoranthene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	u
Fluorene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	u

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DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-104
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-968
 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) 798-302

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

Project ID: Annual Outfall 009

Report Number: IOB0996

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
Sample ID: IOB0996-01RE1 (DRAFT: Outfall 009 - Water) - cont. Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.962	02/17/05	02/22/05	u
Surrogate: 2-Fluorophenol (35-120%)					49 %				
Surrogate: Phenol-d6 (45-120%)					50 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					68 %				
Surrogate: Nitrobenzene-d5 (45-120%)					76 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					79 %				
Surrogate: Terphenyl-d14 (45-135%)					77 %				

very good
good

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
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 DATA SUBJECT TO CHANGE

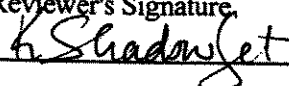
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO60
 Task Order 313150010
 SDG No. IOB0993, IOB0996
 No. of Analyses 4

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method Volatiles

Date March 23, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis	Qualifications were 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 ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOB0993, IOB0996

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#: IOB0993, IOB0996
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 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 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 007	Outfall 007	IOB0993-01	water	624
Trip Blank	Trip Blank	IOB0993-02	water	624
Outfall 009	Outfall 009	IOB0996-01	water	624
Trip Blank	Trip Blank	IOB0996-02	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 cooler for samples Outfall 009 and Trip Blank (IOB0996) was received above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 8°C ; however, the samples were transported directly to the laboratory and had not completely cooled in transit. The remaining samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the 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

Two initial calibrations dated 10/14/04 (acrolein and acrylonitrile only) and 02/07/05, were associated with these SDGs. The average RRF for acrolein was <0.05 ; therefore, the nondetect results for acrolein were rejected, "R," in all samples. The remaining average RRFs were ≥ 0.05 and all %RSDs were $\leq 35\%$ for the target compounds listed on the sample result summaries. Two continuing calibrations analyzed 02/12/05 and 02/17/05 were 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," in all samples. The %Ds for acrolein and acrylonitrile exceeded 20%; therefore, nondetect results for acrolein and acrylonitrile were qualified as estimated, "UJ," in samples Outfall 007 and Outfall 009, unless otherwise rejected. The trip blanks were not qualified for %D calibration outliers. For all remaining target compounds the %Ds were $\leq 20\%$ and the RRFs were ≥ 0.05 . A representative number of %RSDs and average RRFs from

the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Two water method blanks (5B17020-BLK1 and 5B12011-BLK1) were associated with these SDGs. 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 these SDGs. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on 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 (IOB0993) and Trip Blank (IOB0996) were the trip blanks associated with the site samples in these SDGs. There were no target compounds detected above the MDLs in either of 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 ± 0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration 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 ug/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.



17461 Derran 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 (619) 505-8596 FAX (619) 505-9609
 9630 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 009
 Report Number: IOB0996

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
Sample ID: IOB0996-01 (DRAFT: Outfall 009 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/18/05	u
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/18/05	
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/18/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/18/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/18/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Trichloroethene	EPA 624	5B17020	0.26	2.0	ND	1	02/17/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Vinyl chloride	EPA 624	5B17020	0.26	0.50	ND	1	02/17/05	02/18/05	
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/18/05	
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					108 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				

ALL INFORMATION CONTAINED

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 009

Report Number: IOB0996

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
Sample ID: IOB0996-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/17/05	u
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	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	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	
Chloroform	EPA 624	5B17020	0.33	2.0	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	
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	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	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	
Ethylbenzene	EPA 624	5B17020	0.25	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	
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	2.0	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	0.50	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%)					107%				
Surrogate: Toluene-d8 (80-120%)					109%				
Surrogate: 4-Bromofluorobenzene (80-120%)					101%				

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 9630 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0855
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3520 FAX (702) 798-3622

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

Project ID: Annual Outfall 009

Report Number: IOB0996

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
Sample ID: IOB0996-01 (DRAFT: Outfall 009 - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	R
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	C
Surrogate: Dibromofluoromethane (80-120%)					92 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB0996-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	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%)					88 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

ANALYZED

DRAFT REPORT
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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


Package ID T711WC85
 Task Order 313150010/313150012
 SDG No. IOB0993/IOB0996

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 03/23/05
 Reviewer's Signature


ACTION ITEMS^a

1. **Case Narrative Deficiencies**
2. **Out of Scope Analyses**
3. **Analyses Not Conducted**
4. **Missing Hardcopy Deliverables**
5. **Incorrect Hardcopy Deliverables**
6. **Deviations from Analysis Protocol, e.g.,**
 - Holding Times _____
 - GC/MS Tune/Inst. Performance _____
 - Calibrations _____
 - Blanks _____
 - Surrogates _____
 - Matrix Spike/Dup LCS _____
 - Field QC _____
 - Internal Standard Performance _____
 - Compound Identification and Quantitation _____
 - System Performance _____

COMMENTS^b Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOB0993 & IOB0996

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 #: IOB0993/IOB0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: March 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 335.2 and 160.2. Standard Methods for the Examination of Water and Wastewater Method SM2540C*, and validation guidelines outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 007	Outfall 007	IOB0993-01	Water	General Minerals
Outfall 009	Outfall 009	IOB0996-01	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

Sample Annual Outfall 007 was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and sample Annual Outfall 009 was received above the temperature limits at 8°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

The 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 dates of collection with the dates of analyses. The 14-day analytical holding time for cyanide and the 7-day holding time for total suspended solids were met. No qualifications were required.

2.2 CALIBRATION

For cyanide, the initial calibration correlation coefficient was ≥ 0.995 . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for cyanide. Initial and continuing calibrations are not applicable to the total suspended solid analysis. No qualifications were required.

The total cyanide reporting limit check standard was recovered above AMEC control limits of 70-130% at 137.9%; however, as cyanide was not detected in either 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 samples 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 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 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: Annual Outfall 009
 Report Number: IOB0996

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: IOB0996-01 (DRAFT: Outfall 009 - Water) - cont.									
Reporting Units: mg/l									
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	U
Total Suspended Solids	EPA 160.2	5B17069	10	10	ND	1	02/17/05	02/17/05	↓

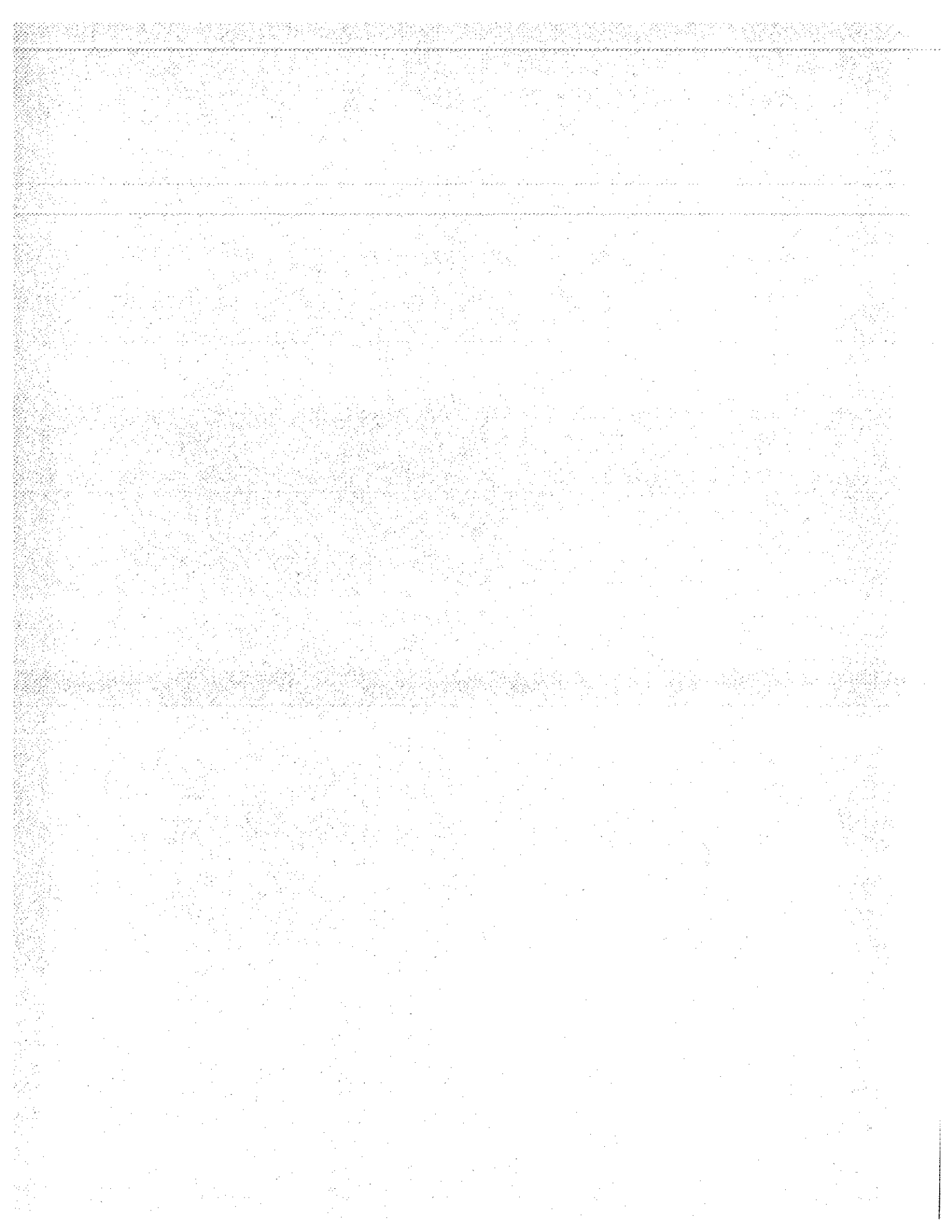
REV QUAL
 QUAL CODE

AMEC VALIDATED

LEVEL IV

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

LABORATORY REPORT

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

Project: Annual Outfall 009

Sampled: 02/11/05
 Received: 02/11/05
 Issued: 03/28/05 10:03

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOB0996-01	Outfall 009	Water
IOB0996-02	Trip Blanks	Water

Reviewed By:

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



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

Project ID: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05
Received: 02/11/05

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 02/16/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B13024

Identification and Definition of Problem:

The percent recovery for benzidine in the BS 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 BSD was within the acceptance limits. All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval:

Dave Dawes

Date: 02/18/2005 04:36 PM

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



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

Project ID: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05

Received: 02/11/05

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: IOB0996-01 (Outfall 009 - Water)									
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%)					92 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB0996-02 (Trip Blanks - Water)									
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%)					88 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05
 Received: 02/11/05

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: IOB0996-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/18/05	
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/18/05	
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/18/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/18/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/18/05	
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloroethane	EPA 624	5B17020	0.28	0.50	ND	1	02/17/05	02/18/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/18/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/18/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/18/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/18/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/18/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/18/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/18/05	
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/18/05	
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/18/05	
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/18/05	
Trichloroethene	EPA 624	5B17020	0.26	2.0	ND	1	02/17/05	02/18/05	
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/18/05	
Vinyl chloride	EPA 624	5B17020	0.26	0.50	ND	1	02/17/05	02/18/05	
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/18/05	
Surrogate: Dibromofluoromethane (80-120%)									114 %
Surrogate: Toluene-d8 (80-120%)									108 %
Surrogate: 4-Bromofluorobenzene (80-120%)									104 %

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: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05
 Received: 02/11/05

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: IOB0996-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	1.0	ND	1	02/17/05	02/17/05	
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	
Carbon tetrachloride	EPA 624	5B17020	0.28	0.50	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	
Chloroform	EPA 624	5B17020	0.33	2.0	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	
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	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	5.0	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	
Ethylbenzene	EPA 624	5B17020	0.25	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	
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	2.0	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	0.50	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%)									107 %
Surrogate: Toluene-d8 (80-120%)									109 %
Surrogate: 4-Bromofluorobenzene (80-120%)									101 %

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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: Annual Outfall 009

Report Number: IOB0996

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: IOB0996-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B13024	4.3	10	ND	0.962	02/13/05	02/16/05	
Acenaphthylene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	
Aniline	EPA 625	5B13024	2.9	10	ND	0.962	02/13/05	02/16/05	
Anthracene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	
Benzoic acid	EPA 625	5B13024	2.6	20	ND	0.962	02/13/05	02/16/05	
Benzo(a)anthracene	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	
Benzo(b)fluoranthene	EPA 625	5B13024	2.7	10	ND	0.962	02/13/05	02/16/05	
Benzo(k)fluoranthene	EPA 625	5B13024	3.4	10	ND	0.962	02/13/05	02/16/05	
Benzo(g,h,i)perylene	EPA 625	5B13024	5.3	10	ND	0.962	02/13/05	02/16/05	
Benzo(a)pyrene	EPA 625	5B13024	3.5	10	ND	0.962	02/13/05	02/16/05	
Benzyl alcohol	EPA 625	5B13024	2.5	20	ND	0.962	02/13/05	02/16/05	
Bis(2-chloroethoxy)methane	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	
Bis(2-chloroethyl)ether	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B13024	5.2	50	ND	0.962	02/13/05	02/16/05	
4-Bromophenyl phenyl ether	EPA 625	5B13024	4.6	10	ND	0.962	02/13/05	02/16/05	
Butyl benzyl phthalate	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	
4-Chloroaniline	EPA 625	5B13024	6.0	10	ND	0.962	02/13/05	02/16/05	
2-Chloronaphthalene	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	
4-Chloro-3-methylphenol	EPA 625	5B13024	3.5	20	ND	0.962	02/13/05	02/16/05	
2-Chlorophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
4-Chlorophenyl phenyl ether	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05	
Chrysene	EPA 625	5B13024	2.8	10	ND	0.962	02/13/05	02/16/05	
Dibenz(a,h)anthracene	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	
Dibenzofuran	EPA 625	5B13024	2.6	10	ND	0.962	02/13/05	02/16/05	
Di-n-butyl phthalate	EPA 625	5B13024	2.8	20	ND	0.962	02/13/05	02/16/05	
1,3-Dichlorobenzene	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	
1,4-Dichlorobenzene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	
1,2-Dichlorobenzene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05	
3,3-Dichlorobenzidine	EPA 625	5B13024	11	20	ND	0.962	02/13/05	02/16/05	
2,4-Dichlorophenol	EPA 625	5B13024	4.1	10	ND	0.962	02/13/05	02/16/05	
Diethyl phthalate	EPA 625	5B13024	3.1	10	ND	0.962	02/13/05	02/16/05	
2,4-Dimethylphenol	EPA 625	5B13024	4.4	20	ND	0.962	02/13/05	02/16/05	
Dimethyl phthalate	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B13024	5.1	20	ND	0.962	02/13/05	02/16/05	
2,4-Dinitrophenol	EPA 625	5B13024	5.3	20	ND	0.962	02/13/05	02/16/05	
2,4-Dinitrotoluene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
2,6-Dinitrotoluene	EPA 625	5B13024	3.2	10	ND	0.962	02/13/05	02/16/05	
Di-n-octyl phthalate	EPA 625	5B13024	4.7	20	ND	0.962	02/13/05	02/16/05	
Fluoranthene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
Fluorene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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

Project ID: Annual Outfall 009

Report Number: IOB0996

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: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Hexachlorobenzene	EPA 625	5B13024	4.8	10	ND	0.962	02/13/05	02/16/05	
Hexachlorobutadiene	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
Hexachlorocyclopentadiene	EPA 625	5B13024	3.4	20	ND	0.962	02/13/05	02/16/05	
Hexachloroethane	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B13024	5.4	20	ND	0.962	02/13/05	02/16/05	
Isophorone	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	
2-Methylnaphthalene	EPA 625	5B13024	3.0	10	ND	0.962	02/13/05	02/16/05	
2-Methylphenol	EPA 625	5B13024	3.7	10	ND	0.962	02/13/05	02/16/05	
4-Methylphenol	EPA 625	5B13024	3.8	10	ND	0.962	02/13/05	02/16/05	
Naphthalene	EPA 625	5B13024	4.5	10	ND	0.962	02/13/05	02/16/05	
2-Nitroaniline	EPA 625	5B13024	3.9	20	ND	0.962	02/13/05	02/16/05	
3-Nitroaniline	EPA 625	5B13024	4.5	20	ND	0.962	02/13/05	02/16/05	
4-Nitroaniline	EPA 625	5B13024	4.9	20	ND	0.962	02/13/05	02/16/05	
Nitrobenzene	EPA 625	5B13024	4.2	20	ND	0.962	02/13/05	02/16/05	
2-Nitrophenol	EPA 625	5B13024	4.2	10	ND	0.962	02/13/05	02/16/05	
4-Nitrophenol	EPA 625	5B13024	6.6	20	ND	0.962	02/13/05	02/16/05	
N-Nitrosodiphenylamine	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	
N-Nitroso-di-n-propylamine	EPA 625	5B13024	3.6	10	ND	0.962	02/13/05	02/16/05	
Pentachlorophenol	EPA 625	5B13024	4.0	20	ND	0.962	02/13/05	02/16/05	
Phenanthrene	EPA 625	5B13024	3.3	10	ND	0.962	02/13/05	02/16/05	
Phenol	EPA 625	5B13024	4.0	10	ND	0.962	02/13/05	02/16/05	
Pyrene	EPA 625	5B13024	3.9	10	ND	0.962	02/13/05	02/16/05	
1,2,4-Trichlorobenzene	EPA 625	5B13024	4.4	10	ND	0.962	02/13/05	02/16/05	
2,4,5-Trichlorophenol	EPA 625	5B13024	3.6	20	ND	0.962	02/13/05	02/16/05	
2,4,6-Trichlorophenol	EPA 625	5B13024	4.1	20	ND	0.962	02/13/05	02/16/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B13024	5.0	20	ND	0.962	02/13/05	02/16/05	
N-Nitrosodimethylamine	EPA 625	5B13024	3.7	20	ND	0.962	02/13/05	02/16/05	
Surrogate: 2-Fluorophenol (35-120%)					66 %				
Surrogate: Phenol-d6 (45-120%)					70 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					89 %				
Surrogate: Nitrobenzene-d5 (45-120%)					78 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					83 %				
Surrogate: Terphenyl-d14 (45-135%)					97 %				

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: Annual Outfall 009

Report Number: IOB0996

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: IOB0996-01RE1 (Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.962	02/17/05	02/22/05	
Surrogate: 2-Fluorophenol (35-120%)					49 %				
Surrogate: Phenol-d6 (45-120%)					50 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					68 %				
Surrogate: Nitrobenzene-d5 (45-120%)					76 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					79 %				
Surrogate: Terphenyl-d14 (45-135%)					77 %				

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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: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05
 Received: 02/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/16/05	
alpha-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
beta-BHC	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
delta-BHC	EPA 608	5B15038	0.020	0.20	ND	0.962	02/15/05	02/16/05	
gamma-BHC (Lindane)	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
Chlordane	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/16/05	
4,4'-DDD	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
4,4'-DDE	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/16/05	
4,4'-DDT	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/16/05	
Dieldrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
Endosulfan I	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
Endosulfan II	EPA 608	5B15038	0.040	0.10	ND	0.962	02/15/05	02/16/05	
Endosulfan sulfate	EPA 608	5B15038	0.015	0.20	ND	0.962	02/15/05	02/16/05	
Endrin	EPA 608	5B15038	0.015	0.10	ND	0.962	02/15/05	02/16/05	
Endrin aldehyde	EPA 608	5B15038	0.045	0.10	ND	0.962	02/15/05	02/16/05	
Endrin ketone	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/16/05	
Heptachlor	EPA 608	5B15038	0.030	0.10	ND	0.962	02/15/05	02/16/05	
Heptachlor epoxide	EPA 608	5B15038	0.020	0.10	ND	0.962	02/15/05	02/16/05	
Methoxychlor	EPA 608	5B15038	0.035	0.10	ND	0.962	02/15/05	02/16/05	
Toxaphene	EPA 608	5B15038	1.5	5.0	ND	0.962	02/15/05	02/16/05	
<i>Surrogate: Tetrachloro-m-xylene (35-120%)</i>					58 %				
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					77 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 009 Report Number: IOB0996	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
Sample ID: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B15038	0.20	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1221	EPA 608	5B15038	0.10	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1232	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1242	EPA 608	5B15038	0.15	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1248	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1254	EPA 608	5B15038	0.25	1.0	ND	0.962	02/15/05	02/15/05	
Aroclor 1260	EPA 608	5B15038	0.40	1.0	ND	0.962	02/15/05	02/15/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					87 %				

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

Project ID: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05
 Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	5B17097	0.0074	0.050	0.047	1	02/17/05	02/17/05	J

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Project ID: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05

Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B17097	47	50	370	1	02/17/05	02/17/05	
Antimony	EPA 200.8	5B17099	0.18	2.0	ND	1	02/17/05	02/17/05	
Arsenic	EPA 200.7	5B17097	3.8	5.0	ND	1	02/17/05	02/17/05	
Beryllium	EPA 200.7	5B17097	0.62	2.0	ND	1	02/17/05	02/17/05	
Cadmium	EPA 200.8	5B17099	0.015	1.0	0.035	1	02/17/05	02/17/05	J
Chromium	EPA 200.7	5B17097	0.68	5.0	1.1	1	02/17/05	02/17/05	J
Copper	EPA 200.8	5B17099	0.49	2.0	2.2	1	02/17/05	02/17/05	
Lead	EPA 200.8	5B17099	0.13	1.0	0.83	1	02/17/05	02/17/05	J
Mercury	EPA 245.1	5B15070	0.063	0.20	0.13	1	02/15/05	02/15/05	J
Nickel	EPA 200.7	5B17097	2.0	10	2.0	1	02/17/05	02/17/05	J
Selenium	EPA 200.7	5B17097	4.6	5.0	ND	1	02/17/05	02/17/05	
Silver	EPA 200.7	5B17097	1.3	10	ND	1	02/17/05	02/17/05	
Thallium	EPA 200.7	5B17097	3.1	5.0	ND	1	02/17/05	02/18/05	
Vanadium	EPA 200.7	5B17097	1.4	10	1.4	1	02/17/05	02/17/05	J
Zinc	EPA 200.7	5B17097	3.7	20	6.3	1	02/17/05	02/17/05	J

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

Project ID: Annual Outfall 009

Report Number: IOB0996

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: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B11120	0.26	0.50	6.2	1	02/11/05	02/12/05	
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	0.95	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B17117	0.94	5.0	ND	1	02/17/05	02/17/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	13	1	02/11/05	02/12/05	
Total Dissolved Solids	SM2540C	5B16118	10	10	86	1	02/16/05	02/16/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	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 009 Report Number: IOB0996	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: IOB0996-01 (Outfall 009 - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B16069	0.80	4.0	ND	1	02/16/05	02/16/05	

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05
 Received: 02/11/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 009 (IOB0996-01) - Water					
EPA 300.0	2	02/11/2005 12:15	02/11/2005 18:15	02/11/2005 23:00	02/12/2005 05:42
EPA 624	3	02/11/2005 12:15	02/11/2005 18:15	02/12/2005 00:00	02/12/2005 15:52
Sample ID: Trip Blanks (IOB0996-02) - Water					
EPA 624	3	02/11/2005 14:20	02/11/2005 18:15	02/12/2005 00:00	02/12/2005 12:48

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 009 Report Number: IOB0996	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 RPD	Limit Limits	RPD	Data Qualifiers
Batch: 5B12011 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12011-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	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		
LCS Analyzed: 02/12/2005 (5B12011-BS1)											
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		
Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1) Source: IOB0980-01											
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		
Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1) Source: IOB0980-01											
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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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17020 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17020-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
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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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17020 Extracted: 02/17/05										
LCS Analyzed: 02/17/2005 (5B17020-BS1)										
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	25.2	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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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17020 Extracted: 02/17/05										
Matrix Spike Analyzed: 02/17/2005 (5B17020-MS1)					Source: IOB0980-01					
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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 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 009

Report Number: IOB0996

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
Batch: 5B17020 Extracted: 02/17/05											
Matrix Spike Dup Analyzed: 02/17/2005 (5B17020-MSD1)						Source: IOB0980-01					
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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 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 009

Report Number: IOB0996

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
Batch: 5B13024 Extracted: 02/13/05											
Blank Analyzed: 02/15/2005 (5B13024-BLK1)											
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							
Benzdine	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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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

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 RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
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	141			ug/l	200	70	35-120			

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
Blank Analyzed: 02/15/2005 (5B13024-BLK1)											
Surrogate: Phenol-d6	152			ug/l	200		76	45-120			
Surrogate: 2,4,6-Tribromophenol	189			ug/l	200		94	50-125			
Surrogate: Nitrobenzene-d5	82.2			ug/l	100		82	45-120			
Surrogate: 2-Fluorobiphenyl	86.8			ug/l	100		87	45-120			
Surrogate: Terphenyl-d14	87.1			ug/l	100		87	45-135			
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
Acenaphthene	83.0	10	4.3	ug/l	100		83	55-120			M-NR1
Acenaphthylene	88.0	10	3.2	ug/l	100		88	55-120			
Aniline	67.5	10	2.9	ug/l	100		68	30-120			
Anthracene	82.9	10	3.2	ug/l	100		83	60-120			
Benzidine	11.3	20	5.2	ug/l	100		11	20-180			L2, J
Benzoic acid	72.6	20	2.6	ug/l	100		73	30-125			
Benzo(a)anthracene	89.4	10	3.7	ug/l	100		89	65-120			
Benzo(b)fluoranthene	84.9	10	2.7	ug/l	100		85	50-125			
Benzo(k)fluoranthene	84.1	10	3.4	ug/l	100		84	50-125			
Benzo(g,h,i)perylene	83.3	10	5.3	ug/l	100		83	35-160			
Benzo(a)pyrene	87.3	10	3.5	ug/l	100		87	55-125			
Benzyl alcohol	77.6	20	2.5	ug/l	100		78	40-130			
Bis(2-chloroethoxy)methane	83.2	10	3.9	ug/l	100		83	55-120			
Bis(2-chloroethyl)ether	68.3	10	4.4	ug/l	100		68	50-120			
Bis(2-chloroisopropyl)ether	73.7	10	4.6	ug/l	100		74	50-120			
Bis(2-ethylhexyl)phthalate	77.2	50	5.2	ug/l	100		77	65-125			
4-Bromophenyl phenyl ether	79.7	10	4.6	ug/l	100		80	55-125			
Butyl benzyl phthalate	77.4	20	3.5	ug/l	100		77	60-125			
4-Chloroaniline	80.1	10	6.0	ug/l	100		80	55-120			
2-Chloronaphthalene	81.0	10	4.0	ug/l	100		81	60-120			
4-Chloro-3-methylphenol	83.6	20	3.5	ug/l	100		84	60-120			
2-Chlorophenol	71.0	10	4.2	ug/l	100		71	45-120			
4-Chlorophenyl phenyl ether	84.8	10	3.0	ug/l	100		85	55-120			
Chrysene	85.3	10	2.8	ug/l	100		85	65-120			
Dibenz(a,h)anthracene	88.7	20	4.7	ug/l	100		89	40-160			
Dibenzofuran	83.4	10	2.6	ug/l	100		83	60-120			
Di-n-butyl phthalate	81.1	20	2.8	ug/l	100		81	65-125			
1,3-Dichlorobenzene	63.4	10	4.1	ug/l	100		63	40-120			
1,4-Dichlorobenzene	61.8	10	3.9	ug/l	100		62	40-120			

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: Annual Outfall 009 Report Number: IOB0996	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	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
1,2-Dichlorobenzene	63.4	10	4.5	ug/l	100	63	40-120				M-NR1
3,3-Dichlorobenzidine	101	20	11	ug/l	100	101	50-170				
2,4-Dichlorophenol	81.8	10	4.1	ug/l	100	82	55-120				
Diethyl phthalate	76.5	10	3.1	ug/l	100	76	60-120				
2,4-Dimethylphenol	65.9	20	4.4	ug/l	100	66	35-120				
Dimethyl phthalate	80.9	10	3.6	ug/l	100	81	60-120				
4,6-Dinitro-2-methylphenol	80.0	20	5.1	ug/l	100	80	55-120				
2,4-Dinitrophenol	77.4	20	5.3	ug/l	100	77	40-140				
2,4-Dinitrotoluene	81.4	10	4.2	ug/l	100	81	60-140				
2,6-Dinitrotoluene	77.3	10	3.2	ug/l	100	77	65-125				
Di-n-octyl phthalate	86.1	20	4.7	ug/l	100	86	60-130				
Fluoranthene	91.5	10	4.2	ug/l	100	92	55-125				
Fluorene	87.4	10	3.9	ug/l	100	87	60-120				
Hexachlorobenzene	83.3	10	4.8	ug/l	100	83	50-120				
Hexachlorobutadiene	71.6	10	4.2	ug/l	100	72	45-120				
Hexachlorocyclopentadiene	63.9	20	3.4	ug/l	100	64	10-130				
Hexachloroethane	60.9	10	4.2	ug/l	100	61	40-120				
Indeno(1,2,3-cd)pyrene	85.2	20	5.4	ug/l	100	85	35-150				
Isophorone	77.0	10	3.7	ug/l	100	77	55-120				
2-Methylnaphthalene	82.7	10	3.0	ug/l	100	83	50-120				
2-Methylphenol	72.5	10	3.7	ug/l	100	72	45-120				
4-Methylphenol	74.6	10	3.8	ug/l	100	75	45-120				
Naphthalene	80.2	10	4.5	ug/l	100	80	50-120				
2-Nitroaniline	88.9	20	3.9	ug/l	100	89	60-130				
3-Nitroaniline	83.1	20	4.5	ug/l	100	83	50-140				
4-Nitroaniline	85.5	20	4.9	ug/l	100	86	45-160				
Nitrobenzene	72.2	20	4.2	ug/l	100	72	50-120				
2-Nitrophenol	80.7	10	4.2	ug/l	100	81	55-120				
4-Nitrophenol	78.9	20	6.6	ug/l	100	79	50-135				
N-Nitrosodiphenylamine	76.0	10	4.0	ug/l	100	76	60-120				
N-Nitroso-di-n-propylamine	71.2	10	3.6	ug/l	100	71	50-120				
Pentachlorophenol	88.6	20	4.0	ug/l	100	89	50-125				
Phenanthrene	80.8	10	3.3	ug/l	100	81	55-120				
Phenol	74.0	10	4.0	ug/l	100	74	45-120				
Pyrene	85.3	10	3.9	ug/l	100	85	50-120				

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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: Annual Outfall 009

Report Number: IOB0996

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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
1,2,4-Trichlorobenzene	72.0	10	4.4	ug/l	100	72	50-120				M-NR1
2,4,5-Trichlorophenol	85.4	20	3.6	ug/l	100	85	60-120				
2,4,6-Trichlorophenol	87.6	20	4.1	ug/l	100	88	60-120				
1,2-Diphenylhydrazine/Azobenzene	85.6	20	5.0	ug/l	100	86	60-120				
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120				
Surrogate: 2-Fluorophenol	133			ug/l	200	66	35-120				
Surrogate: Phenol-d6	143			ug/l	200	72	45-120				
Surrogate: 2,4,6-Tribromophenol	177			ug/l	200	88	50-125				
Surrogate: Nitrobenzene-d5	75.4			ug/l	100	75	45-120				
Surrogate: 2-Fluorobiphenyl	79.5			ug/l	100	80	45-120				
Surrogate: Terphenyl-d14	78.6			ug/l	100	79	45-135				
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Acenaphthene	86.2	10	4.3	ug/l	100	86	55-120	4	20		
Acenaphthylene	90.7	10	3.2	ug/l	100	91	55-120	3	20		
Aniline	81.2	10	2.9	ug/l	100	81	30-120	18	25		
Anthracene	88.7	10	3.2	ug/l	100	89	60-120	7	20		
Benzidine	137	20	5.2	ug/l	100	137	20-180	170	35		R-2
Benzoic acid	66.6	20	2.6	ug/l	100	67	30-125	9	30		
Benzo(a)anthracene	95.6	10	3.7	ug/l	100	96	65-120	7	20		
Benzo(b)fluoranthene	92.5	10	2.7	ug/l	100	92	50-125	9	25		
Benzo(k)fluoranthene	88.6	10	3.4	ug/l	100	89	50-125	5	20		
Benzo(g,h,i)perylene	97.4	10	5.3	ug/l	100	97	35-160	16	25		
Benzo(a)pyrene	93.6	10	3.5	ug/l	100	94	55-125	7	25		
Benzyl alcohol	80.5	20	2.5	ug/l	100	80	40-130	4	20		
Bis(2-chloroethoxy)methane	85.9	10	3.9	ug/l	100	86	55-120	3	20		
Bis(2-chloroethyl)ether	70.9	10	4.4	ug/l	100	71	50-120	4	20		
Bis(2-chloroisopropyl)ether	76.8	10	4.6	ug/l	100	77	50-120	4	20		
Bis(2-ethylhexyl)phthalate	84.3	50	5.2	ug/l	100	84	65-125	9	20		
4-Bromophenyl phenyl ether	85.8	10	4.6	ug/l	100	86	55-125	7	25		
Butyl benzyl phthalate	82.9	20	3.5	ug/l	100	83	60-125	7	20		
4-Chloroaniline	84.5	10	6.0	ug/l	100	84	55-120	5	25		
2-Chloronaphthalene	83.6	10	4.0	ug/l	100	84	60-120	3	20		
4-Chloro-3-methylphenol	87.2	20	3.5	ug/l	100	87	60-120	4	25		
2-Chlorophenol	72.1	10	4.2	ug/l	100	72	45-120	2	25		
4-Chlorophenyl phenyl ether	90.4	10	3.0	ug/l	100	90	55-120	6	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: Annual Outfall 009

Report Number: IOB0996

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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Chrysene	90.6	10	2.8	ug/l	100	91	65-120	6	20		
Dibenz(a,h)anthracene	103	20	4.7	ug/l	100	103	40-160	15	25		
Dibenzofuran	87.2	10	2.6	ug/l	100	87	60-120	4	20		
Di-n-butyl phthalate	86.8	20	2.8	ug/l	100	87	65-125	7	20		
1,3-Dichlorobenzene	59.7	10	4.1	ug/l	100	60	40-120	6	25		
1,4-Dichlorobenzene	63.0	10	3.9	ug/l	100	63	40-120	2	25		
1,2-Dichlorobenzene	62.9	10	4.5	ug/l	100	63	40-120	1	25		
3,3-Dichlorobenzidine	114	20	11	ug/l	100	114	50-170	12	25		
2,4-Dichlorophenol	84.2	10	4.1	ug/l	100	84	55-120	3	20		
Diethyl phthalate	80.6	10	3.1	ug/l	100	81	60-120	5	20		
2,4-Dimethylphenol	72.1	20	4.4	ug/l	100	72	35-120	9	25		
Dimethyl phthalate	84.3	10	3.6	ug/l	100	84	60-120	4	20		
4,6-Dinitro-2-methylphenol	84.0	20	5.1	ug/l	100	84	55-120	5	25		
2,4-Dinitrophenol	80.3	20	5.3	ug/l	100	80	40-140	4	25		
2,4-Dinitrotoluene	86.3	10	4.2	ug/l	100	86	60-140	6	20		
2,6-Dinitrotoluene	80.3	10	3.2	ug/l	100	80	65-125	4	20		
Di-n-octyl phthalate	96.4	20	4.7	ug/l	100	96	60-130	11	20		
Fluoranthene	96.3	10	4.2	ug/l	100	96	55-125	5	20		
Fluorene	91.9	10	3.9	ug/l	100	92	60-120	5	20		
Hexachlorobenzene	87.5	10	4.8	ug/l	100	88	50-120	5	20		
Hexachlorobutadiene	73.2	10	4.2	ug/l	100	73	45-120	2	25		
Hexachlorocyclopentadiene	66.5	20	3.4	ug/l	100	66	10-130	4	30		
Hexachloroethane	60.4	10	4.2	ug/l	100	60	40-120	1	25		
Indeno(1,2,3-cd)pyrene	98.6	20	5.4	ug/l	100	99	35-150	15	25		
Isophorone	81.3	10	3.7	ug/l	100	81	55-120	5	20		
2-Methylnaphthalene	86.1	10	3.0	ug/l	100	86	50-120	4	20		
2-Methylphenol	75.6	10	3.7	ug/l	100	76	45-120	4	20		
4-Methylphenol	78.2	10	3.8	ug/l	100	78	45-120	5	20		
Naphthalene	83.1	10	4.5	ug/l	100	83	50-120	4	20		
2-Nitroaniline	91.5	20	3.9	ug/l	100	92	60-130	3	20		
3-Nitroaniline	88.6	20	4.5	ug/l	100	89	50-140	6	25		
4-Nitroaniline	94.4	20	4.9	ug/l	100	94	45-160	10	20		
Nitrobenzene	74.6	20	4.2	ug/l	100	75	50-120	3	25		
2-Nitrophenol	83.0	10	4.2	ug/l	100	83	55-120	3	25		
4-Nitrophenol	81.6	20	6.6	ug/l	100	82	50-135	3	25		

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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: Annual Outfall 009

Report Number: IOB0996

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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
N-Nitrosodiphenylamine	80.6	10	4.0	ug/l	100	81	60-120	6	20		
N-Nitroso-di-n-propylamine	75.1	10	3.6	ug/l	100	75	50-120	5	20		
Pentachlorophenol	92.7	20	4.0	ug/l	100	93	50-125	5	25		
Phenanthrene	86.6	10	3.3	ug/l	100	87	55-120	7	20		
Phenol	75.1	10	4.0	ug/l	100	75	45-120	1	25		
Pyrene	88.4	10	3.9	ug/l	100	88	50-120	4	25		
1,2,4-Trichlorobenzene	73.0	10	4.4	ug/l	100	73	50-120	1	20		
2,4,5-Trichlorophenol	88.6	20	3.6	ug/l	100	89	60-120	4	20		
2,4,6-Trichlorophenol	89.5	20	4.1	ug/l	100	90	60-120	2	20		
1,2-Diphenylhydrazine/Azobenzene	90.2	20	5.0	ug/l	100	90	60-120	5	25		
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120	0	20		
Surrogate: 2-Fluorophenol	128			ug/l	200	64	35-120				
Surrogate: Phenol-d6	141			ug/l	200	70	45-120				
Surrogate: 2,4,6-Tribromophenol	185			ug/l	200	92	50-125				
Surrogate: Nitrobenzene-d5	76.5			ug/l	100	76	45-120				
Surrogate: 2-Fluorobiphenyl	79.4			ug/l	100	79	45-120				
Surrogate: Terphenyl-d14	82.3			ug/l	100	82	45-135				

Batch: 5B17041 Extracted: 02/17/05

Blank Analyzed: 02/22/2005 (5B17041-BLK1)

Benzidine	ND	20	5.2	ug/l							
Surrogate: 2-Fluorophenol	110			ug/l	200	55	35-120				
Surrogate: Phenol-d6	121			ug/l	200	60	45-120				
Surrogate: 2,4,6-Tribromophenol	144			ug/l	200	72	50-125				
Surrogate: Nitrobenzene-d5	66.4			ug/l	100	66	45-120				
Surrogate: 2-Fluorobiphenyl	70.0			ug/l	100	70	45-120				
Surrogate: Terphenyl-d14	67.5			ug/l	100	68	45-135				

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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: Annual Outfall 009 Report Number: IOB0996	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
Batch: 5B17041 Extracted: 02/17/05										
LCS Analyzed: 02/22/2005 (5B17041-BS1)										
Benzidine	145	20	5.2	ug/l	100	145	20-180			M-NR1
Surrogate: 2-Fluorophenol	120			ug/l	200	60	35-120			
Surrogate: Phenol-d6	138			ug/l	200	69	45-120			
Surrogate: 2,4,6-Tribromophenol	164			ug/l	200	82	50-125			
Surrogate: Nitrobenzene-d5	74.1			ug/l	100	74	45-120			
Surrogate: 2-Fluorobiphenyl	73.0			ug/l	100	73	45-120			
Surrogate: Terphenyl-d14	85.2			ug/l	100	85	45-135			
LCS Dup Analyzed: 02/22/2005 (5B17041-BSD1)										
Benzidine	149	20	5.2	ug/l	100	149	20-180	3	35	
Surrogate: 2-Fluorophenol	120			ug/l	200	60	35-120			
Surrogate: Phenol-d6	132			ug/l	200	66	45-120			
Surrogate: 2,4,6-Tribromophenol	163			ug/l	200	82	50-125			
Surrogate: Nitrobenzene-d5	76.0			ug/l	100	76	45-120			
Surrogate: 2-Fluorobiphenyl	74.0			ug/l	100	74	45-120			
Surrogate: Terphenyl-d14	84.4			ug/l	100	84	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 009 Report Number: IOB0996	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 RPD	Data Limit	Qualifiers
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Batch: 5B15038 Extracted: 02/15/05

Blank Analyzed: 02/15/2005-02/16/2005 (5B15038-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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	0.329			ug/l	0.500	66	35-120			
Surrogate: Decachlorobiphenyl	0.459			ug/l	0.500	92	45-120			

LCS Analyzed: 02/16/2005 (5B15038-BS1)

M-NR1

Aldrin	0.248	0.10	0.030	ug/l	0.500	50	45-115			
alpha-BHC	0.267	0.10	0.015	ug/l	0.500	53	45-115			
beta-BHC	0.328	0.10	0.015	ug/l	0.500	66	50-115			
delta-BHC	0.322	0.20	0.020	ug/l	0.500	64	55-120			
gamma-BHC (Lindane)	0.283	0.10	0.015	ug/l	0.500	57	45-115			
4,4'-DDD	0.346	0.10	0.015	ug/l	0.500	69	60-120			
4,4'-DDE	0.331	0.10	0.020	ug/l	0.500	66	55-120			
4,4'-DDT	0.328	0.10	0.030	ug/l	0.500	66	60-130			
Dieldrin	0.330	0.10	0.015	ug/l	0.500	66	55-120			
Endosulfan I	0.319	0.10	0.015	ug/l	0.500	64	50-115			
Endosulfan II	0.337	0.10	0.040	ug/l	0.500	67	60-125			
Endosulfan sulfate	0.354	0.20	0.015	ug/l	0.500	71	60-120			

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 Project Manager



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

Project ID: Annual Outfall 009

Report Number: IOB0996

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B15038 Extracted: 02/15/05										
LCS Analyzed: 02/16/2005 (5B15038-BS1)										
Endrin	0.329	0.10	0.015	ug/l	0.500	66	55-125			M-NR1
Endrin aldehyde	0.346	0.10	0.045	ug/l	0.500	69	55-115			
Endrin ketone	0.364	0.10	0.020	ug/l	0.500	73	60-120			
Heptachlor	0.278	0.10	0.030	ug/l	0.500	56	45-115			
Heptachlor epoxide	0.315	0.10	0.020	ug/l	0.500	63	50-120			
Methoxychlor	0.365	0.10	0.035	ug/l	0.500	73	60-135			
Surrogate: Tetrachloro-m-xylene	0.241			ug/l	0.500	48	35-120			
Surrogate: Decachlorobiphenyl	0.337			ug/l	0.500	67	45-120			
LCS Dup Analyzed: 02/16/2005 (5B15038-BSD1)										
Aldrin	0.288	0.10	0.030	ug/l	0.500	58	45-115	15	30	
alpha-BHC	0.282	0.10	0.015	ug/l	0.500	56	45-115	5	30	
beta-BHC	0.395	0.10	0.015	ug/l	0.500	79	50-115	19	30	
delta-BHC	0.395	0.20	0.020	ug/l	0.500	79	55-120	20	30	
gamma-BHC (Lindane)	0.320	0.10	0.015	ug/l	0.500	64	45-115	12	30	
4,4'-DDD	0.435	0.10	0.015	ug/l	0.500	87	60-120	23	30	
4,4'-DDE	0.413	0.10	0.020	ug/l	0.500	83	55-120	22	30	
4,4'-DDT	0.411	0.10	0.030	ug/l	0.500	82	60-130	22	30	
Dieldrin	0.407	0.10	0.015	ug/l	0.500	81	55-120	21	30	
Endosulfan I	0.387	0.10	0.015	ug/l	0.500	77	50-115	19	30	
Endosulfan II	0.420	0.10	0.040	ug/l	0.500	84	60-125	22	30	
Endosulfan sulfate	0.437	0.20	0.015	ug/l	0.500	87	60-120	21	30	
Endrin	0.407	0.10	0.015	ug/l	0.500	81	55-125	21	30	
Endrin aldehyde	0.420	0.10	0.045	ug/l	0.500	84	55-115	19	30	
Endrin ketone	0.452	0.10	0.020	ug/l	0.500	90	60-120	22	30	
Heptachlor	0.311	0.10	0.030	ug/l	0.500	62	45-115	11	30	
Heptachlor epoxide	0.377	0.10	0.020	ug/l	0.500	75	50-120	18	30	
Methoxychlor	0.455	0.10	0.035	ug/l	0.500	91	60-135	22	30	
Surrogate: Tetrachloro-m-xylene	0.190			ug/l	0.500	38	35-120			
Surrogate: Decachlorobiphenyl	0.412			ug/l	0.500	82	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: Annual Outfall 009 Report Number: IOB0996	Sampled: 02/11/05 Received: 02/11/05
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METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B15038 Extracted: 02/15/05										
Blank Analyzed: 02/15/2005-02/16/2005 (5B15038-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.410			ug/l	0.500		82	45-120		
LCS Analyzed: 02/15/2005 (5B15038-BS2)										
Aroclor 1016	2.88	1.0	0.20	ug/l	4.00		72	50-115		M-NR1
Aroclor 1260	3.29	1.0	0.40	ug/l	4.00		82	60-115		
Surrogate: Decachlorobiphenyl	0.444			ug/l	0.500		89	45-120		
LCS Dup Analyzed: 02/15/2005 (5B15038-BSD2)										
Aroclor 1016	2.51	1.0	0.20	ug/l	4.00		63	50-115	14	30
Aroclor 1260	2.99	1.0	0.40	ug/l	4.00		75	60-115	10	25
Surrogate: Decachlorobiphenyl	0.404			ug/l	0.500		81	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 009

Report Number: IOB0996

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	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B15070 Extracted: 02/15/05										
Blank Analyzed: 02/15/2005 (5B15070-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 02/15/2005 (5B15070-BS1)										
Mercury	8.18	0.20	0.063	ug/l	8.00		102		85-115	
Matrix Spike Analyzed: 02/15/2005 (5B15070-MS1)										
						Source: IOB1088-01				
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103		70-130	
Matrix Spike Dup Analyzed: 02/15/2005 (5B15070-MSD1)										
						Source: IOB1088-01				
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	0	70-130	20
Batch: 5B17097 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005-02/18/2005 (5B17097-BLK1)										
Aluminum	ND	50	47	ug/l						
Arsenic	ND	5.0	3.8	ug/l						
Beryllium	ND	2.0	0.62	ug/l						
Boron	ND	0.050	0.0074	mg/l						
Chromium	ND	5.0	0.68	ug/l						
Nickel	ND	10	2.0	ug/l						
Selenium	ND	5.0	4.6	ug/l						
Silver	ND	10	1.3	ug/l						
Thallium	ND	5.0	3.1	ug/l						
Vanadium	ND	10	1.4	ug/l						
Zinc	ND	20	3.7	ug/l						
LCS Analyzed: 02/17/2005-02/18/2005 (5B17097-BS1)										
Aluminum	464	50	47	ug/l	500		93		85-115	
Arsenic	514	5.0	3.8	ug/l	500		103		85-115	
Beryllium	502	2.0	0.62	ug/l	500		100		85-115	
Boron	0.474	0.050	0.0074	mg/l	0.500		95		85-115	
Chromium	517	5.0	0.68	ug/l	500		103		85-115	
Nickel	508	10	2.0	ug/l	500		102		85-115	
Selenium	514	5.0	4.6	ug/l	500		103		85-115	
Silver	258	10	1.3	ug/l	250		103		85-115	
Thallium	523	5.0	3.1	ug/l	500		105		85-115	
Vanadium	512	10	1.4	ug/l	500		102		85-115	

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

Project ID: Annual Outfall 009

Report Number: IOB0996

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	RPD RPD	Limit Limits	RPD	Limit	Data Qualifiers
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Batch: 5B17097 Extracted: 02/17/05

LCS Analyzed: 02/17/2005-02/18/2005 (5B17097-BS1)

Zinc	503	20	3.7	ug/l	500		101		85-115			
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Matrix Spike Analyzed: 02/17/2005-02/18/2005 (5B17097-MS1)

Source: IOB1000-01

Aluminum	1690	50	47	ug/l	500	880	162		70-130			MI
Arsenic	516	5.0	3.8	ug/l	500	ND	103		70-130			
Beryllium	506	2.0	0.62	ug/l	500	ND	101		70-130			
Boron	0.499	0.050	0.0074	mg/l	0.500	0.017	96		70-130			
Chromium	522	5.0	0.68	ug/l	500	3.4	104		70-130			
Nickel	526	10	2.0	ug/l	500	2.9	105		70-130			
Selenium	509	5.0	4.6	ug/l	500	4.7	101		70-130			
Silver	262	10	1.3	ug/l	250	ND	105		70-130			
Thallium	525	5.0	3.1	ug/l	500	ND	105		70-130			
Vanadium	524	10	1.4	ug/l	500	3.1	104		70-130			
Zinc	640	20	3.7	ug/l	500	120	104		70-130			

Matrix Spike Dup Analyzed: 02/17/2005-02/18/2005 (5B17097-MSD1)

Source: IOB1000-01

Aluminum	1590	50	47	ug/l	500	880	142	70-130	6	20		MI
Arsenic	515	5.0	3.8	ug/l	500	ND	103	70-130	0	20		
Beryllium	504	2.0	0.62	ug/l	500	ND	101	70-130	0	20		
Boron	0.495	0.050	0.0074	mg/l	0.500	0.017	96	70-130	1	20		
Chromium	519	5.0	0.68	ug/l	500	3.4	103	70-130	1	20		
Nickel	514	10	2.0	ug/l	500	2.9	102	70-130	2	20		
Selenium	512	5.0	4.6	ug/l	500	4.7	101	70-130	1	20		
Silver	260	10	1.3	ug/l	250	ND	104	70-130	1	20		
Thallium	516	5.0	3.1	ug/l	500	ND	103	70-130	2	20		
Vanadium	520	10	1.4	ug/l	500	3.1	103	70-130	1	20		
Zinc	630	20	3.7	ug/l	500	120	102	70-130	2	20		

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8586 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) 798-3820 FAX (702) 798-3821

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 009 Report Number: IOB0996	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 RPD	RPD Limit	Data Qualifiers
Batch: 5B17099 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17099-BLK1)										
Antimony	0.511	2.0	0.18	ug/l						J
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 02/17/2005 (5B17099-BS1)										
Antimony	87.8	2.0	0.18	ug/l	80.0		110		85-115	
Cadmium	75.9	1.0	0.015	ug/l	80.0		95		85-115	
Copper	78.0	2.0	0.49	ug/l	80.0		98		85-115	
Lead	79.9	1.0	0.13	ug/l	80.0		100		85-115	
Matrix Spike Analyzed: 02/17/2005 (5B17099-MS1) Source: IOB0990-01										
Antimony	85.8	2.0	0.18	ug/l	80.0	0.44	107		70-130	
Cadmium	75.3	1.0	0.015	ug/l	80.0	0.020	94		70-130	
Copper	79.3	2.0	0.49	ug/l	80.0	0.66	98		70-130	
Lead	81.6	1.0	0.13	ug/l	80.0	0.33	102		70-130	
Matrix Spike Dup Analyzed: 02/17/2005 (5B17099-MSD1) Source: IOB0990-01										
Antimony	84.3	2.0	0.18	ug/l	80.0	0.44	105		70-130	2 20
Cadmium	75.1	1.0	0.015	ug/l	80.0	0.020	94		70-130	0 20
Copper	79.1	2.0	0.49	ug/l	80.0	0.66	98		70-130	0 20
Lead	81.1	1.0	0.13	ug/l	80.0	0.33	101		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: Annual Outfall 009

Report Number: IOB0996

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	Data Qualifiers
Batch: 5B11120 Extracted: 02/11/05										
Blank Analyzed: 02/11/2005 (5B11120-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 02/11/2005 (5B11120-BS1)										
Chloride	4.84	0.50	0.26	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		
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
Sulfate	39.3	0.50	0.18	mg/l	10.0	29	103	80-120	2	20
Batch: 5B14107 Extracted: 02/14/05										
Blank Analyzed: 02/14/2005 (5B14107-BLK1)										
Total Cyanide	ND	0.0050	0.0022	mg/l						
LCS Analyzed: 02/14/2005 (5B14107-BS1)										
Total Cyanide	0.200	0.0050	0.0022	mg/l	0.200		100	90-110		
Matrix Spike Analyzed: 02/14/2005 (5B14107-MS1) Source: IOB0888-01										
Total Cyanide	0.167	0.0050	0.0022	mg/l	0.200	ND	84	70-115		

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 009

Report Number: IOB0996

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	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14107 Extracted: 02/14/05											
Matrix Spike Dup Analyzed: 02/14/2005 (5B14107-MSD1)						Source: IOB0888-01					
Total Cyanide	0.190	0.0050	0.0022	mg/l	0.200	ND	95	70-115	13	15	
Batch: 5B16069 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16069-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/16/2005 (5B16069-BS1)											
Perchlorate	52.0	4.0	0.80	ug/l	50.0		104	85-115			
Matrix Spike Analyzed: 02/16/2005 (5B16069-MS1)						Source: IOB1060-02					
Perchlorate	51.9	4.0	0.80	ug/l	50.0	ND	104	80-120			
Matrix Spike Dup Analyzed: 02/16/2005 (5B16069-MSD1)						Source: IOB1060-02					
Perchlorate	51.6	4.0	0.80	ug/l	50.0	ND	103	80-120	1	20	
Batch: 5B16118 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16118-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/16/2005 (5B16118-BS1)											
Total Dissolved Solids	1050	10	10	mg/l	1000		105	90-110			
Duplicate Analyzed: 02/16/2005 (5B16118-DUP1)						Source: IOB1205-06					
Total Dissolved Solids	756	10	10	mg/l		750			1	10	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 009 Report Number: IOB0996	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	RPD Limit	Data Qualifiers
Batch: 5B17069 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17069-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 02/17/2005 (5B17069-BS1)										
Total Suspended Solids	977	10	10	mg/l	1000		98 85-115			
Duplicate Analyzed: 02/17/2005 (5B17069-DUP1)										
						Source: IOB0990-01				
Total Suspended Solids	ND	10	10	mg/l		ND			10	
Batch: 5B17117 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17117-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 02/17/2005 (5B17117-BS1)										
Oil & Grease	17.6	5.0	0.94	mg/l	20.0		88 65-120			M-NR1
LCS Dup Analyzed: 02/17/2005 (5B17117-BSD1)										
Oil & Grease	16.4	5.0	0.94	mg/l	20.0		82 65-120	7	20	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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
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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 009

Report Number: IOB0996

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
IOB0996-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOB0996-01	Boron-200.7	Boron	mg/l	0.047	0.050	1.00
IOB0996-01	Chloride - 300.0	Chloride	mg/l	6.20	0.50	150
IOB0996-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.95	0.26	10.00
IOB0996-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB0996-01	Sulfate-300.0	Sulfate	mg/l	13	0.50	250
IOB0996-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	86	10	850

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

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



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

Project ID: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05

Received: 02/11/05

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.
- L2** Laboratory Control Sample recovery was below method control limits.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- 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.
- 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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IOB0996 <Page 39 of 41>



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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8586 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: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05

Received: 02/11/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 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 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	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.

Subcontracted Laboratories

Alta Analytical Perspectives

Analysis Performed: 1613-Dioxin-HR

Samples: IOB0996-01

Analysis Performed: EDD + Level 4

Samples: IOB0996-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr

Samples: IOB0996-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4

Samples: IOB0996-01

Analysis Performed: Gross Alpha

Samples: IOB0996-01

Analysis Performed: Gross Beta

Samples: IOB0996-01

Analysis Performed: Strontium 90

Samples: IOB0996-01

Analysis Performed: Tritium

Samples: IOB0996-01

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: Annual Outfall 009

Report Number: IOB0996

Sampled: 02/11/05

Received: 02/11/05

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

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IOB0996 <Page 41 of 41>

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 Annual Outfall 009 Stormwater at WS-13		Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90) (905.) Total Combined Radium 226 & 228 SVOCs - PP Acute Toxicity Cyanide														Temp = 53.4 pH = 6.7		
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, + PP	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl-, SO4, NO3+NO2-N, Perchlorate	TDS, TSS	VOCs (624), NPDES + PP	VOCs A+A+2CVE	Pesticides/PCBs - PP	Gross Alpha, Gross Beta, Tritium (906.0*, Sr-90) (905.) Total Combined Radium 226 & 228	SVOCs - PP	Acute Toxicity	Cyanide	Comments	
Outfall 009	W	1L Poly	1	2-11-05 12:00	HNO3	1A	X													
Outfall 009-Dup	W	1L Poly	1		HNO3	1B	X													
Outfall 009	W	1L Amber	2		None	2A,2B		X												
Outfall 009	W	1L Amber	2		HCl	3A, 3B			X											
Outfall 009	W	Poly-500 ml	2		None	4A,4B			X											
Outfall 009	W	Poly-500 ml	2		None	5A, 5B				X										
Outfall 009	W	VOAs	3		HCl	6A, 6B, 6C					X									
Outfall 009	W	VOA	3		None	7A, 7B, 7C						X								
Outfall 009	W	1L Amber	2		None	8A, 8B							X							
Outfall 009	W	1 Gal Poly VOAs	2		None	9A, 9B, 9C								X					Analyze for Total Combined RA-226 & RA-228 only if Gross Alpha/Beta > 15pCi/L	
Outfall 009	W	1L Amber	2		None	10A, 10B									X					
Outfall 009	W	1 Gal Poly	1		None	11A														
Outfall 009	W	500ml Poly	1		NaOH	12														
Trip Blanks	W	VOA	3		None	13A, 13B, 13C														
Trip Blank	W	VOAs	3		HCl	14A, 14B, 14C						X								
Relinquished By	[Signature]			Date/Time: 2-11-05 1420	Received By	[Signature]			Date/Time: 2/11/05 1420											Turn around Time: (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____ Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____
Relinquished By	[Signature]			Date/Time: 2/11/05 1815	Received By	[Signature]			Date/Time: 2-11-05 18:15											Sample Integrity: (Check) Intact _____ On Ice: _____
Relinquished By	[Signature]			Date/Time: 2/11/05 1815	Received By	[Signature]			Date/Time: 2-11-05 18:15											On Ice: _____



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

March 25, 2005

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

Attention: Bronwyn Kelly
Project: Annual Outfall 009
Sampled: 02/11/05
Del Mar Analytical Number: IOB0996

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), Eberline Services tested gross alpha/gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) and Alta Analytical Perspectives performed the EPA Method 1613B Dioxin analysis 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	Alta ID
Outfall 009	IOB0996-01	A-05021205-001	R502133-01/8262-001	P5072 2989 003

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

LABORATORY REPORT

**Aquatic
Testing**



Laboratories

"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003

(805) 650-0546 FAX (805) 650-0756

CA DOHS ELAP Cert. No.: 1775

Date: February 16, 2005
Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05021205-001
Sample ID.: IOB0996-01

Sample Control: The samples were received by ATL in a chilled state, with the chain of custody record attached.

Date Sampled: 02/11/05
Date Received: 02/12/05
Date Tested: 02/12/05 to 02/16/05

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>
IOB0996-01	100% Survival (TU _a = 0.0)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05021205-001
 Client/ID: Del Mar IOB0996-01

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

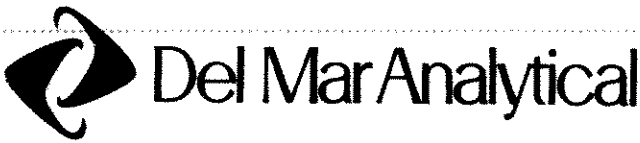
		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.2	8.1	7.8	0	0	RW 1200
	100%	20.3	9.6	6.8	0	0	
24 Hr	Control	20.3	6.9	7.7	0	0	RW 1100
	100%	20.4	6.9	7.3	0	0	
48 Hr	Control	20.4	7.4	7.5	0	0	RW 1200
	100%	20.4	7.2	7.1	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	RW 1200
	100%	20.3	9.2	7.0	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	RW 1100
	100%	19.6	7.9	7.0	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	RW 1100
	100%	20.4	7.9	7.0	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.8; Conductivity: 117 umho; Temp: 4°C;
 DO: 9.6 mg/l; Alkalinity: 31 mg/l; Hardness: 49 mg/l; NH₃-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 %



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

1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046

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

SUBCONTRACT ORDER - PROJECT # IOB0996

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Aquatic Testing Laboratories-SUB
4350 Transport Street, Unit 107
Ventura, CA 93003
Phone : (805) 650-0546
Fax: (805) 650-0756

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

Analysis	Expiration	Comments
Sample ID: IOB0996-01 Water Bioassay-Acute 96hr	Water 02/13/05 00:15	Sampled: 02/11/05 12:15 FH minnow, EPA/821-R02-012, Sub to AqTox Labs
Containers Supplied: 1 gal Poly (IOB0996-01X)		

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): 4°C

~~Released By: [Signature] Date: 2/12/05 Time: 0700 Received By: [Signature] Date: 2/12/05 Time: 0700~~
 Released By: [Signature] Date: 2/12/05 Time: 855 Received By: [Signature] Date: 2-12-05 Time: 0855



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. IOB0996
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502133-8262

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

MCM/njv

Enclosure: Report
Subcontract Form
Receipt checklist
Invoice

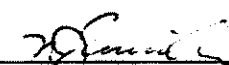
Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

Eberline Services

ANALYSIS RESULTS

SDG <u>8262</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502133-01</u>	Contract <u>PROJECT# IOB0996</u>
Received Date <u>02/15/05</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>
IOB0996-01	8262-001	02/11/05	03/01/05	GrossAlpha	0.812 ± 0.63	pCi/L	0.864
			03/01/05	Gross Beta	1.76 ± 1.1	pCi/L	1.79
			03/02/05	H3	59.8 ± 140	pCi/L	240
			02/25/05	Sr90	0.078 ± 0.25	pCi/L	0.470

Certified by 
Report Date 03/08/05
Page 1

Eberline Services

QC RESULTS

SDG <u>8262</u> Work Order <u>R502133-01</u> Received Date <u>02/15/05</u>	Client <u>DEL MAR ANAL</u> Contract <u>PROJECT# IOB0996</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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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 # IOB0996

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: IOB0996-01 Water Sampled: 02/11/05 12:15		
EDD + Level 4-OUT	03/11/05 12:15	
Gross Alpha-O	02/11/06 12:15	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 12:15	900.0, IF RESULT>50 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/11/06 12:15	HOLD for Gross A&B results; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 12:15	EPA 905.0
Tritium-O	02/11/06 12:15	EPA 906.0

Containers Supplied:

1 gal Poly (IOB0996-01S) *w/HNO3*

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): _____

2-14-05 1730 Z/LG 2/15/05 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 Escondido State CA
 Date/Time received 2/15/05 10:00 CoC No. IC080996
 Sample IC080996-015
 Container I.D. No. Blue Coats AP-5200 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: 1 (Or see CoC _____)
 8. Samples are in correct container Yes No
 9. Paperwork agrees with samples? Yes No
 10. Samples have: Taps Hazard labels Red labels Appropriate sample labels
 11. Samples are: In good condition Leaking Broken Container Missing
 12. Samples are: Preserved Not preserved pH 6.2 Preservative HNO3
 13. Describe any anomalies: _____
 14. Was P.M. notified of any anomalies? Yes No Date _____
 15. Inspected by SLG 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 _____


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: IOB0996-01

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:	1.04 L	Sample ID:	P5072_2989_003	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	2.02			64.7	78.7	
1,2,3,7,8-PeCDD	ND	2.09			66	84.4	
1,2,3,4,7,8-HxCDD	ND	2.71			68.1	84.8	
1,2,3,6,7,8-HxCDD	ND	2.7			75.8	84.8	
1,2,3,7,8,9-HxCDD	ND	3.33			68.5	84.8	
1,2,3,4,6,7,8-HpCDD	10	6.63		J	54.6	67.6	
OCDD	134	11.1			42.2	67.6	
2,3,7,8-TCDF	ND	1.85			67	78.7	
1,2,3,7,8-PeCDF	ND	1.44			75.4	85.4	
2,3,4,7,8-PeCDF	ND	1.48			67.3	85.4	
1,2,3,4,7,8-HxCDF	ND	0.785			62.8	84.8	
1,2,3,6,7,8-HxCDF	ND	0.706			71.7	84.8	
2,3,4,6,7,8-HxCDF	ND	0.933			63.9	84.8	
1,2,3,7,8,9-HxCDF	ND	1.47			58.3	84.8	
1,2,3,4,6,7,8-HpCDF	ND	4.57			47.6	67.6	
1,2,3,4,7,8,9-HpCDF	ND	7.47			43.9	67.6	
OCDF	ND	22.4			41.6	67.6	
Totals & TEQs							
TCDDs	ND	2.02			 <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	2.09					
HxCDDs	ND	2.92					
HpCDDs	25.2	6.63					
TCDFs	ND	1.85					
PeCDFs	ND	1.46	0.213				
HxCDFs	ND	0.935					
HpCDFs	ND	5.85					
Total PCDD/Fs	159		160				


Checkcode: 4985

AAP 2005 Rev. B

Reviewer: *[Signature]*
Date: *03/03/05*

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	2.6			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	0.764			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	
1,2,3,4,7,8,9-HpCDF	ND	2.67			65.1	69.8	
OCDF	ND	11.1			67.2	69.8	
Totals & TEQs							
TCDDs	ND	1.65			 ALTA ANALYTICAL PERSPECTIVES 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	1.55					
HxCDDs	ND	2.59					
HpCDDs	ND	1.98					
TCDFs	ND	1.04					
PeCDFs	ND	1.94					
HxCDFs	ND	0.974					
HpCDFs	ND	2.19					
Total PCDD/Fs	0		0				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer: *[Signature]*
 Date: 02 Mar 05

Sample Summary
 Part 1

II AUTO ANALYTICAL PROCEDURES

Method 1613

Analyte	0_2888_MB	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0998-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0995-01	IOB0991-01
	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-TCDD	(1.85)	(2.29)	(2.06)	(2.02)	(1.34)	(1.71)	(2.20)	(2.55)	(1.61)	(1.44)	(2.87)	(1.79)	(3.24)	(3.01)
1,2,3,7,8-PeCDD	(1.58)	(1.95)	(1.79)	(2.09)	(2.11)	(1.73)	(3.2)	(1.88)	(1.62)	(2.04)	(3.14)	(2.82)	(2.19)	(5.38)
1,2,3,4,7,8-HxCDD	(2.57)	(3.48)	(2.58)	(2.71)	(2.48)	(3.88)	(4.19)	(2.42)	3.57	(2.74)	(5.91)	(12.2)	(4.91)	(4.84)
1,2,3,7,8,9-HxCDD	(2.4)	(3.21)	(2.57)	(2.7)	(2.34)	(3.8)	(4.11)	(2.41)	3.47	(2.68)	(5.98)	(12)	(4.84)	(4.7)
1,2,3,4,6,7,8-HpCDD	(1.98)	75.4	31.5	(3.33)	(2.82)	(4.66)	(4.85)	(2.88)	5.27	(3.13)	(7.12)	(13.8)	(5.54)	(5.81)
OCDD	(4.78)	863	287	134	70.4	157	66.1	471	2120	163	70.2	213	50.3	80
2,3,7,8-TCDF	(1.04)	(1.24)	(1.54)	(1.88)	(0.995)	(2.08)	(1.37)	(1.84)	(1.48)	(1.03)	(2.58)	(2.71)	(2.38)	(2.81)
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.75)	(1.44)	(2.35)	(1.84)	(3.71)	(1.86)	(2.35)	(2.11)	(4.02)	(2.52)	(2.88)	(2.46)
1,2,3,4,7,8-HxCDF	(1.88)	(1.88)	(2.8)	(1.48)	(2.42)	(1.89)	(3.88)	(2.03)	(2.31)	(1.95)	(3.97)	(2.53)	(3)	(2.49)
1,2,3,6,7,8-HxCDF	(0.812)	(0.867)	(0.8)	(0.788)	(0.843)	(1.38)	(1.39)	(1.47)	(0.97)	(0.815)	(1.58)	(0.86)	(1.82)	(1.13)
2,3,4,6,7,8-HpCDF	(0.764)	(0.843)	(0.827)	(0.706)	(0.871)	(1.31)	(1.3)	(1.51)	(0.898)	(0.78)	(1.42)	(0.24)	(1.53)	(1.19)
1,2,3,7,8,9-HxCDF	(1.01)	(1.12)	(1.04)	(0.933)	(1.12)	(1.98)	(1.73)	(2.41)	(2.59)	(2.66)	(1.7)	(2.51)	(12.4)	(2.74)
1,2,3,4,6,7,8-HpCDF	(1.42)	(1.87)	(1.58)	(1.47)	(1.8)	4.04	(3.26)	10.8	27.2	(1.88)	(4.35)	(3.42)	(2.05)	(3.28)
1,2,3,4,7,8,9-HpCDF	(1.78)	16.8	(1.88)	(7.47)	(3.25)	(2.53)	(4.58)	(2.58)	(4.43)	(2.58)	(7.3)	(5.49)	(3.04)	(4.88)
OCDF	(2.57)	(3.46)	(2.95)	(7.47)	(3.25)	(2.53)	(4.58)	(2.58)	(4.43)	(2.58)	(7.3)	(5.49)	(3.04)	(4.88)
	(11.1)	155	(11)	(22.4)	(12.4)	(9.53)	(14.9)	34.9	87.1	(10.1)	(7.89)	(20.5)	(13.1)	(8.89)
Checkose	3385	4381	4581	4965	5238	5527	5797	6067	6335	6612	3028	4355	4622	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: 7-22-05

P5072 - Totals
Project ID: General Analytical HRMS

Analyte	ALTA ANALYTICAL PERSPECTIVES													
	0_2689_MB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0998-01	IOB0999-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0991-01	IOB0991-01
	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
Totals														
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	7.38	4.44	0	0	0	0	0	39.8	0	0	0	0	0
HpCDDs	0	153	85.1	25.2	9.46	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
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	159	79.9	197	56.4	648	2,900	182	70.7	256	62.6	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	56.4	663	2,930	193	70.7	256	62.6	50
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	42.2	1,330	381	215	128	238	119	691	2,940	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.8	193	67.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.8	193	67.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Checkcode	3385	4361	4681	4965	5239	5527	5797	0067	0335	0812	3829	4355	4822	4900

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: *03/20/03*

P5072 - Others
Project ID: General Analytical HRMS

Sample Summary
Part 3

ALTA ANALYTICAL PERSPECTIVES

Method 1613

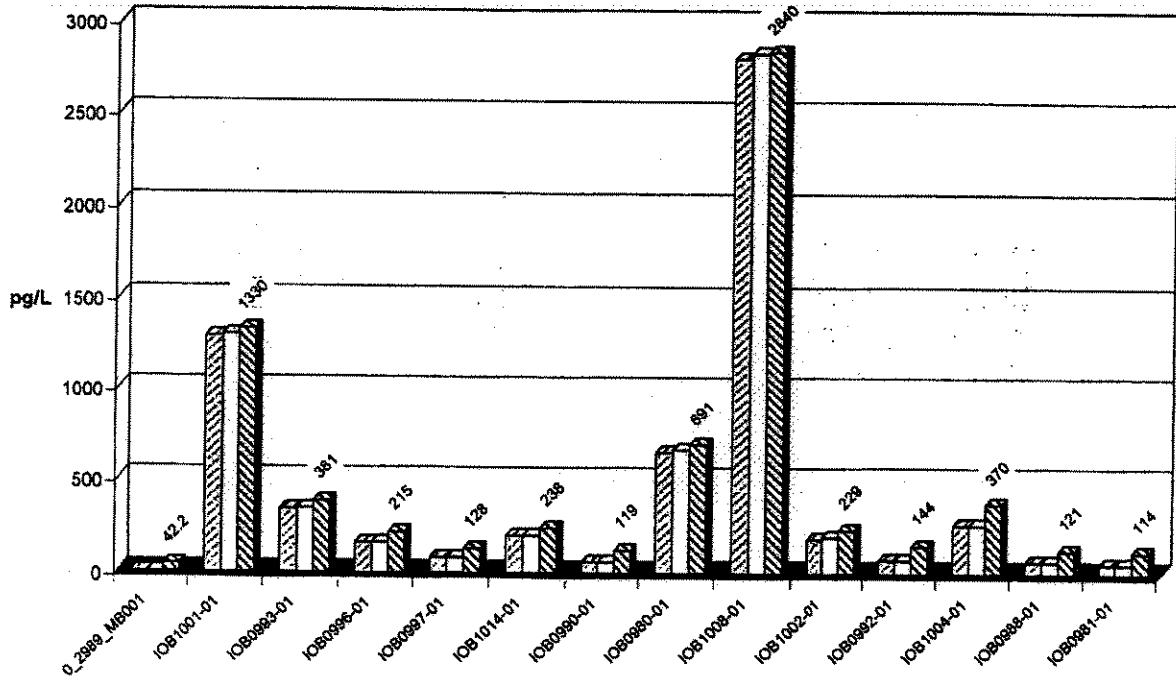
Analyte	0_2888_MB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0988-01	IOB0981-01
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
Other PCDD/Fs (ND=0, EMPC=0)														
Other TCDD	0	0	0	0	0	0	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	33.6	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	6.53	0	0	0	0	0
Other PeCDF	0	0	0.858	0	0	0.76	0.256	0	2.57	0	0.456	0	0	0
Other HxCDF	0	2.88	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
Other PCDD/Fs (ND=0, EMPC=EMPC)														
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	6.57	0	0	0	0	8.86	47.7	0	0	0	0	0
Other HpCDD	0	77.2	33.6	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	0.456	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
Checkcode	3385	4361	4681	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: 03/10/2003

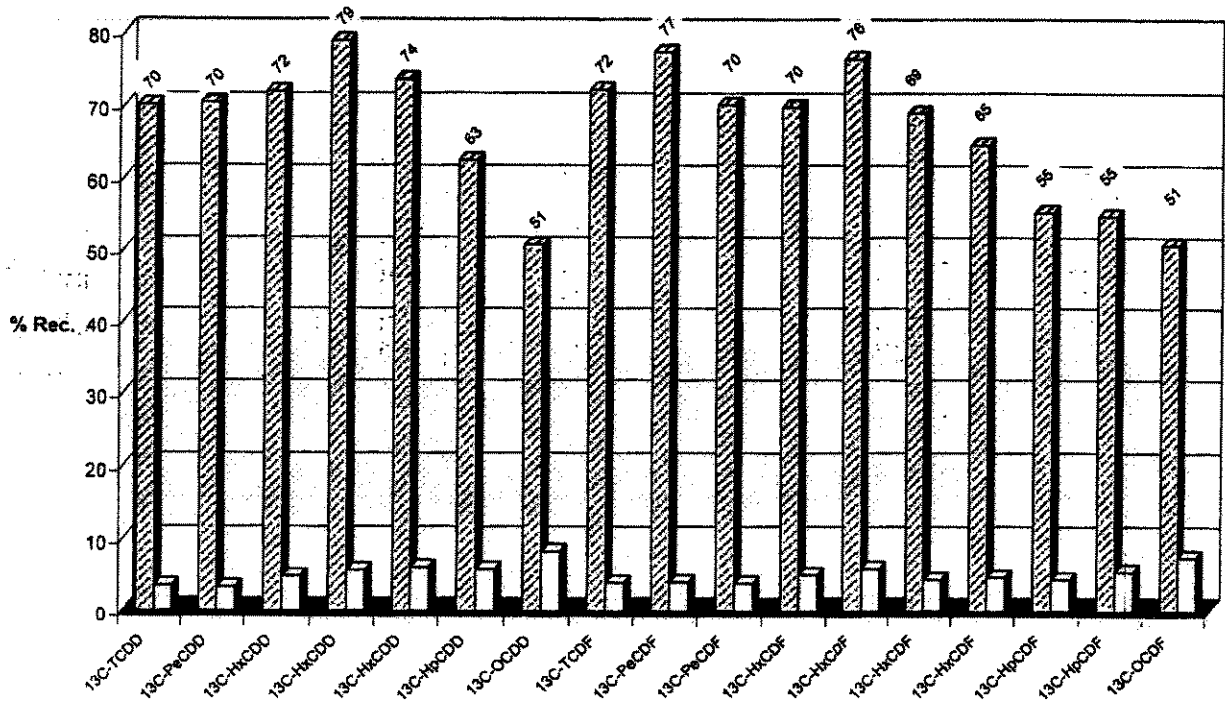
Totals
Project ID: General Analytical HRMS
P5072

▨ Total PCDD/Fs (ND=0; EMPC=0)
 □ Total PCDD/Fs (ND=0; EMPC=EMPC)
 ▩ Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



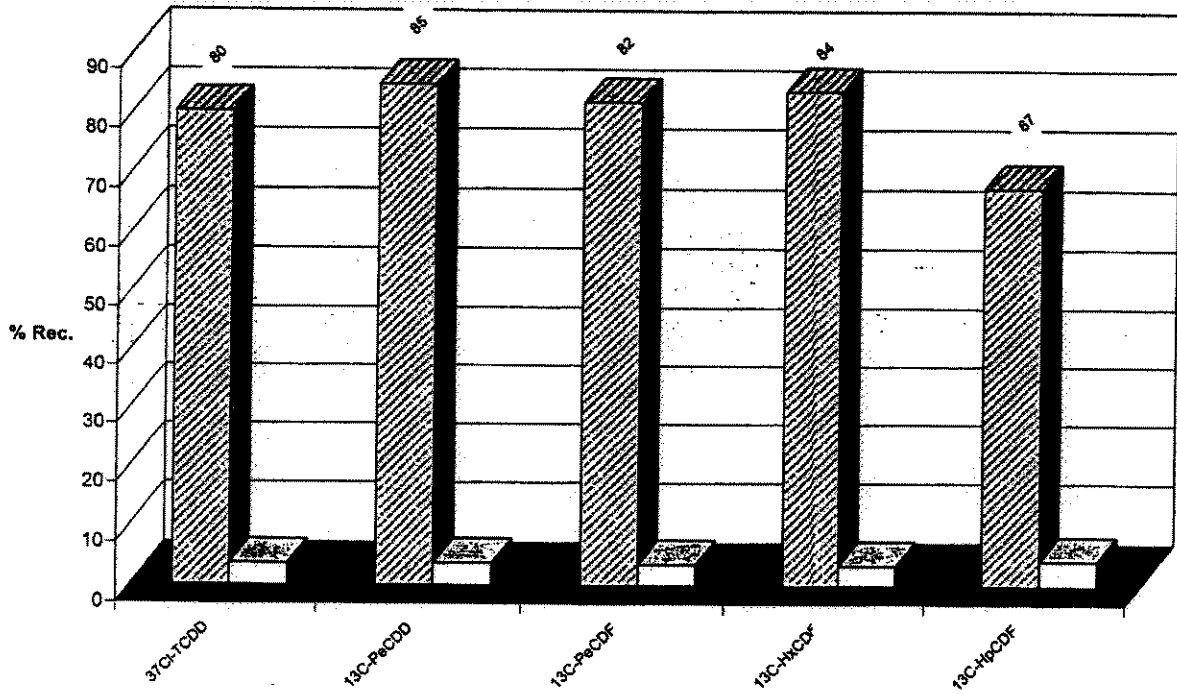
Mean Recoveries of Extraction Standards (N=14)
Project ID: General Analytical HRMS
P5072

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 # IOB0996

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

107691

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

Analysis	Expiration	Comments
----------	------------	----------

Sample ID: IOB0996-01	Water	Sampled: 02/11/05 12:15
1613-Dioxin-HR	02/18/05 12:15	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 12:15	001

Containers Supplied:
 1 L Amber (IOB0996-01C)
 1 L Amber (IOB0996-01D)

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input checked="" 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>2</u>

Released By	Date	Time	Received By	Date	Time
		2-14-05 1700	Bright		
			Flem	2-15-05	9:00

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



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information: Section B

Report To: **SCOTT UNZE**

Copy To:

Invoice To:

P.O.:

Project Name:

Project Number:

Required Client Information: Section A

Company: **PACE**

Address: **1700 Elm St.**

City: **Suite 200**

Phone: **Mpls., MN 55414**

Fax:

Page: **1 of 2**

814593

To Be Completed by Pace Analytical and Client

Section C

Client Information (Check quote/contract):

Requested Due Date:

* Turn around time less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.

Turn Around Time (TAT) in calendar days:

Project Manager: **SCOTT UNZE**

Project #:

Profile #:

Requested Analysis:

Section D Required Client Information:

SAMPLE ID

One character per box. (A-Z, 0-9 / -)

Sample IDs MUST BE UNIQUE

Valid Matrix Codes

WT

SL

OL

WP

AR

TS

OT

MATRIX CODE

WT

DATE COLLECTED

TIME COLLECTED

Containers

Preservatives

Unpreserved

H₂SO₄

HNO₃

HCl

NaHSO₄

Methanol

Other

Remarks / Lab ID

X

15:30

11X

10B1001-01

Remarks / Lab ID

10:50

10B0993-01

Remarks / Lab ID

12:15

10B0996-01

Remarks / Lab ID

15:16

10B0997-01

Remarks / Lab ID

12:20

10B1014-01

Remarks / Lab ID

08:55

10B0990-01

Remarks / Lab ID

10:56

10B0980-01

Remarks / Lab ID

13:32

10B1008-01

Remarks / Lab ID

14:25

10B1002-01

Remarks / Lab ID

10:15

10B0992-01

Remarks / Lab ID

16:00

10B1004-01

Remarks / Lab ID

11:44

10B0988-01

Remarks / Lab ID

Remarks / Lab ID

Remarks / Lab ID

Remarks / Lab ID

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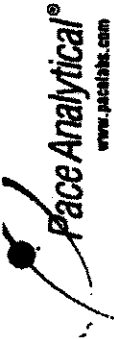
Remarks / Lab ID

Remarks / Lab ID

Remarks / Lab ID

Remarks / Lab ID

</



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information: **Section A** 814592
 Company: face To Be Completed by Pace Analytical and Client
 Address: 1700 Elm Street Section C
 City: Wilmington, NC
 State: NC
 Zip: 28403
 Project Name: Acpls, MW 55414
 Project Number: 55414

Required Client Information: **Section B**
 Report To: Scott Unze
 Copy To: Scott Unze
 Invoice To: Scott Unze
 P.O. Suite 200
 Project Name: Acpls, MW 55414
 Project Number: 55414

Client Information (Check quote/contract):
 Requested Due Date: 3 Day
 Turn around times less than 14 days subject to laboratory and construction delays and may result in a Rush Turnaround Surcharge.
 Turn Around Time (TAT) in calendar days.

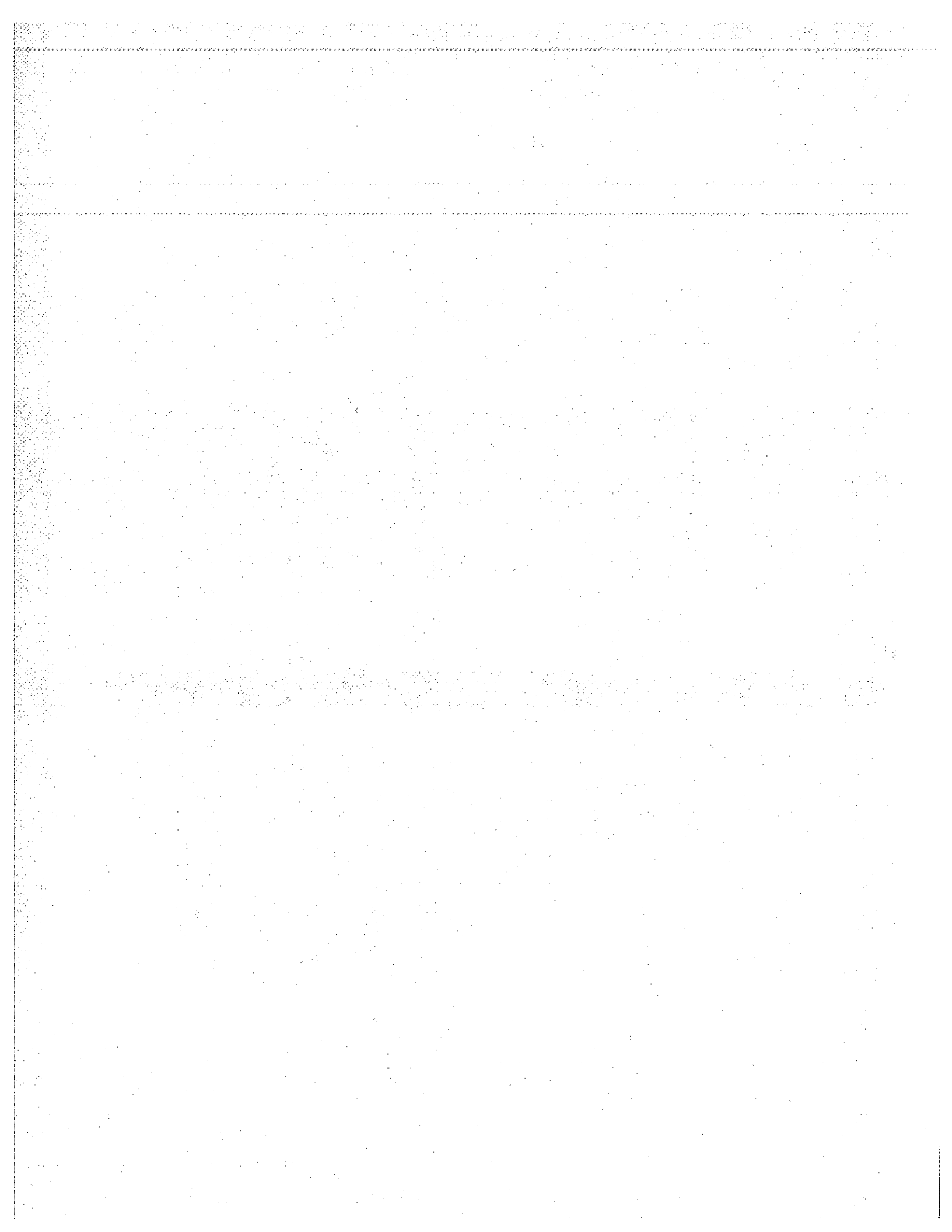
Section D Required Client Information:
SAMPLE ID
 One character per box.
 (A-Z, 0-9, /, -)
 Sample IDs MUST BE UNIQUE
1 I 0 B 0 9 8 1 - 0 1

Valid Matrix Codes 4
 MATRIX CODE
 WATER WT SL CL WP AR TS OT
 SOIL OIL WIFE AIR TISSUE OTHER

ITEM #	DATE COLLECTED	TIME COLLECTED	# Containers	Preservatives						Remarks / Lab ID
				Unpreserved	H ₂ O ₂	HNO ₃	HCl	NaOH	NaOAc	
1	08/21/05	08:21	1X							X
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

REGULATORY AGENCY
 NC SC GA NPDES GROUND WATER DRINKING WATER
 Other UST RCRA Other

SAMPLE NOTES
 Temp in °C: 31
 Received on Ice: Y/N
 Sealed Cooler: Y/N
 Samples Intact: Y/N
 Additional Comments: Email to: Scott.Unze@pace labs.com

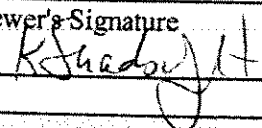


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF29
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 9, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: 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: 6
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 guidelines outlined in the *AMEC Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 1)*, *EPA Method 1613*, and the *National Functional Guidelines For Chlorinated Dioxin/Furan Data Review (8/02)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 001	IOB1560-01	25788-001	water	1613
Outfall 004	IOB1556-01	25786-001	water	1613
Outfall 005	IOB1557-01	25787-001	water	1613
Outfall 006	IOB1559-01	25784-001	water	1613
Outfall 009	IOB1574-01	25789-001	water	1613
Outfall 010	IOB1575-01	25785-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 0.8°C and 1.6°C ; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There were two initial calibrations, analyzed 08/30/04 and 10/04/04. The calibrations each consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6543-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 (6543-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 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. Compounds flagged by the laboratory with a "D" qualifier indicated possible diphenylether interference and were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.



Sample ID: IOB1574-01		Outfall 009		EPA Method 1613			
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25789-001	Date Received:	24-Feb-05
Project:	IOB1574	Sample Size:	1.015 L	QC Batch No.:	6543	Date Extracted:	25-Feb-05
Date Collected:	18-Feb-05			Date Analyzed DB-5:	1-Mar-05	Date Analyzed DB-225:	NA
Time Collected:	1421						
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.41		IS 13C-2,3,7,8-TCDD	69.0	25 - 164	
1,2,3,7,8-PeCDD	ND	2.17		13C-1,2,3,7,8-PeCDD	61.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	3.36		13C-1,2,3,4,7,8-HxCDD	63.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	3.29		13C-1,2,3,6,7,8-HxCDD	69.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	3.31		13C-1,2,3,4,6,7,8-HpCDD	61.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	48.8			13C-OCDD	54.0	17 - 157	
OCDD	520			13C-2,3,7,8-TCDF	73.3	24 - 169	
2,3,7,8-TCDF	ND	1.70		13C-1,2,3,7,8-PeCDF	58.1	24 - 185	
1,2,3,7,8-PeCDF	ND	3.87		13C-2,3,4,7,8-PeCDF	59.7	21 - 178	
2,3,4,7,8-PeCDF	ND	3.29		13C-1,2,3,4,7,8-HxCDF	56.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.07		13C-1,2,3,6,7,8-HxCDF	65.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	1.02		13C-2,3,4,6,7,8-HxCDF	64.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.09		13C-1,2,3,7,8,9-HxCDF	61.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.65		13C-1,2,3,4,6,7,8-HpCDF	61.3	28 - 143	
2,3,4,6,7,8-HpCDF	9.06		J	13C-1,2,3,4,7,8,9-HpCDF	60.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	2.50		13C-OCDF	59.7	17 - 157	
OCDF	28.9		J	CRS 37Cl-2,3,7,8-TCDD	83.0	35 - 197	
Totals							
Total TCDD	ND	1.41					
Total PeCDD	ND	2.17					
Total HxCDD	12.3						
Total HpCDD	134						
Total TCDF	ND	1.70					
Total PeCDF	ND	3.57					
Total HxCDF	6.36		10.4				
Total HpCDF	30.4						

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

Analyst: JMH
 Approved By: William J. Luksemburg 02-Mar-2005 08:29

MEC VALIDATED

Project 25789



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1574 & IOB1575

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#: IOB1574, IOB1575
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 21, 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.: IOB1574, 1575
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 009	Outfall 009	IOB1574-01	water	ILM04
Outfall 010	Outfall 010	IOB1575-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

2.4 BLANKS

Antimony was detected in both bracketing CCBs at approximately 1.10 µg/L and in method blank 5B25067 at 0.275 µg/L, and antimony was detected in the site samples at concentrations below the level reported in the CCBs. The CCB detects indicated the laboratory could not detect antimony at the level reported in the CCBs. The reviewer raised the MDLs to the level reported in the CCBs, 1.10 µg/L, and qualified the results as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

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

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B25067-BS1 and the mercury LCS sample was identified as 5B22064. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



Del Mar Analytical

17461 Denian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 250-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 373-4667 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 009

Report Number: IOB1574

Sampled: 02/18/05
 Received: 02/18/05

DRAFT: METALS

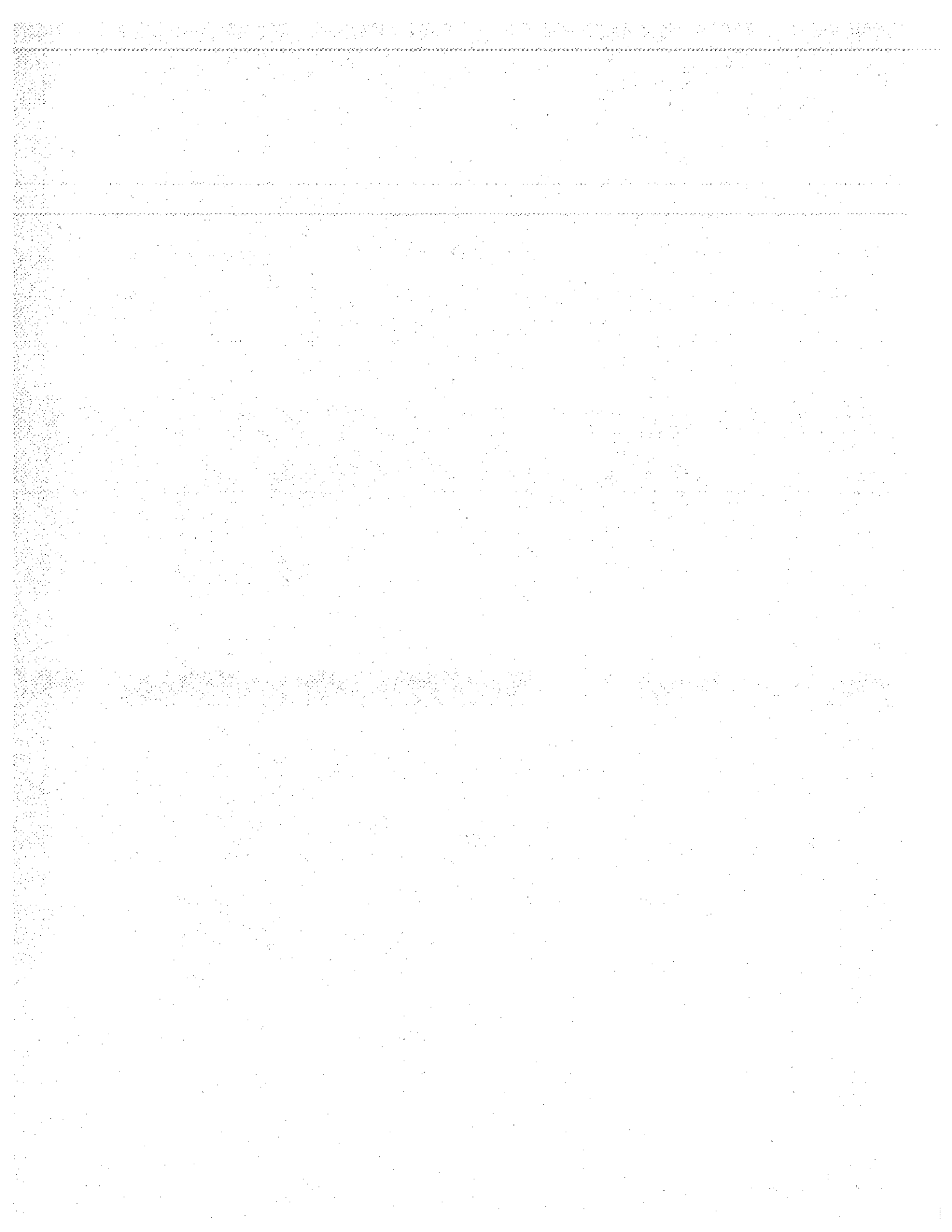
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1574-01 (DRAFT: Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B25067	1.1	2.0	1.2	1	02/25/05	02/28/05	UJ B, J
Cadmium	EPA 200.8	5B25067	0.015	1.0	0.25	1	02/25/05	02/28/05	J J
Copper	EPA 200.8	5B25067	0.49	2.0	9.5	1	02/25/05	02/28/05	
Lead	EPA 200.8	5B25067	0.13	1.0	10	1	02/25/05	02/28/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	0.066	1	02/22/05	02/22/05	J J

Per Qual	Qua Code
UJ B, J	B, S
J J	DNQ
J J	DNQ

fm 3/2/05

AMEC VALIDATED
LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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

LABORATORY REPORT

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

Project: Routine Outfall 009

Sampled: 02/18/05
 Received: 02/18/05
 Issued: 03/25/05 11:01

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

IOB1574-01

CLIENT ID

Outfall 009

MATRIX

Water

Reviewed By:

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



Del Mar Analytical

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1574-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B25067	0.18	2.0	1.2	1	02/25/05	02/28/05	B, J
Cadmium	EPA 200.8	5B25067	0.015	1.0	0.25	1	02/25/05	02/28/05	J
Copper	EPA 200.8	5B25067	0.49	2.0	9.5	1	02/25/05	02/28/05	
Lead	EPA 200.8	5B25067	0.13	1.0	10	1	02/25/05	02/28/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	0.066	1	02/22/05	02/22/05	J

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
--	---	---

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1574-01 (Outfall 009 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B18129	0.15	0.50	2.3	1	02/18/05	02/19/05	
Nitrate/Nitrite-N	EPA 300.0	5B18129	0.075	0.11	0.70	1	02/18/05	02/19/05	
Oil & Grease	EPA 413.1	5B28071	0.94	5.0	ND	1	02/28/05	02/28/05	
Sulfate	EPA 300.0	5B18129	0.25	0.50	2.5	1	02/18/05	02/19/05	
Total Dissolved Solids	SM2540C	5B24111	10	10	87	1	02/24/05	02/24/05	
Total Suspended Solids	EPA 160.2	5B25089	10	10	98	1	02/25/05	02/25/05	

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

Project ID: Routine Outfall 009

Report Number: IOB1574

Sampled: 02/18/05
 Received: 02/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 009 (IOB1574-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/18/2005 14:21	02/18/2005 18:30	02/18/2005 22:00	02/19/2005 02:14

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit Limits	RPD	Data Qualifiers
Batch: 5B22063 Extracted: 02/22/05											
Blank Analyzed: 02/22/2005 (5B22063-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 02/22/2005 (5B22063-BS1)											
Mercury	8.32	0.20	0.063	ug/l	8.00		104		85-115		
Matrix Spike Analyzed: 02/22/2005 (5B22063-MS1)											
						Source: IOB1443-01					
Mercury	8.36	0.20	0.063	ug/l	8.00	0.074	104		70-130		
Matrix Spike Dup Analyzed: 02/22/2005 (5B22063-MSD1)											
						Source: IOB1443-01					
Mercury	8.38	0.20	0.063	ug/l	8.00	0.074	104	0	70-130	20	
Batch: 5B25067 Extracted: 02/25/05											
Blank Analyzed: 02/28/2005 (5B25067-BLK1)											
Antimony	0.275	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 02/28/2005 (5B25067-BS1)											
Antimony	87.7	2.0	0.18	ug/l	80.0		110		85-115		
Cadmium	77.6	1.0	0.015	ug/l	80.0		97		85-115		
Copper	81.8	2.0	0.49	ug/l	80.0		102		85-115		
Lead	79.6	1.0	0.13	ug/l	80.0		100		85-115		
Matrix Spike Analyzed: 02/28/2005 (5B25067-MS1)											
						Source: IOB1837-02					
Antimony	89.6	2.0	0.18	ug/l	80.0	0.31	112		70-130		
Cadmium	77.7	1.0	0.015	ug/l	80.0	ND	97		70-130		
Copper	121	2.0	0.49	ug/l	80.0	39	102		70-130		
Lead	81.9	1.0	0.13	ug/l	80.0	1.7	100		70-130		

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B25067 Extracted: 02/25/05											
Matrix Spike Analyzed: 02/28/2005 (5B25067-MS2)						Source: IOB1620-01					
Antimony	93.1	2.0	0.18	ug/l	80.0	0.41	116	70-130			
Cadmium	81.4	1.0	0.015	ug/l	80.0	0.68	101	70-130			
Copper	93.9	2.0	0.49	ug/l	80.0	12	102	70-130			
Lead	112	1.0	0.13	ug/l	80.0	27	106	70-130			
Matrix Spike Dup Analyzed: 02/28/2005 (5B25067-MSD1)						Source: IOB1837-02					
Antimony	87.3	2.0	0.18	ug/l	80.0	0.31	109	70-130	3	20	
Cadmium	75.7	1.0	0.015	ug/l	80.0	ND	95	70-130	3	20	
Copper	118	2.0	0.49	ug/l	80.0	39	99	70-130	3	20	
Lead	78.6	1.0	0.13	ug/l	80.0	1.7	96	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: Routine Outfall 009

Report Number: IOB1574

Sampled: 02/18/05
 Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B18129 Extracted: 02/18/05										
Blank Analyzed: 02/18/2005 (5B18129-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 02/18/2005 (5B18129-BS1)										
Chloride	5.11	0.50	0.26	mg/l	5.00		102 90-110			
Sulfate	10.6	0.50	0.18	mg/l	10.0		106 90-110			
Matrix Spike Analyzed: 02/18/2005 (5B18129-MS1) Source: IOB1556-01										
Chloride	7.47	0.50	0.26	mg/l	5.00	2.1	107 80-120			
Sulfate	15.3	0.50	0.18	mg/l	10.0	4.7	106 80-120			
Matrix Spike Dup Analyzed: 02/18/2005 (5B18129-MSD1) Source: IOB1556-01										
Chloride	7.43	0.50	0.26	mg/l	5.00	2.1	107 80-120	1	20	
Sulfate	14.3	0.50	0.18	mg/l	10.0	4.7	96 80-120	7	20	
Batch: 5B24111 Extracted: 02/24/05										
Blank Analyzed: 02/24/2005 (5B24111-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 02/24/2005 (5B24111-BS1)										
Total Dissolved Solids	976	10	10	mg/l	1000		98 90-110			
Duplicate Analyzed: 02/24/2005 (5B24111-DUP1) Source: IOB1821-01										
Total Dissolved Solids	374	10	10	mg/l		380		2	10	

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B25089 Extracted: 02/25/05										
Blank Analyzed: 02/25/2005 (5B25089-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 02/25/2005 (5B25089-BS1)										
Total Suspended Solids	956	10	10	mg/l	1000		96	85-115		
Duplicate Analyzed: 02/25/2005 (5B25089-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOB1979-01 ND			10	
Batch: 5B28071 Extracted: 02/28/05										
Blank Analyzed: 02/28/2005 (5B28071-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 02/28/2005 (5B28071-BS1)										
Oil & Grease	16.7	5.0	0.94	mg/l	20.0		84	65-120		M-NR1
LCS Dup Analyzed: 02/28/2005 (5B28071-BSD1)										
Oil & Grease	17.7	5.0	0.94	mg/l	20.0		88	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: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
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Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOB1574-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.29	5.0	15
IOB1574-01	Chloride - 300.0	Chloride	mg/l	2.30	0.50	150
IOB1574-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.70	0.11	10.00
IOB1574-01	Sulfate-300.0	Sulfate	mg/l	2.50	0.50	250
IOB1574-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	87	10	850

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 Wendy Kirkeeng For Michele Harper
 Project Manager



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

Project ID: Routine Outfall 009

Report Number: IOB1574

Sampled: 02/18/05

Received: 02/18/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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

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IOB1574 <Page 10 of 11>



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOB1574	Sampled: 02/18/05 Received: 02/18/05
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Certification Summary

Del Mar Analytical, Irvine

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

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

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOB1574-01

Analysis Performed: EDD + Level 4

Samples: IOB1574-01

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

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10B1574

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/12/04

ANALYSIS REQUIRED

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

Project:
 Boeing-SSFL NPDES
 Routine Outfall 009
 Stormwater at WS-13

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

Sampler: *Rick Danna*

Field readings:
 Temp = 55.8 °
 pH = 7.3

Comments

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED						Field readings: Temp = 55.8 ° pH = 7.3	Comments
							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (FPA 413.1)	Cl-, SO4, NO3+NO2-N	TDS, TSS			
Outfall 009	W	Poly-1L	1	3-18-05 14:31	HNO3	1A	X							
Outfall 009-Dup	W	Poly-1L	1		HNO3	1B	X							
Outfall 009	W	Glass-Amber	2		None	2A, 2B		X						
Outfall 009	W	Glass-Amber	2		HCl	3A, 3B		X						
Outfall 009	W	Poly-500 ml	2		None	4A, 4B			X					
Outfall 009	W	Poly-500 ml	2	3-18-05 14:31	None	5A, 5B				X				
Relinquished By <i>Bronwyn Kelly</i>				Date/Time: 2-18-05 1515	Received By <i>[Signature]</i>			Date/Time: 2-18-05 1515						
Relinquished By <i>[Signature]</i>				Date/Time: 2-18-05 1850	Received By <i>[Signature]</i>			Date/Time: 2-18-05 1850						
Relinquished by				Date/Time:	Received By			Date/Time:						

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Perchlorate Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample Integrity: (check) On Ice:



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
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March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 009
Sampled: 02/18/05
Del Mar Analytical Number: IOB1574

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	Alta ID
Outfall 009	IOB1574-01	25789-001

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

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 02, 2005

Alta Project I.D.: 25789

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on February 24, 2005 under your Project Name "IOB1574". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier
HRMS Services Director



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

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



Section I: Sample Inventory Report

Date Received: 2/24/2005

Alta Lab. ID

Client Sample ID

25789-001

IOB1574-01

SECTION II



EPA Method 1613

Method Blank		Lab Sample: 0-MB001		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6543 <th>Date Analyzed DB-5:</th> <td>28-Feb-05 </td>	Date Analyzed DB-5:	28-Feb-05
Sample Size:	1.000 L	Date Extracted:	25-Feb-05 <th></th> <td></td>		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.866		75.9	25 - 164
1,2,3,7,8-PeCDD	ND	1.15		73.9	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.88		70.6	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.86		73.4	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.84		67.4	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	3.38		56.3	17 - 157
OCDD	ND	8.88		78.7	24 - 169
2,3,7,8-TCDF	ND	0.545		68.1	24 - 185
1,2,3,7,8-PeCDF	ND	1.62		73.3	21 - 178
2,3,4,7,8-PeCDF	ND	1.45		60.2	26 - 152
1,2,3,4,7,8-HxCDF	ND	1.24		64.3	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.869		63.5	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.958		65.2	29 - 147
1,2,3,7,8,9-HxCDF	ND	1.55		54.3	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	2.22		59.8	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.68		54.9	17 - 157
OCDF	ND	4.49		77.4	35 - 197
Totals					
Total TCDD	ND	0.866			
Total PeCDD	ND	1.15			
Total HxCDD	ND	1.86			
Total HpCDD	ND	3.38			
Total TCDF	ND	0.545			
Total PeCDF	ND	1.54			
Total HxCDF	ND	1.37			
Total HpCDF	ND	2.38			

Footnotes

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

Analyst: MAS

Approved By: William J. Luksemburg 02-Mar-2005 08:29



OPR Results

EPA Method 1613

Matrix: Aqueous		QC Batch No.: 6543	Lab Sample: 0-OPR001		
Sample Size: 1.000 L		Date Extracted: 25-Feb-05	Date Analyzed DB-225: NA		
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	67.4	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	64.0	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	58.2	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	62.5	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	57.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	51.4	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	72.5	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.4	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	64.8	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	49.4	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	52.7	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	55.2	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	53.4	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	45.6	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	49.6	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	49.0	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	76.2	35 - 197

Analyst: MAS

Approved By: William J. Luksemburg 02-Mar-2005 08:29



Sample ID: IOB1574-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25789-001
Project:	IOB1574	Sample Size:	1.015 L	QC Batch No.:	6543
Date Collected:	18-Feb-05			Date Analyzed DB-5:	1-Mar-05
Time Collected:	1421			Date Analyzed DB-225:	NA
				Date Received:	24-Feb-05
				Date Extracted:	25-Feb-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.41			13C-2,3,7,8-TCDD	69.0	25 - 164	
1,2,3,7,8-PeCDD	ND	2.17			13C-1,2,3,7,8-PeCDD	61.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	3.36			13C-1,2,3,4,7,8-HxCDD	63.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	3.29			13C-1,2,3,6,7,8-HxCDD	69.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	3.31			13C-1,2,3,4,6,7,8-HpCDD	61.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	48.8				13C-OCDD	54.0	17 - 157	
OCDD	520				13C-2,3,7,8-TCDF	73.3	24 - 169	
2,3,7,8-TCDF	ND	1.70			13C-1,2,3,7,8-PeCDF	58.1	24 - 185	
1,2,3,7,8-PeCDF	ND	3.87			13C-2,3,4,7,8-PeCDF	59.7	21 - 178	
2,3,4,7,8-PeCDF	ND	3.29			13C-1,2,3,4,7,8-HxCDF	56.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.07			13C-1,2,3,6,7,8-HxCDF	65.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	1.02			13C-2,3,4,6,7,8-HxCDF	64.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.09			13C-1,2,3,7,8,9-HxCDF	61.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.65			13C-1,2,3,4,6,7,8-HpCDF	61.3	28 - 143	
2,3,4,6,7,8-HpCDF	9.06			J	13C-1,2,3,4,7,8,9-HpCDF	60.7	26 - 138	
1,2,3,4,6,7,8-HpCDF	ND	2.50			13C-OCDF	59.7	17 - 157	
1,2,3,4,7,8,9-HpCDF	28.9			J	CRS 37Cl-2,3,7,8-TCDD	83.0	35 - 197	
OCDF								

Totals				Footnotes	
Total TCDD	ND	1.41			a. Sample specific estimated detection limit.
Total PeCDD	ND	2.17			b. Estimated maximum possible concentration.
Total HxCDD	12.3				c. Method detection limit.
Total HpCDD	134				d. Lower control limit - upper control limit.
Total TCDF	ND	1.70			
Total PeCDF	ND	3.57			
Total HxCDF	6.36				
Total HpCDF	30.4		10.4		

Analyst: JMH

Approved By: William J. Luksemburg 02-Mar-2005 08:29

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS



NELAP — (Primary AA: California, Certificate No. 02102CA)
Department of the Navy
U.S. Army Corps of Engineers
U.S. EPA Region 5
Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)
Commonwealth of Kentucky — (Certificate No. 90063)
Commonwealth of Virginia — (Certificate No. 00013)
State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)
State of Arizona — (Certificate No. AZ0639)
State of Arkansas, Department of Health — (Approval granted through CA certification)
State of Arkansas, Department of Environmental Quality
State of California — (Certificate No. 1640)
State of Colorado
State of Connecticut — (Certificate No. PH-0182)
State of Florida — (Certificate No. 87456)
State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)
State of Louisiana, Department of Environmental Quality
State of Maine
State of Michigan (Certificate No. 81178087)
State of Mississippi — (Approval granted through CA certification)
State of Nevada — (Certificate No. CA413)
State of New Jersey — (Certificate No. CA003)
State of New York, Department of Health — (Certificate No. 11411)
State of North Carolina — (Certification No. 06700)
State of North Dakota, Department of Health — (Certificate No. R-078)
State of New Mexico
State of Oklahoma — (D9919)
State of Oregon — (Certificate No. CA413)
State of Pennsylvania — (Certificate No. 68-490)
State of South Carolina — (Certificate No. 87002001)
State of Tennessee — (Certificate No. 02996)
State of Texas — (Certificate No. TX247-1000A)
State of Utah — (Certificate No. E-201)
State of Washington — (Certification No. C091)
State of Wisconsin — (Certificate No. 998036160)
State of Wyoming — (USEPA Region 8 Ref: 8TMS-Q)

09/28/04



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4987 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-6886 Fax (619) 505-6889
 9830 South 91st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 795-0043 Fax (480) 795-0051
 2530 E. Street Rd., Suite 25, Las Vegas, NV 89120 Ph (702) 798-3839 Fax (702) 798-3831

SUBCONTRACT ORDER - PROJECT # IOB1574

<p>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</p>	<p>RECEIVING LABORATORY: Alta Analytical 1104 Windfield Way 25789 El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 1.6°C</p>
--	---

Standard TAT is requested unless specific due date is requested => Due Date: 2 Weeks Initials: VB

Analysis	Expiration	Comments
Sample ID: IOB1574-01 Water	Sampled: 02/18/05 14:21	Instant Notification
1613-Dioxin-HR	02/25/05 14:21	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	03/18/05 14:21	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied: 1 L Amber (IOB1574-01C) 1 L Amber (IOB1574-01D)		

SAMPLE INTEGRITY:

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

Released By: Vn Banch Date: 2-23-05 Time: 1700 Received By: Letitia C. Benedict Date: 2/24/05 Time: 0905

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25789

1. Date Samples Arrived: <u>2/24/05 0905</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1400 2/24/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.6°C</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>79043642 7350</u>	✓		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. _____ Intact? If not intact, describe condition in comment section.		✓	✓
9. Sample Container Intact? If no, indicate sample condition in comment section.	✓		
10. Chain of Custody (COC) or other Sample Documentation Present?	✓		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	✓		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		✓	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓

Comments:

Samplers initials found on sample labels

ALTA Analytical Laboratory
El Dorado Hills, CA 95762

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APPENDIX G

Section 24

February Outfall 010

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID 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 *H. Chang*

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., 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 ^b	

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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: IOB1001-01 Outfall 010

Method 1613

Client Data		Sample Data		Laboratory Data	
Name: Pace Inc. General Analytical HRMS 11 Feb 05	Matrix: Aqueous Weight/Volume: 1.00 L pH: 6	Project No.: P5072 Sample ID: P5072_2989_001 QC Batch No.: 2989	Date Received: 01 Mar 05 Date Extracted: 01 Mar 05 Date Analyzed: 02 Mar 05	Qualifier	Recoveries
Analyte	Conc. pg/L	DL pg/L	EMPC pg/L	ES	CS
2,3,7,8-TCDD	ND	2.29		69	82.8
1,2,3,7,8-PeCDD	ND	1.65		70.8	88.3
1,2,3,4,7,8-HxCDD	ND	3.45		74.1	83.8
1,2,3,6,7,8-HxCDD	ND	3.21		80.2	83.8
1,2,3,7,8,9-HxCDD	ND	3.83		77.1	83.8
1,2,3,4,6,7,8-HpCDD	75.4	6.41		65	64.9
OCDD	883	11		58.7	64.9
2,3,7,8-TCDF	ND	1.24		71.6	82.8
1,2,3,7,8-PeCDF	ND	1.79		78.2	84.3
2,3,4,7,8-PeCDF	ND	1.86		67.3	84.3
1,2,3,4,7,8-HxCDF	ND	0.867		69.2	83.8
1,2,3,6,7,8-HxCDF	ND	0.843		77.3	83.8
2,3,4,6,7,8-HxCDF	ND	1.12		68.3	83.8
1,2,3,7,8,9-HxCDF	ND	1.67		64	83.8
1,2,3,4,6,7,8-HpCDF	16.8	2.36		54.2	64.9
1,2,3,4,7,8,9-HpCDF	ND	3.46		56.3	64.9
OCDF	155	10.2		55.7	64.9
Totals & TEQs					
TCDDs	ND	2.29			
PeCDDs	ND	1.65			
HxCDDs	7.38 5.16	3.5			
HpCDDs	153	6.41			
TCDFs	ND	1.24			
PeCDFs	ND	1.82			
HxCDFs	2.68	1.09			
HpCDFs	92.9	2.87			
Total PCDD/Fs	1,290		9.88		
			1,300		

ALTA ANALYTICAL PERSPECTIVES
 2714 Exchange Drive
 Wilmington
 North Carolina 28405
 USA
 Tel: 910 794-1613
 Fax: 910 794-3919
 e-mail: yl@ultratrace.com
 web: www.ultratrace.com

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT53

Task Order 313150010

SDG No. IOB0997, 1001, 1008

No. of Analyses 3

Laboratory Del Mar

Date: 03/28/05

Reviewer P. Meeks

Reviewer's Signature
P. Meeks

Analysis/Method Metals

ACTION ITEMS*

1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications applied for:
Holding Times	1. Detects below the reporting limit.
GC/MS Tune/Inst. Performance	2. Negative results and detected in the blanks.
Calibrations	3. Antimony MDLs raised.
Blanks	4. Reporting limit check standard recovery outliers.
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB0997, IOB1001, & IOB1008

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#: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 28, 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.: Multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOB0997-01	water	ILM04
Outfall 010	Outfall 010	IOB1001-01	water	ILM04
Outfall 018	Outfall 018	IOB1008-01	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 requested analytes for Outfall 018 were changed in a memo from MWH personnel dated 02/17/05. The COCs accounted for the remaining samples and analyses presented in these SDGs. Duplicate samples were submitted for all samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. Silver was recovered below the control limit in the ICP reporting limit check standard associated with Outfall 008 and Outfall 010; therefore, nondetected silver in these samples was qualified as estimated, "UJ." Antimony was recovered below the control limit in the ICP/MS 0.2 ppb reporting limit check standard associated with Outfall 010; therefore, nondetected antimony in Outfall 010 (see

section 2.4) was qualified as estimated, "UJ." Copper was not recovered in the ICP/MS 1.0 ppb reporting limit check standard and was recovered below the control limit in the ICP/MS 2.0 ppb reporting limit check standard; however, as copper was detected in the associated sample, Outfall 018, at $\geq 3 \times RL$, no qualifications were required. The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Arsenic was reported in method blank 5B17127 at -0.0071 mg/L; therefore, nondetected arsenic in Outfall 010 was qualified as estimated, "UJ." Antimony was detected in the CCBs bracketing Outfall 008 and Outfall 010 at approximately 0.95 and 0.50 $\mu\text{g/L}$, respectively and antimony was detected in Outfall 008 and Outfall 010 at concentrations below the level reported in the CCBs. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the MDLs in the site samples to the level reported in the respective CCBs and qualified the results as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. The results for sodium and potassium were above the calibration range of the instrument in all the ICSA and ICSAB analyses and aluminum was above the calibration range in the ICSA and ICSAB analyses associated with Outfall 010; however, as these analytes were not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the 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.

ICSA and ICSAB analyses were included in the raw data for the ICP analyses, but were not run on the days the site samples were analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. In the ICSA analyses there were negative results for chromium and positive results for thallium and zinc that were above the applicable reporting limits. The validator reviewed the raw data for the site sample ICP analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the level of reported interferents were not high enough to cause matrix affects. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5B12041-BS1, 5B17098-BS1, and 5B17129-BS1 and the ICP LCS samples were identified as 5B17097-BS1 and 5B17127-BS1. The mercury LCS samples were identified as 5B12033-BS1 and 5B15070-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 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) 765-0043 FAX (480) 785-0811
 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 010

Report Number: IOB1001

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: IOB1001-01 (DRAFT: Outfall 010 - Water) - cont.									
Reporting Units: mg/l									
Arsenic	EPA 200.7	5B17127	0.0038	0.0050	ND	1	02/17/05	02/18/05	Rev Qual SJ B
Beryllium	EPA 200.7	5B17127	0.00062	0.0020	ND	1	02/17/05	02/18/05	U
Chromium	EPA 200.7	5B17127	0.00068	0.0050	0.0027	1	02/17/05	02/18/05	SJ DNG
Nickel	EPA 200.7	5B17127	0.0020	0.010	0.0021	1	02/17/05	02/18/05	SJ DNG
Selenium	EPA 200.7	5B17127	0.0046	0.0050	ND	1	02/17/05	02/18/05	U
Silver	EPA 200.7	5B17127	0.0013	0.010	ND	1	02/17/05	02/18/05	SJ *3
Thallium	EPA 200.7	5B17127	0.0031	0.0050	ND	1	02/17/05	02/20/05	U
Zinc	EPA 200.7	5B17127	0.0037	0.020	0.023	1	02/17/05	02/18/05	

LEVEL IV

AMEC VALIDATED

DRAFT REPORT
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 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: Annual Outfall 010

Report Number: IOB1001

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	
									Raw Qual	Qual Code
Sample ID: IOB1001-01 (DRAFT: Outfall 010 - Water) - cont.										
Reporting Units: ug/l										
Aluminum	EPA 200.7	5B17127	47	50	1200	1	02/17/05	02/18/05		
Antimony	EPA 200.8	5B17129	0.18 0.50	2.0	0.30	0.50	02/17/05	02/22/05	UJ	B, #3, \$
Cadmium	EPA 200.8	5B17129	0.015	1.0	0.081	1	02/17/05	02/22/05	JJ	DNQ
Copper	EPA 200.8	5B17129	0.49	2.0	3.8	1	02/17/05	02/22/05		
Lead	EPA 200.8	5B17129	0.13	1.0	2.4	1	02/17/05	02/22/05		
Mercury	EPA 245.1	5B15070	0.063	0.20	0.25	1	02/15/05	02/15/05		
Vanadium	EPA 200.7	5B17127	1.4	10	5.2	1	02/17/05	02/18/05	JJ	DNQ

MM 3/29/05

LEVEL IV

AMEC VALIDATED

DRAFT REPORT
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 DATA SUBJECT TO CHANGE

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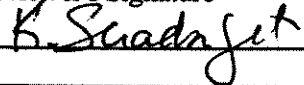
CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP17
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 3

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method Pesticides

Date March 28, 2005
 Reviewer's Signature


ACTION ITEMS*

1. Case Narrative	
Deficiencies	_____
2. Out of Scope	
Analyses	_____ _____ _____
3. Analyses Not Conducted	_____ _____
4. Missing Hardcopy	
Deliverables	_____ _____
5. Incorrect Hardcopy	
Deliverables	_____
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for %D continuing calibration outliers
Holding Times	_____
GC/MS Tune/Inst. Perform	_____
Calibrations	_____
Blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification and	_____
Quantitation	_____
System Performance	_____

COMMENTS^b

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: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: 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
SDG#: Multiple SDGs
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 25, 2005

The samples listed in Table 1 were validated based on the 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 008	Outfall 008	IOB0997-01	water	608
Outfall 010	Outfall 010	IOB1001-01	water	608
Outfall 018	Outfall 018	IOB1008-01	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 coolers were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There were two initial calibrations dated 02/15/05 and 02/17/05 associated with the pesticide analyses of the samples in these SDGs, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analyses of the samples in these SDGs which consisted of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242 and Aroclor 1254 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

Of the continuing calibrations associated with the pesticide analyses for the samples in these SDGs there were several %D outliers. The %Ds for beta-BHC, endosulfan II, endrin aldehyde, and endrin ketone exceeded 15% in one of the three calibrations standards bracketing sample Outfall 008; therefore, the aforementioned target compounds were qualified as estimated, "UJ," in Outfall 008.

The continuing calibrations associated with sample Outfall 010 were bracketed by four continuing calibrations, two preceding and two following the analyses. The %Ds for target compounds endrin aldehyde (02/17/05), 4,4'-DDT and methoxychlor (02/18/05 at 03:14 a.m. and 03:41 a.m.) and heptachlor, endrin aldehyde, and endrin ketone (02/18/05 at 03:41 a.m.) exceeded 15% on the primary channel; therefore, the aforementioned target compounds were qualified as estimated, "UJ," in sample Outfall 010.

The remaining %Ds were within the Method QC limit of $\pm 15\%$ for the remaining calibrations. Each of the PCB analyses for the samples in these SDGs were bracketed by two CCVs and the %Ds for Aroclor 1016 and Aroclor 1260 were $\leq 15\%$. 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

Three water method blanks (5B15038-BLK1, 5B17042-BLK1, and 5B13028-BLK1) were extracted and analyzed with these SDGs. There were no pesticide target compounds or Aroclors detected in any of the method blanks. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three blank spike/blank spike duplicate pairs (5B15038-BS1/BSD1, 5B17042-BS1/BSD, and 5B13028-BS1/BSD) were 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 the samples were within the laboratory-established. 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 blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL studies. The water reporting limits were not adjusted for sample amounts on the result summaries; however, the dilution factors listed on the summaries reflected the sample volumes extracted. Results were reported in ug/L (ppb). No qualifications were required.



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17461 Dorian Ave., Suite 100, Irvine, CA 92614 (949) 261-1322 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4567 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9686
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0853
 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 010

Report Number: IOB1001

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
Sample ID: IOB1001-01 (DRAFT: Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B17042	0.20	1.0	ND	0.943	02/17/05	02/18/05	ll
Aroclor 1221	EPA 608	5B17042	0.10	1.0	ND	0.943	02/17/05	02/18/05	ll
Aroclor 1232	EPA 608	5B17042	0.15	1.0	ND	0.943	02/17/05	02/18/05	ll
Aroclor 1242	EPA 608	5B17042	0.15	1.0	ND	0.943	02/17/05	02/18/05	ll
Aroclor 1248	EPA 608	5B17042	0.25	1.0	ND	0.943	02/17/05	02/18/05	ll
Aroclor 1254	EPA 608	5B17042	0.25	1.0	ND	0.943	02/17/05	02/18/05	ll
Aroclor 1260	EPA 608	5B17042	0.40	1.0	ND	0.943	02/17/05	02/18/05	ll
Surrogate: Decachlorobiphenyl (45-120%)					62 %				

Res
 Qua
 Qual
 Calc

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LEVEL IV

DRAFT REPORT
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 DATA SUBJECT TO CHANGE

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
 550 South Wadsworth Boulevard
 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^a

1. Case Narrative Deficiencies
2. Out of Scope Analyses
3. Analyses Not Conducted
4. Missing Hardcopy Deliverables
5. Incorrect Hardcopy Deliverables
6. Deviations from Analysis Protocol, e.g.,
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

Qualifications applied for:

1. Exceeded holding times.
2. Matrix spike recovery outlier.
3. Laboratory duplicate RPD outlier.
4. Incorrect sample container.
5. Detector efficiency outliers.
6. Incorrect sample preservation.
7. *Reanalysis rejected in favor of original result*
 Three tritium results rejected due to incorrect sample preservation.

COMMENTS^b

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: 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. These 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>8267</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502138-01</u>	Contract <u>PROJECT# IOB1001</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
Client <u>Sample ID</u> Outfall 010 IOB1001-01	8267-001		02/11/05	03/01/05	GrossAlpha	4.98 ± 1.5	pCi/L	1.06	J	R, Q
				03/01/05	Gross Beta	8.16 ± 1.6	pCi/L	1.92		
				03/03/05	H3	271 ± 150	pCi/L	240		
				02/25/05	Sr90	-0.061 ± 0.24	pCi/L	0.485		

pm 3/24/05

AMEC VALIDATED
LEVEL IV

Certified by <u>[Signature]</u>
Report Date <u>03/08/05</u>
Page 1

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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


Package ID T711SV32
 Task Order 313150010
 SDG No. IOB0997, 1001, 1008

No. of Analyses 3

Laboratory Del Mar

Date: March 30, 2005

Reviewer M. Pokorny

Reviewer's Signature 

Analysis/Method Semivolatiles

ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis	Qualifications were required for calibration and RPD 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	
COMMENTS ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB0997, IOB1001,
IOB1008

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#: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
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 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 008	Outfall 008	IOB0997-01	water	625
Outfall 010	Outfall 010	IOB1001-01	water	625
Outfall 018	Outfall 018	IOB1008-01	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

Extraction of the water samples was performed within seven days of collection. The samples were analyzed within 40 days of extraction. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tune met the ion abundance criteria specified in Method 625. No qualifications were required.

2.3 CALIBRATION

The initial calibrations associated with these SDGs were dated 02/15/05 and 02/17/05. The average RRFs for were ≥ 0.05 for all applicable target compounds. The %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ with the exception of the r^2 values for benzoic acid, hexachlorocyclopentadiene, and 2,4-dinitrophenol. The nondetect results for the aforementioned compounds were qualified as estimated, "UJ," in site samples Outfall 008 and Outfall 010. The continuing calibrations associated with the sample analyses were analyzed 02/15/05, 02/17/05, and 02/22/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$ except for the %D for NDMA in the calibration dated 02/17/05. The nondetect for NDMA was qualified as estimated, "UJ," for sample Outfall 018. 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 further qualifications were required.

2.4 BLANKS

Two method blanks (5B13024-BLK1, 5B17041-BLK1/benzidine only, and 5B14010-BLK1) were extracted and analyzed with these SDGs. There were no detects above the MDLs for any target compounds. Review of the raw data indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three blank spike/ blank spike duplicate pairs (5B13024-BS1/BSD1, 5B17041-BS1/BSD1, and 5B14010-BS1/BSD1) were 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.

For 5B13024-BS1/BSD1 and 5B17041-BS1/BSD1, all applicable target compounds were recovered within the QC limits and all RPDs were below the QC limits.

For 5B14010-BS1/BSD1, all percent recoveries were within the QC limits and all RPDs were below the QC limits except for the RPD for n-nitrosodimethylamine (NDMA). The nondetect for NDMA was qualified as estimated, "UJ," for sample Outfall 018.

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 all samples were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for semivolatile target compounds by EPA Method 625. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial 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). No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-7022 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) 785-0821
 2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3021

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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
Sample ID: IOB1001-01 (DRAFT: Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Hexachlorobenzene	EPA 625	5B13024	4.8	10	ND	0.948	02/13/05	02/16/05	U
Hexachlorobutadiene	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	U
Hexachlorocyclopentadiene	EPA 625	5B13024	3.4	20	ND	0.948	02/13/05	02/16/05	U J C
Hexachloroethane	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	U
Indeno(1,2,3-cd)pyrene	EPA 625	5B13024	5.4	20	ND	0.948	02/13/05	02/16/05	
Isophorone	EPA 625	5B13024	3.7	10	ND	0.948	02/13/05	02/16/05	
2-Methylnaphthalene	EPA 625	5B13024	3.0	10	ND	0.948	02/13/05	02/16/05	
2-Methylphenol	EPA 625	5B13024	3.7	10	ND	0.948	02/13/05	02/16/05	
4-Methylphenol	EPA 625	5B13024	3.8	10	ND	0.948	02/13/05	02/16/05	
Naphthalene	EPA 625	5B13024	4.5	10	ND	0.948	02/13/05	02/16/05	
2-Nitroaniline	EPA 625	5B13024	3.9	20	ND	0.948	02/13/05	02/16/05	
3-Nitroaniline	EPA 625	5B13024	4.5	20	ND	0.948	02/13/05	02/16/05	
4-Nitroaniline	EPA 625	5B13024	4.9	20	ND	0.948	02/13/05	02/16/05	
Nitrobenzene	EPA 625	5B13024	4.2	20	ND	0.948	02/13/05	02/16/05	
2-Nitrophenol	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
4-Nitrophenol	EPA 625	5B13024	6.6	20	ND	0.948	02/13/05	02/16/05	
N-Nitrosodiphenylamine	EPA 625	5B13024	4.0	10	ND	0.948	02/13/05	02/16/05	
N-Nitroso-di-n-propylamine	EPA 625	5B13024	3.6	10	ND	0.948	02/13/05	02/16/05	
Pentachlorophenol	EPA 625	5B13024	4.0	20	ND	0.948	02/13/05	02/16/05	
Phenanthrene	EPA 625	5B13024	3.3	10	ND	0.948	02/13/05	02/16/05	
Phenol	EPA 625	5B13024	4.0	10	ND	0.948	02/13/05	02/16/05	
Pyrene	EPA 625	5B13024	3.9	10	ND	0.948	02/13/05	02/16/05	
1,2,4-Trichlorobenzene	EPA 625	5B13024	4.4	10	ND	0.948	02/13/05	02/16/05	
2,4,5-Trichlorophenol	EPA 625	5B13024	3.6	20	ND	0.948	02/13/05	02/16/05	
2,4,6-Trichlorophenol	EPA 625	5B13024	4.1	20	ND	0.948	02/13/05	02/16/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B13024	5.0	20	ND	0.948	02/13/05	02/16/05	
N-Nitrosodimethylamine	EPA 625	5B13024	3.7	20	ND	0.948	02/13/05	02/16/05	
Surrogate: 2-Fluorophenol (35-120%)					63 %				
Surrogate: Phenol-d6 (45-120%)					67 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					91 %				
Surrogate: Nitrobenzene-d5 (45-120%)					75 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					82 %				
Surrogate: Terphenyl-d14 (45-135%)					95 %				

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

AMEC VALIDATED

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Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooliev Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8296 FAX (858) 505-9609
 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 010
 Report Number: IOB1001

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
Sample ID: IOB1001-01RE1 (DRAFT: Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.962	02/17/05	02/23/05	U
Surrogate: 2-Fluorophenol (35-120%)					58 %				
Surrogate: Phenol-d6 (45-120%)					64 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					78 %				
Surrogate: Nitrobenzene-d5 (45-120%)					72 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					78 %				
Surrogate: Terphenyl-d14 (45-135%)					74 %				

REV	QUAL	CODE
	U	

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

AMEC VALIDATED

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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 T711VO61
 Task Order 313150010
 SDG No. IOB0997, 1001, 1008

No. of Analyses 6

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Volatiles

Date: March 30, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	<hr/> <hr/>
2. Out of Scope	
Analyses	<hr/> <hr/> <hr/>
3. Analyses Not Conducted	<hr/> <hr/>
4. Missing Hardcopy Deliverables	<hr/> <hr/> <hr/>
5. Incorrect Hardcopy Deliverables	<hr/> <hr/> <hr/>
6. Deviations from Analysis Protocol, e.g.,	Qualifications were required for calibration outliers.
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 Quantitation	<hr/>
System Performance	<hr/>
COMMENTS ^b	
<hr/> <hr/> <hr/>	
<hr/> <hr/>	

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUPs: IOB0997, IOB1001,
IOB1008

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#: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
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 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 008	Outfall 008	IOB0997-01	water	624
Trip Blank	Trip Blank	IOB0997-02	water	624
Outfall 010	Outfall 010	IOB1001-01	water	624
Trip Blank	Trip Blank	IOB1001-02	water	624
Outfall 018	Outfall 018	IOB1008-01	water	624
Trip Blank	Trip Blank	IOB1008-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the 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

Three initial calibrations dated 10/14/04 (acrolein and acrylonitrile only), 02/01/05, and 02/07/05, were associated with these SDGs. The average RRF for acrolein was <0.05 ; therefore, the nondetect results for acrolein were rejected, "R," in samples Outfall 008, Trip Blank (IOB 0997-02), Outfall 010, and Trip blank (IOB 1001-02). The remaining average RRFs were ≥ 0.05 and all %RSDs were $\leq 35\%$ for the target compounds listed on the sample result summaries. Three continuing calibrations analyzed 02/17/05 and 02/18/05 (08:37 and 17:45) were associated with the sample analyses. The RRF for acrolein was <0.05 in the continuing calibration dated 02/17/05; therefore, the nondetect results for acrolein were rejected, "R," in samples Outfall 008, Trip Blank (IOB 0997-02), Outfall 010, and Trip blank (IOB 1001-02). The %Ds for acrolein and acrylonitrile exceeded 20%; therefore, nondetect results for acrolein and acrylonitrile were qualified as estimated, "UJ," in samples Outfall 008 and Outfall 010, unless otherwise rejected. The trip blanks were not qualified for %D calibration outliers. For all remaining target compounds the %Ds were $\leq 20\%$ and the RRFs were ≥ 0.05 . A representative number of %RSDs and average RRFs from the

DATA VALIDATION REPORT

initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Three water method blanks (5B17014-BLK1, 5B18008-BLK1, and 5B12011-BLK1) were associated with these SDGs. 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 (5B17014-BS1, 5B18008-BS1, and 5B12011-BS1) were associated with these SDGs. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 010 was the MS/MSD analyses performed with the site samples in these SDGs. All 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 (IOB0997), Trip Blank (IOB1001), and Trip Blank (IOB1008) were the trip blanks associated with the site samples in these SDGs. There were no target compounds detected above the MDLs in any of 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 ± 0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration 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 ug/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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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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 9484 Chesapeake Dr., Suite 305, 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
 2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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
Sample ID: IOB1001-01 (DRAFT: Outfall 010 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	REV QUAL U
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	QUAL
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	QUAL
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	QUAL
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	QUAL
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	QUAL
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	QUAL
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	QUAL
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	QUAL
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	QUAL
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	QUAL
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	QUAL
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	QUAL
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	QUAL
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	QUAL
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	QUAL
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	QUAL
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	QUAL
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	QUAL
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	QUAL
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	QUAL
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	QUAL
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	QUAL
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	QUAL
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	QUAL
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	QUAL
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	QUAL
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	QUAL
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	QUAL
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	QUAL
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	QUAL
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9689
 9830 South 51st St., Suite 6-120, Phoenix, AZ 85044 (480) 783-6643 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: Annual Outfall 010

Report Number: IOB1001

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
Sample ID: IOB1001-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	U
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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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) 785-4851
 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 010

Report Number: IOB1001

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
Sample ID: IOB1001-01 (DRAFT: Outfall 010 - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	U J 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%)					95 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB1001-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	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%)					94 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

ANEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOB0997, IOB1001, & IOB1008

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 #: IOB0997, IOB1001, IOB1008
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 3
Reviewer: L. Jarusewic
Date of Review: March 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 300.0, 350.2, 405.1, 335.2, 413.1, 425.1, 218.6, 120.1, 160.2, 160.5, 180.1, and 160.1, Standard Methods for the Examination of Water and Wastewater Method SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOB0997-01	Water	General Minerals
Outfall 010	Outfall 010	IOB1001-01	Water	General Minerals
Outfall 018	Outfall 018	IOB1008-01	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. A memo from MWH personnel dated 02/17/05 requested a change of analysis for sample Outfall 018 from annual to routine constituent analysis. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for all analytes. 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 total settleable solids. No qualifications were required.

The total cyanide reporting limit check standards were recovered above the control limits of 70-130% at 137.9% and 155.9%; however, as cyanide was not detected in any of the samples, no qualifications were required.

2.3 BLANKS

Turbidity was detected in the associated method blank for Outfall 018 at 0.040 NTU; however, the result was insufficient to qualify the Outfall 018 result. 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 oil and grease only) recoveries and RPDs were within the laboratory-established control limits. The LCS is not applicable to turbidity, conductivity, or total 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

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 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. Surfactant detected below the reporting limit in Outfall 018 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9080
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0853
 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 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

DRAFT: INORGANICS

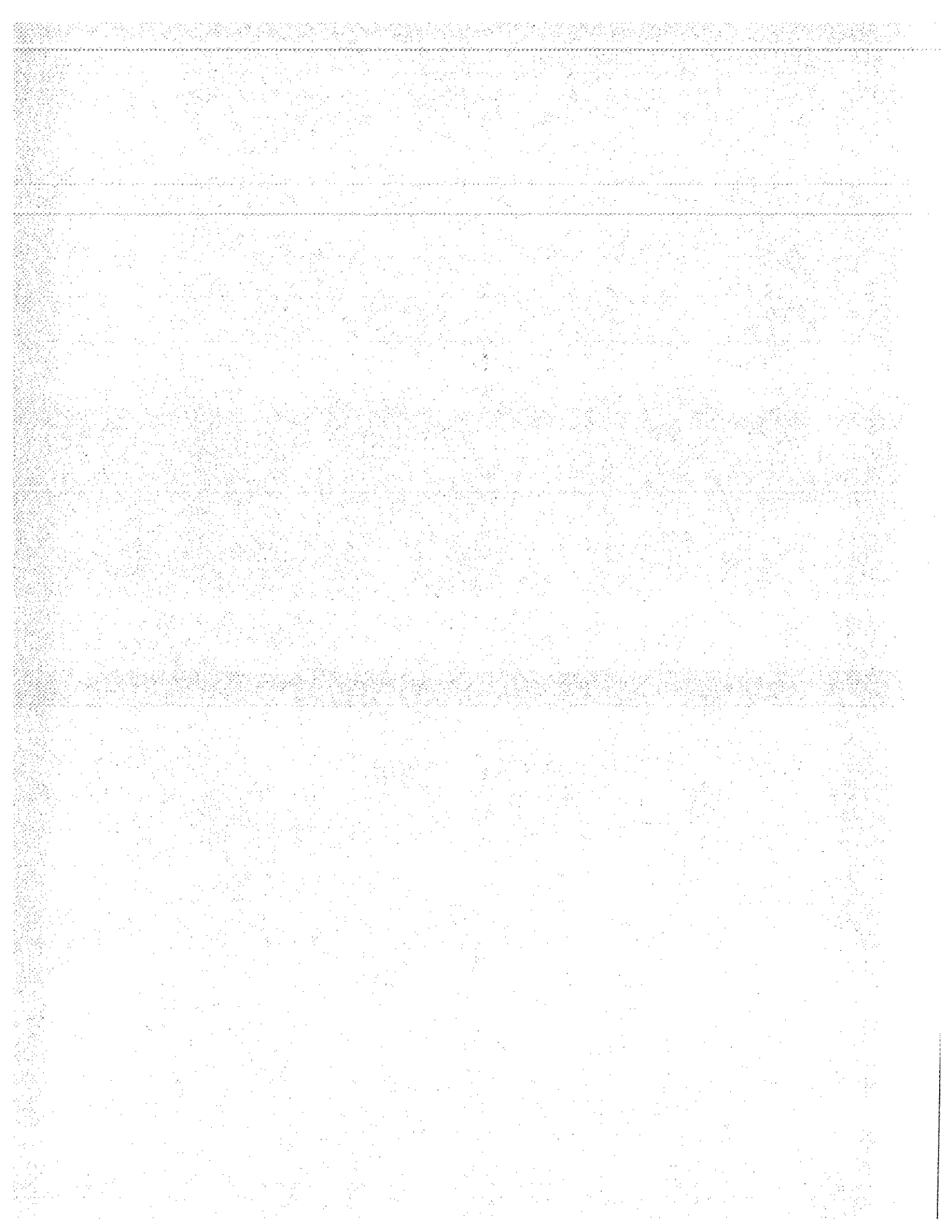
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1001-01 (DRAFT: Outfall 010 - Water) - cont.									
Reporting Units: mg/l									
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	u
Total Suspended Solids	EPA 160.2	5B17069	10	10	150	1	02/17/05	02/17/05	

REV
QUAL
CODE

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) 505-9689
 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

LABORATORY REPORT

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

Project: Annual Outfall 010

Sampled: 02/11/05
 Received: 02/11/05
 Issued: 03/28/05 10:14

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOB1001-01	Outfall 010	Water
IOB1001-02	Trip Blanks	Water

Reviewed By:

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



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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: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
Received: 02/11/05

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 02/16/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B13024

Identification and Definition of Problem:

The percent recovery for benzidine in the BS 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 BSD was within the acceptance limits. All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval:

Dave Dawes

Date: 02/18/2005 04:36 PM

Del Mar Analytical, Irvine
Wendy Kirkeeng For 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) 798-3820 FAX (702) 798-3621

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

Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1001-01 (Outfall 010 - Water)									
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%)					95 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB1001-02 (Trip Blanks - Water)									
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%)					94 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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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: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1001-01 (Outfall 010 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					111 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					101 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					97 %				

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

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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: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1001-02 (Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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

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

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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: IOB1001-01 (Outfall 010 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B13024	4.3	10	ND	0.948	02/13/05	02/16/05	
Acenaphthylene	EPA 625	5B13024	3.2	10	ND	0.948	02/13/05	02/16/05	
Aniline	EPA 625	5B13024	2.9	10	ND	0.948	02/13/05	02/16/05	
Anthracene	EPA 625	5B13024	3.2	10	ND	0.948	02/13/05	02/16/05	
Benzoic acid	EPA 625	5B13024	2.6	20	ND	0.948	02/13/05	02/16/05	
Benzo(a)anthracene	EPA 625	5B13024	3.7	10	ND	0.948	02/13/05	02/16/05	
Benzo(b)fluoranthene	EPA 625	5B13024	2.7	10	ND	0.948	02/13/05	02/16/05	
Benzo(k)fluoranthene	EPA 625	5B13024	3.4	10	ND	0.948	02/13/05	02/16/05	
Benzo(g,h,i)perylene	EPA 625	5B13024	5.3	10	ND	0.948	02/13/05	02/16/05	
Benzo(a)pyrene	EPA 625	5B13024	3.5	10	ND	0.948	02/13/05	02/16/05	
Benzyl alcohol	EPA 625	5B13024	2.5	20	ND	0.948	02/13/05	02/16/05	
Bis(2-chloroethoxy)methane	EPA 625	5B13024	3.9	10	ND	0.948	02/13/05	02/16/05	
Bis(2-chloroethyl)ether	EPA 625	5B13024	4.4	10	ND	0.948	02/13/05	02/16/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B13024	4.6	10	ND	0.948	02/13/05	02/16/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B13024	5.2	50	ND	0.948	02/13/05	02/16/05	
4-Bromophenyl phenyl ether	EPA 625	5B13024	4.6	10	ND	0.948	02/13/05	02/16/05	
Butyl benzyl phthalate	EPA 625	5B13024	3.5	20	ND	0.948	02/13/05	02/16/05	
4-Chloroaniline	EPA 625	5B13024	6.0	10	ND	0.948	02/13/05	02/16/05	
2-Chloronaphthalene	EPA 625	5B13024	4.0	10	ND	0.948	02/13/05	02/16/05	
4-Chloro-3-methylphenol	EPA 625	5B13024	3.5	20	ND	0.948	02/13/05	02/16/05	
2-Chlorophenol	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
4-Chlorophenyl phenyl ether	EPA 625	5B13024	3.0	10	ND	0.948	02/13/05	02/16/05	
Chrysene	EPA 625	5B13024	2.8	10	ND	0.948	02/13/05	02/16/05	
Dibenz(a,h)anthracene	EPA 625	5B13024	4.7	20	ND	0.948	02/13/05	02/16/05	
Dibenzofuran	EPA 625	5B13024	2.6	10	ND	0.948	02/13/05	02/16/05	
Di-n-butyl phthalate	EPA 625	5B13024	2.8	20	ND	0.948	02/13/05	02/16/05	
1,3-Dichlorobenzene	EPA 625	5B13024	4.1	10	ND	0.948	02/13/05	02/16/05	
1,4-Dichlorobenzene	EPA 625	5B13024	3.9	10	ND	0.948	02/13/05	02/16/05	
1,2-Dichlorobenzene	EPA 625	5B13024	4.5	10	ND	0.948	02/13/05	02/16/05	
3,3-Dichlorobenzidine	EPA 625	5B13024	11	20	ND	0.948	02/13/05	02/16/05	
2,4-Dichlorophenol	EPA 625	5B13024	4.1	10	ND	0.948	02/13/05	02/16/05	
Diethyl phthalate	EPA 625	5B13024	3.1	10	ND	0.948	02/13/05	02/16/05	
2,4-Dimethylphenol	EPA 625	5B13024	4.4	20	ND	0.948	02/13/05	02/16/05	
Dimethyl phthalate	EPA 625	5B13024	3.6	10	ND	0.948	02/13/05	02/16/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B13024	5.1	20	ND	0.948	02/13/05	02/16/05	
2,4-Dinitrophenol	EPA 625	5B13024	5.3	20	ND	0.948	02/13/05	02/16/05	
2,4-Dinitrotoluene	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
2,6-Dinitrotoluene	EPA 625	5B13024	3.2	10	ND	0.948	02/13/05	02/16/05	
Di-n-octyl phthalate	EPA 625	5B13024	4.7	20	ND	0.948	02/13/05	02/16/05	
Fluoranthene	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
Fluorene	EPA 625	5B13024	3.9	10	ND	0.948	02/13/05	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 010 Report Number: IOB1001	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
Sample ID: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Hexachlorobenzene	EPA 625	5B13024	4.8	10	ND	0.948	02/13/05	02/16/05	
Hexachlorobutadiene	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
Hexachlorocyclopentadiene	EPA 625	5B13024	3.4	20	ND	0.948	02/13/05	02/16/05	
Hexachloroethane	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B13024	5.4	20	ND	0.948	02/13/05	02/16/05	
Isophorone	EPA 625	5B13024	3.7	10	ND	0.948	02/13/05	02/16/05	
2-Methylnaphthalene	EPA 625	5B13024	3.0	10	ND	0.948	02/13/05	02/16/05	
2-Methylphenol	EPA 625	5B13024	3.7	10	ND	0.948	02/13/05	02/16/05	
4-Methylphenol	EPA 625	5B13024	3.8	10	ND	0.948	02/13/05	02/16/05	
Naphthalene	EPA 625	5B13024	4.5	10	ND	0.948	02/13/05	02/16/05	
2-Nitroaniline	EPA 625	5B13024	3.9	20	ND	0.948	02/13/05	02/16/05	
3-Nitroaniline	EPA 625	5B13024	4.5	20	ND	0.948	02/13/05	02/16/05	
4-Nitroaniline	EPA 625	5B13024	4.9	20	ND	0.948	02/13/05	02/16/05	
Nitrobenzene	EPA 625	5B13024	4.2	20	ND	0.948	02/13/05	02/16/05	
2-Nitrophenol	EPA 625	5B13024	4.2	10	ND	0.948	02/13/05	02/16/05	
4-Nitrophenol	EPA 625	5B13024	6.6	20	ND	0.948	02/13/05	02/16/05	
N-Nitrosodiphenylamine	EPA 625	5B13024	4.0	10	ND	0.948	02/13/05	02/16/05	
N-Nitroso-di-n-propylamine	EPA 625	5B13024	3.6	10	ND	0.948	02/13/05	02/16/05	
Pentachlorophenol	EPA 625	5B13024	4.0	20	ND	0.948	02/13/05	02/16/05	
Phenanthrene	EPA 625	5B13024	3.3	10	ND	0.948	02/13/05	02/16/05	
Phenol	EPA 625	5B13024	4.0	10	ND	0.948	02/13/05	02/16/05	
Pyrene	EPA 625	5B13024	3.9	10	ND	0.948	02/13/05	02/16/05	
1,2,4-Trichlorobenzene	EPA 625	5B13024	4.4	10	ND	0.948	02/13/05	02/16/05	
2,4,5-Trichlorophenol	EPA 625	5B13024	3.6	20	ND	0.948	02/13/05	02/16/05	
2,4,6-Trichlorophenol	EPA 625	5B13024	4.1	20	ND	0.948	02/13/05	02/16/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B13024	5.0	20	ND	0.948	02/13/05	02/16/05	
N-Nitrosodimethylamine	EPA 625	5B13024	3.7	20	ND	0.948	02/13/05	02/16/05	
Surrogate: 2-Fluorophenol (35-120%)					63 %				
Surrogate: Phenol-d6 (45-120%)					67 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					91 %				
Surrogate: Nitrobenzene-d5 (45-120%)					76 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					82 %				
Surrogate: Terphenyl-d14 (45-135%)					96 %				

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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: IOB1001-01RE1 (Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Benzidine	EPA 625	5B17041	5.2	20	ND	0.962	02/17/05	02/23/05	
Surrogate: 2-Fluorophenol (35-120%)					58 %				
Surrogate: Phenol-d6 (45-120%)					64 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					78 %				
Surrogate: Nitrobenzene-d5 (45-120%)					72 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					78 %				
Surrogate: Terphenyl-d14 (45-135%)					74 %				

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B17042	0.030	0.10	ND	0.943	02/17/05	02/17/05	
alpha-BHC	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
beta-BHC	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
delta-BHC	EPA 608	5B17042	0.020	0.20	ND	0.943	02/17/05	02/17/05	
gamma-BHC (Lindane)	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
Chlordane	EPA 608	5B17042	0.20	1.0	ND	0.943	02/17/05	02/17/05	
4,4'-DDD	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
4,4'-DDE	EPA 608	5B17042	0.020	0.10	ND	0.943	02/17/05	02/17/05	
4,4'-DDT	EPA 608	5B17042	0.030	0.10	ND	0.943	02/17/05	02/17/05	C5
Dieldrin	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
Endosulfan I	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
Endosulfan II	EPA 608	5B17042	0.040	0.10	ND	0.943	02/17/05	02/17/05	
Endosulfan sulfate	EPA 608	5B17042	0.015	0.20	ND	0.943	02/17/05	02/17/05	
Endrin	EPA 608	5B17042	0.015	0.10	ND	0.943	02/17/05	02/17/05	
Endrin aldehyde	EPA 608	5B17042	0.045	0.10	ND	0.943	02/17/05	02/17/05	
Endrin ketone	EPA 608	5B17042	0.020	0.10	ND	0.943	02/17/05	02/17/05	C5
Heptachlor	EPA 608	5B17042	0.030	0.10	ND	0.943	02/17/05	02/17/05	
Heptachlor epoxide	EPA 608	5B17042	0.020	0.10	ND	0.943	02/17/05	02/17/05	
Methoxychlor	EPA 608	5B17042	0.035	0.10	ND	0.943	02/17/05	02/17/05	C5
Toxaphene	EPA 608	5B17042	1.5	5.0	ND	0.943	02/17/05	02/17/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					45 %				
Surrogate: Decachlorobiphenyl (45-120%)					64 %				

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

Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05

Received: 02/11/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B17042	0.20	1.0	ND	0.943	02/17/05	02/18/05	
Aroclor 1221	EPA 608	5B17042	0.10	1.0	ND	0.943	02/17/05	02/18/05	
Aroclor 1232	EPA 608	5B17042	0.15	1.0	ND	0.943	02/17/05	02/18/05	
Aroclor 1242	EPA 608	5B17042	0.15	1.0	ND	0.943	02/17/05	02/18/05	
Aroclor 1248	EPA 608	5B17042	0.25	1.0	ND	0.943	02/17/05	02/18/05	
Aroclor 1254	EPA 608	5B17042	0.25	1.0	ND	0.943	02/17/05	02/18/05	
Aroclor 1260	EPA 608	5B17042	0.40	1.0	ND	0.943	02/17/05	02/18/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					62 %				

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Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	5B17127	0.0074	0.050	ND	1	02/17/05	02/20/05	

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Report Number: IOB1001

Sampled: 02/11/05

Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Aluminum	EPA 200.7	5B17127	47	50	1200	1	02/17/05	02/18/05	
Antimony	EPA 200.8	5B17129	0.18	2.0	0.30	1	02/17/05	02/22/05	J
Arsenic	EPA 200.7	5B17127	3.8	5.0	ND	1	02/17/05	02/18/05	
Beryllium	EPA 200.7	5B17127	0.62	2.0	ND	1	02/17/05	02/18/05	
Cadmium	EPA 200.8	5B17129	0.015	1.0	0.081	1	02/17/05	02/22/05	J
Chromium	EPA 200.7	5B17127	0.68	5.0	2.7	1	02/17/05	02/18/05	J
Copper	EPA 200.8	5B17129	0.49	2.0	3.8	1	02/17/05	02/22/05	
Lead	EPA 200.8	5B17129	0.13	1.0	2.4	1	02/17/05	02/22/05	
Mercury	EPA 245.1	5B15070	0.063	0.20	0.25	1	02/15/05	02/15/05	
Nickel	EPA 200.7	5B17127	2.0	10	2.1	1	02/17/05	02/18/05	J
Selenium	EPA 200.7	5B17127	4.6	5.0	ND	1	02/17/05	02/18/05	
Silver	EPA 200.7	5B17127	1.3	10	ND	1	02/17/05	02/18/05	
Thallium	EPA 200.7	5B17127	3.1	5.0	ND	1	02/17/05	02/20/05	
Vanadium	EPA 200.7	5B17127	1.4	10	5.2	1	02/17/05	02/18/05	J
Zinc	EPA 200.7	5B17127	3.7	20	23	1	02/17/05	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 010 Report Number: IOB1001	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: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B11120	0.26	0.50	4.2	1	02/11/05	02/12/05	
Total Cyanide	EPA 335.2	5B14107	0.0022	0.0050	ND	1	02/14/05	02/14/05	
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	0.15	1	02/11/05	02/12/05	J
Oil & Grease	EPA 413.1	5B17117	0.94	5.0	ND	1	02/17/05	02/17/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	2.0	1	02/11/05	02/12/05	
Total Dissolved Solids	SM2540C	5B17104	10	10	79	1	02/17/05	02/17/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	150	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 010 Report Number: IOB1001	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: IOB1001-01 (Outfall 010 - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B16069	0.80	4.0	ND	1	02/16/05	02/17/05	

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05

Received: 02/11/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 010 (IOB1001-01) - Water					
EPA 300.0	2	02/11/2005 15:30	02/11/2005 20:30	02/11/2005 23:00	02/12/2005 06:09
EPA 624	3	02/11/2005 15:30	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 17:55
Sample ID: Trip Blanks (IOB1001-02) - Water					
EPA 624	3	02/11/2005 17:00	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 18:26

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 010 Report Number: IOB1001	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
Batch: 5B12011 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12011-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	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			
LCS Analyzed: 02/12/2005 (5B12011-BS1)											
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			
Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1) Source: IOB0980-01											
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			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1) Source: IOB0980-01											
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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 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
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B17014 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17014-BLK1)											
Benzene	ND	1.0	0.28	ug/l							
Bromodichloromethane	ND	2.0	0.30	ug/l							
Bromoform	ND	5.0	0.32	ug/l							
Bromomethane	ND	5.0	0.34	ug/l							
Carbon tetrachloride	ND	0.50	0.28	ug/l							
Chlorobenzene	ND	2.0	0.36	ug/l							
Chloroethane	ND	5.0	0.33	ug/l							
Chloroform	ND	2.0	0.33	ug/l							
Chloromethane	ND	5.0	0.30	ug/l							
Dibromochloromethane	ND	2.0	0.28	ug/l							
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l							
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l							
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l							
1,1-Dichloroethane	ND	2.0	0.27	ug/l							
1,2-Dichloroethane	ND	0.50	0.28	ug/l							
1,1-Dichloroethene	ND	5.0	0.32	ug/l							
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l							
1,2-Dichloropropane	ND	2.0	0.35	ug/l							
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l							
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l							
Ethylbenzene	ND	2.0	0.25	ug/l							
Methylene chloride	ND	5.0	0.48	ug/l							
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l							
Tetrachloroethene	ND	2.0	0.32	ug/l							
Toluene	ND	2.0	0.36	ug/l							
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l							
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l							
Trichloroethene	ND	2.0	0.26	ug/l							
Trichlorofluoromethane	ND	5.0	0.34	ug/l							
Vinyl chloride	ND	0.50	0.26	ug/l							
Xylenes, Total	ND	4.0	0.52	ug/l							
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B17014 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17014-BS1)											
Benzene	24.9	1.0	0.28	ug/l	25.0		100	70-120			
Bromodichloromethane	25.7	2.0	0.30	ug/l	25.0		103	70-140			
Bromoform	24.2	5.0	0.32	ug/l	25.0		97	55-135			
Bromomethane	29.1	5.0	0.34	ug/l	25.0		116	60-140			
Carbon tetrachloride	26.2	0.50	0.28	ug/l	25.0		105	70-140			
Chlorobenzene	23.4	2.0	0.36	ug/l	25.0		94	80-125			
Chloroethane	27.4	5.0	0.33	ug/l	25.0		110	60-145			
Chloroform	26.2	2.0	0.33	ug/l	25.0		105	75-130			
Chloromethane	25.8	5.0	0.30	ug/l	25.0		103	40-145			
Dibromochloromethane	24.7	2.0	0.28	ug/l	25.0		99	65-145			
1,2-Dichlorobenzene	23.3	2.0	0.32	ug/l	25.0		93	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0		94	80-120			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0		92	80-120			
1,1-Dichloroethane	25.5	2.0	0.27	ug/l	25.0		102	70-135			
1,2-Dichloroethane	25.9	0.50	0.28	ug/l	25.0		104	60-150			
1,1-Dichloroethene	24.6	5.0	0.32	ug/l	25.0		98	75-135			
trans-1,2-Dichloroethene	25.4	2.0	0.27	ug/l	25.0		102	70-130			
1,2-Dichloropropane	24.8	2.0	0.35	ug/l	25.0		99	70-120			
cis-1,3-Dichloropropene	25.6	2.0	0.22	ug/l	25.0		102	75-130			
trans-1,3-Dichloropropene	25.7	2.0	0.24	ug/l	25.0		103	75-135			
Ethylbenzene	26.4	2.0	0.25	ug/l	25.0		106	80-120			
Methylene chloride	25.4	5.0	0.48	ug/l	25.0		102	60-135			
1,1,2,2-Tetrachloroethane	23.2	2.0	0.24	ug/l	25.0		93	60-135			
Tetrachloroethene	23.2	2.0	0.32	ug/l	25.0		93	75-125			
Toluene	24.6	2.0	0.36	ug/l	25.0		98	75-120			
1,1,1-Trichloroethane	27.1	2.0	0.30	ug/l	25.0		108	75-140			
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0		100	70-125			
Trichloroethene	23.4	2.0	0.26	ug/l	25.0		94	80-120			
Trichlorofluoromethane	28.0	5.0	0.34	ug/l	25.0		112	65-145			
Vinyl chloride	27.7	0.50	0.26	ug/l	25.0		111	50-130			
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0		108	80-120			

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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: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B17014 Extracted: 02/17/05											
Matrix Spike Analyzed: 02/17/2005 (5B17014-MS1)						Source: IOB1001-01					
Benzene	25.2	1.0	0.28	ug/l	25.0	ND	101	70-120			
Bromodichloromethane	26.3	2.0	0.30	ug/l	25.0	ND	105	70-140			
Bromoform	23.7	5.0	0.32	ug/l	25.0	ND	95	55-140			
Bromomethane	28.7	5.0	0.34	ug/l	25.0	ND	115	50-145			
Carbon tetrachloride	26.8	0.50	0.28	ug/l	25.0	ND	107	70-145			
Chlorobenzene	23.0	2.0	0.36	ug/l	25.0	ND	92	80-125			
Chloroethane	26.4	5.0	0.33	ug/l	25.0	ND	106	50-145			
Chloroform	26.9	2.0	0.33	ug/l	25.0	ND	108	70-135			
Chloromethane	24.7	5.0	0.30	ug/l	25.0	ND	99	35-145			
Dibromochloromethane	24.8	2.0	0.28	ug/l	25.0	ND	99	65-145			
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130			
1,3-Dichlorobenzene	23.4	2.0	0.35	ug/l	25.0	ND	94	75-130			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0	ND	92	80-120			
1,1-Dichloroethane	26.4	2.0	0.27	ug/l	25.0	ND	106	65-135			
1,2-Dichloroethane	27.2	0.50	0.28	ug/l	25.0	ND	109	60-150			
1,1-Dichloroethene	25.2	5.0	0.32	ug/l	25.0	ND	101	65-140			
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135			
1,2-Dichloropropane	24.9	2.0	0.35	ug/l	25.0	ND	100	65-130			
cis-1,3-Dichloropropene	26.0	2.0	0.22	ug/l	25.0	ND	104	70-140			
trans-1,3-Dichloropropene	26.3	2.0	0.24	ug/l	25.0	ND	105	70-140			
Ethylbenzene	26.1	2.0	0.25	ug/l	25.0	ND	104	70-130			
Methylene chloride	26.0	5.0	0.48	ug/l	25.0	ND	104	60-135			
1,1,1,2-Tetrachloroethane	23.1	2.0	0.24	ug/l	25.0	ND	92	60-145			
Tetrachloroethene	22.7	2.0	0.32	ug/l	25.0	ND	91	70-130			
Toluene	25.2	2.0	0.36	ug/l	25.0	ND	101	70-120			
1,1,1-Trichloroethane	28.0	2.0	0.30	ug/l	25.0	ND	112	75-140			
1,1,2-Trichloroethane	25.1	2.0	0.30	ug/l	25.0	ND	100	60-135			
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125			
Trichlorofluoromethane	28.7	5.0	0.34	ug/l	25.0	ND	115	55-145			
Vinyl chloride	26.3	0.50	0.26	ug/l	25.0	ND	105	40-135			
Surrogate: Dibromofluoromethane	27.5			ug/l	25.0		110	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	26.5			ug/l	25.0		106	80-120			

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 Project Manager



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 010 Report Number: IOB1001	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
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Batch: 5B17014 Extracted: 02/17/05

Matrix Spike Dup Analyzed: 02/17/2005 (5B17014-MSD1)

Source: IOB1001-01

Benzene	25.1	1.0	0.28	ug/l	25.0	ND	100	70-120	0	20	
Bromodichloromethane	25.4	2.0	0.30	ug/l	25.0	ND	102	70-140	3	20	
Bromoform	21.6	5.0	0.32	ug/l	25.0	ND	86	55-140	9	25	
Bromomethane	31.0	5.0	0.34	ug/l	25.0	ND	124	50-145	8	25	
Carbon tetrachloride	26.5	0.50	0.28	ug/l	25.0	ND	106	70-145	1	25	
Chlorobenzene	23.9	2.0	0.36	ug/l	25.0	ND	96	80-125	4	20	
Chloroethane	29.6	5.0	0.33	ug/l	25.0	ND	118	50-145	11	25	
Chloroform	26.4	2.0	0.33	ug/l	25.0	ND	106	70-135	2	20	
Chloromethane	28.0	5.0	0.30	ug/l	25.0	ND	112	35-145	13	25	
Dibromochloromethane	23.4	2.0	0.28	ug/l	25.0	ND	94	65-145	6	25	
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130	0	20	
1,3-Dichlorobenzene	24.0	2.0	0.35	ug/l	25.0	ND	96	75-130	3	20	
1,4-Dichlorobenzene	23.6	2.0	0.37	ug/l	25.0	ND	94	80-120	3	20	
1,1-Dichloroethane	26.1	2.0	0.27	ug/l	25.0	ND	104	65-135	1	20	
1,2-Dichloroethane	24.5	0.50	0.28	ug/l	25.0	ND	98	60-150	10	20	
1,1-Dichloroethene	24.9	5.0	0.32	ug/l	25.0	ND	100	65-140	1	20	
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135	0	20	
1,2-Dichloropropane	24.3	2.0	0.35	ug/l	25.0	ND	97	65-130	2	20	
cis-1,3-Dichloropropene	25.2	2.0	0.22	ug/l	25.0	ND	101	70-140	3	20	
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140	7	25	
Ethylbenzene	27.0	2.0	0.25	ug/l	25.0	ND	108	70-130	3	20	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	ND	102	60-135	2	20	
1,1,2,2-Tetrachloroethane	20.8	2.0	0.24	ug/l	25.0	ND	83	60-145	10	30	
Tetrachloroethene	23.9	2.0	0.32	ug/l	25.0	ND	96	70-130	5	20	
Toluene	24.9	2.0	0.36	ug/l	25.0	ND	100	70-120	1	20	
1,1,1-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	75-140	1	20	
1,1,2-Trichloroethane	22.8	2.0	0.30	ug/l	25.0	ND	91	60-135	10	25	
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125	0	20	
Trichlorofluoromethane	28.5	5.0	0.34	ug/l	25.0	ND	114	55-145	1	25	
Vinyl chloride	30.0	0.50	0.26	ug/l	25.0	ND	120	40-135	13	30	
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.4			ug/l	25.0		106	80-120			

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 Project Manager

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B13024 Extracted: 02/13/05											
Blank Analyzed: 02/15/2005 (5B13024-BLK1)											
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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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 010 Report Number: IOB1001	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
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
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	141			ug/l	200	70	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 010

Report Number: IOB1001

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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05										
Blank Analyzed: 02/15/2005 (5B13024-BLK1)										
Surrogate: Phenol-d6	152			ug/l	200		76	45-120		
Surrogate: 2,4,6-Tribromophenol	189			ug/l	200		94	50-125		
Surrogate: Nitrobenzene-d5	82.2			ug/l	100		82	45-120		
Surrogate: 2-Fluorobiphenyl	86.8			ug/l	100		87	45-120		
Surrogate: Terphenyl-d14	87.1			ug/l	100		87	45-135		
LCS Analyzed: 02/15/2005 (5B13024-BS1)										
Acenaphthene	83.0	10	4.3	ug/l	100		83	55-120		M-NR1
Acenaphthylene	88.0	10	3.2	ug/l	100		88	55-120		
Aniline	67.5	10	2.9	ug/l	100		68	30-120		
Anthracene	82.9	10	3.2	ug/l	100		83	60-120		
Benzidine	11.3	20	5.2	ug/l	100		11	20-180		L2, J
Benzoic acid	72.6	20	2.6	ug/l	100		73	30-125		
Benzo(a)anthracene	89.4	10	3.7	ug/l	100		89	65-120		
Benzo(b)fluoranthene	84.9	10	2.7	ug/l	100		85	50-125		
Benzo(k)fluoranthene	84.1	10	3.4	ug/l	100		84	50-125		
Benzo(g,h,i)perylene	83.3	10	5.3	ug/l	100		83	35-160		
Benzo(a)pyrene	87.3	10	3.5	ug/l	100		87	55-125		
Benzyl alcohol	77.6	20	2.5	ug/l	100		78	40-130		
Bis(2-chloroethoxy)methane	83.2	10	3.9	ug/l	100		83	55-120		
Bis(2-chloroethyl)ether	68.3	10	4.4	ug/l	100		68	50-120		
Bis(2-chloroisopropyl)ether	73.7	10	4.6	ug/l	100		74	50-120		
Bis(2-ethylhexyl)phthalate	77.2	50	5.2	ug/l	100		77	65-125		
4-Bromophenyl phenyl ether	79.7	10	4.6	ug/l	100		80	55-125		
Butyl benzyl phthalate	77.4	20	3.5	ug/l	100		77	60-125		
4-Chloroaniline	80.1	10	6.0	ug/l	100		80	55-120		
2-Chloronaphthalene	81.0	10	4.0	ug/l	100		81	60-120		
4-Chloro-3-methylphenol	83.6	20	3.5	ug/l	100		84	60-120		
2-Chlorophenol	71.0	10	4.2	ug/l	100		71	45-120		
4-Chlorophenyl phenyl ether	84.8	10	3.0	ug/l	100		85	55-120		
Chrysene	85.3	10	2.8	ug/l	100		85	65-120		
Dibenz(a,h)anthracene	88.7	20	4.7	ug/l	100		89	40-160		
Dibenzofuran	83.4	10	2.6	ug/l	100		83	60-120		
Di-n-butyl phthalate	81.1	20	2.8	ug/l	100		81	65-125		
1,3-Dichlorobenzene	63.4	10	4.1	ug/l	100		63	40-120		
1,4-Dichlorobenzene	61.8	10	3.9	ug/l	100		62	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 010 Report Number: IOB1001	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	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
1,2-Dichlorobenzene	63.4	10	4.5	ug/l	100		63	40-120			M-NR1
3,3-Dichlorobenzidine	101	20	11	ug/l	100		101	50-170			
2,4-Dichlorophenol	81.8	10	4.1	ug/l	100		82	55-120			
Diethyl phthalate	76.5	10	3.1	ug/l	100		76	60-120			
2,4-Dimethylphenol	65.9	20	4.4	ug/l	100		66	35-120			
Dimethyl phthalate	80.9	10	3.6	ug/l	100		81	60-120			
4,6-Dinitro-2-methylphenol	80.0	20	5.1	ug/l	100		80	55-120			
2,4-Dinitrophenol	77.4	20	5.3	ug/l	100		77	40-140			
2,4-Dinitrotoluene	81.4	10	4.2	ug/l	100		81	60-140			
2,6-Dinitrotoluene	77.3	10	3.2	ug/l	100		77	65-125			
Di-n-octyl phthalate	86.1	20	4.7	ug/l	100		86	60-130			
Fluoranthene	91.5	10	4.2	ug/l	100		92	55-125			
Fluorene	87.4	10	3.9	ug/l	100		87	60-120			
Hexachlorobenzene	83.3	10	4.8	ug/l	100		83	50-120			
Hexachlorobutadiene	71.6	10	4.2	ug/l	100		72	45-120			
Hexachlorocyclopentadiene	63.9	20	3.4	ug/l	100		64	10-130			
Hexachloroethane	60.9	10	4.2	ug/l	100		61	40-120			
Indeno(1,2,3-cd)pyrene	85.2	20	5.4	ug/l	100		85	35-150			
Isophorone	77.0	10	3.7	ug/l	100		77	55-120			
2-Methylnaphthalene	82.7	10	3.0	ug/l	100		83	50-120			
2-Methylphenol	72.5	10	3.7	ug/l	100		72	45-120			
4-Methylphenol	74.6	10	3.8	ug/l	100		75	45-120			
Naphthalene	80.2	10	4.5	ug/l	100		80	50-120			
2-Nitroaniline	88.9	20	3.9	ug/l	100		89	60-130			
3-Nitroaniline	83.1	20	4.5	ug/l	100		83	50-140			
4-Nitroaniline	85.5	20	4.9	ug/l	100		86	45-160			
Nitrobenzene	72.2	20	4.2	ug/l	100		72	50-120			
2-Nitrophenol	80.7	10	4.2	ug/l	100		81	55-120			
4-Nitrophenol	78.9	20	6.6	ug/l	100		79	50-135			
N-Nitrosodiphenylamine	76.0	10	4.0	ug/l	100		76	60-120			
N-Nitroso-di-n-propylamine	71.2	10	3.6	ug/l	100		71	50-120			
Pentachlorophenol	88.6	20	4.0	ug/l	100		89	50-125			
Phenanthrene	80.8	10	3.3	ug/l	100		81	55-120			
Phenol	74.0	10	4.0	ug/l	100		74	45-120			
Pyrene	85.3	10	3.9	ug/l	100		85	50-120			

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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: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B13024 Extracted: 02/13/05											
LCS Analyzed: 02/15/2005 (5B13024-BS1)											
1,2,4-Trichlorobenzene	72.0	10	4.4	ug/l	100	72	50-120				M-NR1
2,4,5-Trichlorophenol	85.4	20	3.6	ug/l	100	85	60-120				
2,4,6-Trichlorophenol	87.6	20	4.1	ug/l	100	88	60-120				
1,2-Diphenylhydrazine/Azobenzene	85.6	20	5.0	ug/l	100	86	60-120				
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120				
Surrogate: 2-Fluorophenol	133			ug/l	200	66	35-120				
Surrogate: Phenol-d6	143			ug/l	200	72	45-120				
Surrogate: 2,4,6-Tribromophenol	177			ug/l	200	88	50-125				
Surrogate: Nitrobenzene-d5	75.4			ug/l	100	75	45-120				
Surrogate: 2-Fluorobiphenyl	79.5			ug/l	100	80	45-120				
Surrogate: Terphenyl-d14	78.6			ug/l	100	79	45-135				
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Acenaphthene	86.2	10	4.3	ug/l	100	86	55-120	4	20		
Acenaphthylene	90.7	10	3.2	ug/l	100	91	55-120	3	20		
Aniline	81.2	10	2.9	ug/l	100	81	30-120	18	25		
Anthracene	88.7	10	3.2	ug/l	100	89	60-120	7	20		
Benzidine	137	20	5.2	ug/l	100	137	20-180	170	35		R-2
Benzoic acid	66.6	20	2.6	ug/l	100	67	30-125	9	30		
Benzo(a)anthracene	95.6	10	3.7	ug/l	100	96	65-120	7	20		
Benzo(b)fluoranthene	92.5	10	2.7	ug/l	100	92	50-125	9	25		
Benzo(k)fluoranthene	88.6	10	3.4	ug/l	100	89	50-125	5	20		
Benzo(g,h,i)perylene	97.4	10	5.3	ug/l	100	97	35-160	16	25		
Benzo(a)pyrene	93.6	10	3.5	ug/l	100	94	55-125	7	25		
Benzyl alcohol	80.5	20	2.5	ug/l	100	80	40-130	4	20		
Bis(2-chloroethoxy)methane	85.9	10	3.9	ug/l	100	86	55-120	3	20		
Bis(2-chloroethyl)ether	70.9	10	4.4	ug/l	100	71	50-120	4	20		
Bis(2-chloroisopropyl)ether	76.8	10	4.6	ug/l	100	77	50-120	4	20		
Bis(2-ethylhexyl)phthalate	84.3	50	5.2	ug/l	100	84	65-125	9	20		
4-Bromophenyl phenyl ether	85.8	10	4.6	ug/l	100	86	55-125	7	25		
Butyl benzyl phthalate	82.9	20	3.5	ug/l	100	83	60-125	7	20		
4-Chloroaniline	84.5	10	6.0	ug/l	100	84	55-120	5	25		
2-Chloronaphthalene	83.6	10	4.0	ug/l	100	84	60-120	3	20		
4-Chloro-3-methylphenol	87.2	20	3.5	ug/l	100	87	60-120	4	25		
2-Chlorophenol	72.1	10	4.2	ug/l	100	72	45-120	2	25		
4-Chlorophenyl phenyl ether	90.4	10	3.0	ug/l	100	90	55-120	6	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: Annual Outfall 010

Report Number: IOB1001

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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
Chrysene	90.6	10	2.8	ug/l	100	91	65-120	6	20		
Dibenz(a,h)anthracene	103	20	4.7	ug/l	100	103	40-160	15	25		
Dibenzofuran	87.2	10	2.6	ug/l	100	87	60-120	4	20		
Di-n-butyl phthalate	86.8	20	2.8	ug/l	100	87	65-125	7	20		
1,3-Dichlorobenzene	59.7	10	4.1	ug/l	100	60	40-120	6	25		
1,4-Dichlorobenzene	63.0	10	3.9	ug/l	100	63	40-120	2	25		
1,2-Dichlorobenzene	62.9	10	4.5	ug/l	100	63	40-120	1	25		
3,3-Dichlorobenzidine	114	20	11	ug/l	100	114	50-170	12	25		
2,4-Dichlorophenol	84.2	10	4.1	ug/l	100	84	55-120	3	20		
Diethyl phthalate	80.6	10	3.1	ug/l	100	81	60-120	5	20		
2,4-Dimethylphenol	72.1	20	4.4	ug/l	100	72	35-120	9	25		
Dimethyl phthalate	84.3	10	3.6	ug/l	100	84	60-120	4	20		
4,6-Dinitro-2-methylphenol	84.0	20	5.1	ug/l	100	84	55-120	5	25		
2,4-Dinitrophenol	80.3	20	5.3	ug/l	100	80	40-140	4	25		
2,4-Dinitrotoluene	86.3	10	4.2	ug/l	100	86	60-140	6	20		
2,6-Dinitrotoluene	80.3	10	3.2	ug/l	100	80	65-125	4	20		
Di-n-octyl phthalate	96.4	20	4.7	ug/l	100	96	60-130	11	20		
Fluoranthene	96.3	10	4.2	ug/l	100	96	55-125	5	20		
Fluorene	91.9	10	3.9	ug/l	100	92	60-120	5	20		
Hexachlorobenzene	87.5	10	4.8	ug/l	100	88	50-120	5	20		
Hexachlorobutadiene	73.2	10	4.2	ug/l	100	73	45-120	2	25		
Hexachlorocyclopentadiene	66.5	20	3.4	ug/l	100	66	10-130	4	30		
Hexachloroethane	60.4	10	4.2	ug/l	100	60	40-120	1	25		
Indeno(1,2,3-cd)pyrene	98.6	20	5.4	ug/l	100	99	35-150	15	25		
Isophorone	81.3	10	3.7	ug/l	100	81	55-120	5	20		
2-Methylnaphthalene	86.1	10	3.0	ug/l	100	86	50-120	4	20		
2-Methylphenol	75.6	10	3.7	ug/l	100	76	45-120	4	20		
4-Methylphenol	78.2	10	3.8	ug/l	100	78	45-120	5	20		
Naphthalene	83.1	10	4.5	ug/l	100	83	50-120	4	20		
2-Nitroaniline	91.5	20	3.9	ug/l	100	92	60-130	3	20		
3-Nitroaniline	88.6	20	4.5	ug/l	100	89	50-140	6	25		
4-Nitroaniline	94.4	20	4.9	ug/l	100	94	45-160	10	20		
Nitrobenzene	74.6	20	4.2	ug/l	100	75	50-120	3	25		
2-Nitrophenol	83.0	10	4.2	ug/l	100	83	55-120	3	25		
4-Nitrophenol	81.6	20	6.6	ug/l	100	82	50-135	3	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: Annual Outfall 010

Report Number: IOB1001

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 Limit	Data Qualifiers
Batch: 5B13024 Extracted: 02/13/05											
LCS Dup Analyzed: 02/15/2005 (5B13024-BSD1)											
N-Nitrosodiphenylamine	80.6	10	4.0	ug/l	100	81	60-120	6	20		
N-Nitroso-di-n-propylamine	75.1	10	3.6	ug/l	100	75	50-120	5	20		
Pentachlorophenol	92.7	20	4.0	ug/l	100	93	50-125	5	25		
Phenanthrene	86.6	10	3.3	ug/l	100	87	55-120	7	20		
Phenol	75.1	10	4.0	ug/l	100	75	45-120	1	25		
Pyrene	88.4	10	3.9	ug/l	100	88	50-120	4	25		
1,2,4-Trichlorobenzene	73.0	10	4.4	ug/l	100	73	50-120	1	20		
2,4,5-Trichlorophenol	88.6	20	3.6	ug/l	100	89	60-120	4	20		
2,4,6-Trichlorophenol	89.5	20	4.1	ug/l	100	90	60-120	2	20		
1,2-Diphenylhydrazine/Azobenzene	90.2	20	5.0	ug/l	100	90	60-120	5	25		
N-Nitrosodimethylamine	71.1	20	3.7	ug/l	100	71	40-120	0	20		
Surrogate: 2-Fluorophenol	128			ug/l	200	64	35-120				
Surrogate: Phenol-d6	141			ug/l	200	70	45-120				
Surrogate: 2,4,6-Tribromophenol	185			ug/l	200	92	50-125				
Surrogate: Nitrobenzene-d5	76.5			ug/l	100	76	45-120				
Surrogate: 2-Fluorobiphenyl	79.4			ug/l	100	79	45-120				
Surrogate: Terphenyl-d14	82.3			ug/l	100	82	45-135				

Batch: 5B17041 Extracted: 02/17/05

Blank Analyzed: 02/22/2005 (5B17041-BLK1)

Benzidine	ND	20	5.2	ug/l							
Surrogate: 2-Fluorophenol	110			ug/l	200	55	35-120				
Surrogate: Phenol-d6	121			ug/l	200	60	45-120				
Surrogate: 2,4,6-Tribromophenol	144			ug/l	200	72	50-125				
Surrogate: Nitrobenzene-d5	66.4			ug/l	100	66	45-120				
Surrogate: 2-Fluorobiphenyl	70.0			ug/l	100	70	45-120				
Surrogate: Terphenyl-d14	67.5			ug/l	100	68	45-135				

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Project ID: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B17041 Extracted: 02/17/05										
LCS Analyzed: 02/22/2005 (5B17041-BS1)										
Benzidine	145	20	5.2	ug/l	100		145 20-180			M-NR1
Surrogate: 2-Fluorophenol	120			ug/l	200		60 35-120			
Surrogate: Phenol-d6	138			ug/l	200		69 45-120			
Surrogate: 2,4,6-Tribromophenol	164			ug/l	200		82 50-125			
Surrogate: Nitrobenzene-d5	74.1			ug/l	100		74 45-120			
Surrogate: 2-Fluorobiphenyl	73.0			ug/l	100		73 45-120			
Surrogate: Terphenyl-d14	85.2			ug/l	100		85 45-135			
LCS Dup Analyzed: 02/22/2005 (5B17041-BSD1)										
Benzidine	149	20	5.2	ug/l	100		149 20-180	3	35	
Surrogate: 2-Fluorophenol	120			ug/l	200		60 35-120			
Surrogate: Phenol-d6	132			ug/l	200		66 45-120			
Surrogate: 2,4,6-Tribromophenol	163			ug/l	200		82 50-125			
Surrogate: Nitrobenzene-d5	76.0			ug/l	100		76 45-120			
Surrogate: 2-Fluorobiphenyl	74.0			ug/l	100		74 45-120			
Surrogate: Terphenyl-d14	84.4			ug/l	100		84 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 010 Report Number: IOB1001	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	Limit	Data Qualifiers
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Batch: 5B17042 Extracted: 02/17/05

Blank Analyzed: 02/17/2005-02/18/2005 (5B17042-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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	0.264			ug/l	0.500		53		35-120	
Surrogate: Decachlorobiphenyl	0.339			ug/l	0.500		68		45-120	

LCS Analyzed: 02/18/2005 (5B17042-BS1)

M-NR1

Aldrin	0.364	0.10	0.030	ug/l	0.500		73		45-115	
alpha-BHC	0.374	0.10	0.015	ug/l	0.500		75		45-115	
beta-BHC	0.373	0.10	0.015	ug/l	0.500		75		50-115	
delta-BHC	0.391	0.20	0.020	ug/l	0.500		78		55-120	
gamma-BHC (Lindane)	0.385	0.10	0.015	ug/l	0.500		77		45-115	
4,4'-DDD	0.415	0.10	0.015	ug/l	0.500		83		60-120	
4,4'-DDE	0.412	0.10	0.020	ug/l	0.500		82		55-120	
4,4'-DDT	0.424	0.10	0.030	ug/l	0.500		85		60-130	
Dieldrin	0.403	0.10	0.015	ug/l	0.500		81		55-120	
Endosulfan I	0.384	0.10	0.015	ug/l	0.500		77		50-115	
Endosulfan II	0.397	0.10	0.040	ug/l	0.500		79		60-125	
Endosulfan sulfate	0.425	0.20	0.015	ug/l	0.500		85		60-120	

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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
Batch: 5B17042 Extracted: 02/17/05											
LCS Analyzed: 02/18/2005 (5B17042-BS1)											
Endrin	0.446	0.10	0.015	ug/l	0.500		89	55-125			M-NR1
Endrin aldehyde	0.374	0.10	0.045	ug/l	0.500		75	55-115			
Endrin ketone	0.423	0.10	0.020	ug/l	0.500		85	60-120			
Heptachlor	0.404	0.10	0.030	ug/l	0.500		81	45-115			
Heptachlor epoxide	0.383	0.10	0.020	ug/l	0.500		77	50-120			
Methoxychlor	0.486	0.10	0.035	ug/l	0.500		97	60-135			
Surrogate: Tetrachloro-m-xylene	0.304			ug/l	0.500		61	35-120			
Surrogate: Decachlorobiphenyl	0.398			ug/l	0.500		80	45-120			
LCS Dup Analyzed: 02/18/2005 (5B17042-BSD1)											
Aldrin	0.354	0.10	0.030	ug/l	0.500		71	45-115	3	30	
alpha-BHC	0.353	0.10	0.015	ug/l	0.500		71	45-115	6	30	
beta-BHC	0.372	0.10	0.015	ug/l	0.500		74	50-115	0	30	
delta-BHC	0.380	0.20	0.020	ug/l	0.500		76	55-120	3	30	
gamma-BHC (Lindane)	0.371	0.10	0.015	ug/l	0.500		74	45-115	4	30	
4,4'-DDD	0.402	0.10	0.015	ug/l	0.500		80	60-120	3	30	
4,4'-DDE	0.407	0.10	0.020	ug/l	0.500		81	55-120	1	30	
4,4'-DDT	0.409	0.10	0.030	ug/l	0.500		82	60-130	4	30	
Dieldrin	0.396	0.10	0.015	ug/l	0.500		79	55-120	2	30	
Endosulfan I	0.379	0.10	0.015	ug/l	0.500		76	50-115	1	30	
Endosulfan II	0.386	0.10	0.040	ug/l	0.500		77	60-125	3	30	
Endosulfan sulfate	0.398	0.20	0.015	ug/l	0.500		80	60-120	7	30	
Endrin	0.433	0.10	0.015	ug/l	0.500		87	55-125	3	30	
Endrin aldehyde	0.366	0.10	0.045	ug/l	0.500		73	55-115	2	30	
Endrin ketone	0.392	0.10	0.020	ug/l	0.500		78	60-120	8	30	
Heptachlor	0.382	0.10	0.030	ug/l	0.500		76	45-115	6	30	
Heptachlor epoxide	0.378	0.10	0.020	ug/l	0.500		76	50-120	1	30	
Methoxychlor	0.446	0.10	0.035	ug/l	0.500		89	60-135	9	30	
Surrogate: Tetrachloro-m-xylene	0.277			ug/l	0.500		55	35-120			
Surrogate: Decachlorobiphenyl	0.364			ug/l	0.500		73	45-120			

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17042 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005-02/18/2005 (5B17042-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.451			ug/l	0.500		90	45-120		
LCS Analyzed: 02/18/2005 (5B17042-BS2)										
Aroclor 1016	2.54	1.0	0.20	ug/l	4.00		64	50-115		M-NR1
Aroclor 1260	2.69	1.0	0.40	ug/l	4.00		67	60-115		
Surrogate: Decachlorobiphenyl	0.378			ug/l	0.500		76	45-120		
LCS Dup Analyzed: 02/18/2005 (5B17042-BSD2)										
Aroclor 1016	3.09	1.0	0.20	ug/l	4.00		77	50-115	20	30
Aroclor 1260	2.98	1.0	0.40	ug/l	4.00		74	60-115	10	25
Surrogate: Decachlorobiphenyl	0.404			ug/l	0.500		81	45-120		

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5B15070 Extracted: 02/15/05

Blank Analyzed: 02/15/2005 (5B15070-BLK1)

Mercury	ND	0.20	0.063	ug/l							
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LCS Analyzed: 02/15/2005 (5B15070-BS1)

Mercury	8.18	0.20	0.063	ug/l	8.00		102	85-115			
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Matrix Spike Analyzed: 02/15/2005 (5B15070-MS1)

Source: IOB1088-01

Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130			
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Matrix Spike Dup Analyzed: 02/15/2005 (5B15070-MSD1)

Source: IOB1088-01

Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130	0	20	
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Batch: 5B17127 Extracted: 02/17/05

Blank Analyzed: 02/18/2005-02/22/2005 (5B17127-BLK1)

Aluminum	ND	50	47	ug/l							
Arsenic	ND	5.0	3.8	ug/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	ND	0.050	0.0074	mg/l							
Chromium	ND	5.0	0.68	ug/l							
Nickel	ND	10	2.0	ug/l							
Selenium	ND	5.0	4.6	ug/l							
Silver	ND	10	1.3	ug/l							
Thallium	ND	5.0	3.1	ug/l							
Vanadium	ND	10	1.4	ug/l							
Zinc	ND	20	3.7	ug/l							

LCS Analyzed: 02/18/2005-02/22/2005 (5B17127-BS1)

Aluminum	450	50	47	ug/l	500		90	85-115			
Arsenic	502	5.0	3.8	ug/l	500		100	85-115			
Beryllium	489	2.0	0.62	ug/l	500		98	85-115			
Boron	0.463	0.050	0.0074	mg/l	0.500		93	85-115			
Chromium	509	5.0	0.68	ug/l	500		102	85-115			
Nickel	496	10	2.0	ug/l	500		99	85-115			
Selenium	499	5.0	4.6	ug/l	500		100	85-115			
Silver	254	10	1.3	ug/l	250		102	85-115			
Thallium	477	5.0	3.1	ug/l	500		95	85-115			
Vanadium	500	10	1.4	ug/l	500		100	85-115			

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B17127 Extracted: 02/17/05											
LCS Analyzed: 02/18/2005-02/22/2005 (5B17127-BS1)											
Zinc	492	20	3.7	ug/l	500		98	85-115			
Matrix Spike Analyzed: 02/18/2005-02/22/2005 (5B17127-MS1) Source: IOB0814-02											
Aluminum	456	50	47	ug/l	500	ND	91	70-130			
Arsenic	510	5.0	3.8	ug/l	500	ND	102	70-130			
Beryllium	496	2.0	0.62	ug/l	500	ND	99	70-130			
Boron	0.573	0.050	0.0074	mg/l	0.500	0.077	99	70-130			
Chromium	502	5.0	0.68	ug/l	500	ND	100	70-130			
Nickel	476	10	2.0	ug/l	500	ND	95	70-130			
Selenium	500	5.0	4.6	ug/l	500	ND	100	70-130			
Silver	255	10	1.3	ug/l	250	ND	102	70-130			
Thallium	476	5.0	3.1	ug/l	500	8.6	93	70-130			
Vanadium	502	10	1.4	ug/l	500	1.7	100	70-130			
Zinc	492	20	3.7	ug/l	500	ND	98	70-130			
Matrix Spike Dup Analyzed: 02/18/2005-02/22/2005 (5B17127-MSD1) Source: IOB0814-02											
Aluminum	454	50	47	ug/l	500	ND	91	70-130	0	20	
Arsenic	505	5.0	3.8	ug/l	500	ND	101	70-130	1	20	
Beryllium	492	2.0	0.62	ug/l	500	ND	98	70-130	1	20	
Boron	0.565	0.050	0.0074	mg/l	0.500	0.077	98	70-130	1	20	
Chromium	500	5.0	0.68	ug/l	500	ND	100	70-130	0	20	
Nickel	477	10	2.0	ug/l	500	ND	95	70-130	0	20	
Selenium	498	5.0	4.6	ug/l	500	ND	100	70-130	0	20	
Silver	258	10	1.3	ug/l	250	ND	103	70-130	1	20	
Thallium	463	5.0	3.1	ug/l	500	8.6	91	70-130	3	20	
Vanadium	503	10	1.4	ug/l	500	1.7	100	70-130	0	20	
Zinc	492	20	3.7	ug/l	500	ND	98	70-130	0	20	

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

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 010 Report Number: IOB1001	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	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B17129 Extracted: 02/17/05											
Blank Analyzed: 02/22/2005 (5B17129-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 02/22/2005 (5B17129-BS1)											
Antimony	85.6	2.0	0.18	ug/l	80.0		107	85-115			
Cadmium	76.5	1.0	0.015	ug/l	80.0		96	85-115			
Copper	79.4	2.0	0.49	ug/l	80.0		99	85-115			
Lead	77.5	1.0	0.13	ug/l	80.0		97	85-115			
Matrix Spike Analyzed: 02/22/2005 (5B17129-MS1) Source: IOB1230-01											
Antimony	89.6	2.0	0.18	ug/l	80.0	1.2	110	70-130			
Cadmium	75.7	1.0	0.015	ug/l	80.0	0.10	94	70-130			
Copper	111	2.0	0.49	ug/l	80.0	33	98	70-130			
Lead	77.8	1.0	0.13	ug/l	80.0	1.8	95	70-130			
Matrix Spike Dup Analyzed: 02/22/2005 (5B17129-MSD1) Source: IOB1230-01											
Antimony	87.5	2.0	0.18	ug/l	80.0	1.2	108	70-130	2	20	
Cadmium	73.8	1.0	0.015	ug/l	80.0	0.10	92	70-130	3	20	
Copper	108	2.0	0.49	ug/l	80.0	33	94	70-130	3	20	
Lead	77.5	1.0	0.13	ug/l	80.0	1.8	95	70-130	0	20	

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

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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 Limits	RPD RPD Limit	Data Qualifiers
Batch: 5B11120 Extracted: 02/11/05									
Blank Analyzed: 02/11/2005 (5B11120-BLK1)									
Chloride	ND	0.50	0.26	mg/l					
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l					
Sulfate	ND	0.50	0.18	mg/l					
LCS Analyzed: 02/11/2005 (5B11120-BS1)									
Chloride	4.84	0.50	0.26	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		
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
Sulfate	39.3	0.50	0.18	mg/l	10.0	29	103 80-120	2	20
Batch: 5B14107 Extracted: 02/14/05									
Blank Analyzed: 02/14/2005 (5B14107-BLK1)									
Total Cyanide	ND	0.0050	0.0022	mg/l					
LCS Analyzed: 02/14/2005 (5B14107-BS1)									
Total Cyanide	0.200	0.0050	0.0022	mg/l	0.200		100 90-110		
Matrix Spike Analyzed: 02/14/2005 (5B14107-MS1) Source: IOB0888-01									
Total Cyanide	0.167	0.0050	0.0022	mg/l	0.200	ND	84 70-115		

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 Project Manager

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

Project ID: Annual Outfall 010

Report Number: IOB1001

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14107 Extracted: 02/14/05											
Matrix Spike Dup Analyzed: 02/14/2005 (5B14107-MSD1)						Source: IOB0888-01					
Total Cyanide	0.190	0.0050	0.0022	mg/l	0.200	ND	95	70-115	13	15	
Batch: 5B16069 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16069-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/16/2005 (5B16069-BS1)											
Perchlorate	52.0	4.0	0.80	ug/l	50.0		104	85-115			
Matrix Spike Analyzed: 02/16/2005 (5B16069-MS1)						Source: IOB1060-02					
Perchlorate	51.9	4.0	0.80	ug/l	50.0	ND	104	80-120			
Matrix Spike Dup Analyzed: 02/16/2005 (5B16069-MSD1)						Source: IOB1060-02					
Perchlorate	51.6	4.0	0.80	ug/l	50.0	ND	103	80-120	1	20	
Batch: 5B17069 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17069-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/17/2005 (5B17069-BS1)											
Total Suspended Solids	977	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 02/17/2005 (5B17069-DUP1)						Source: IOB0990-01					
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: Annual Outfall 010 Report Number: IOB1001	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	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17104 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17104-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/17/2005 (5B17104-BS1)											
Total Dissolved Solids	1050	10	10	mg/l	1000		105	90-110			
Duplicate Analyzed: 02/17/2005 (5B17104-DUP1)											
Total Dissolved Solids	483	10	10	mg/l		Source: IOB1273-03 490			1	10	
Batch: 5B17117 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17117-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/17/2005 (5B17117-BS1)											
Oil & Grease	17.6	5.0	0.94	mg/l	20.0		88	65-120			M-NR1
LCS Dup Analyzed: 02/17/2005 (5B17117-BSD1)											
Oil & Grease	16.4	5.0	0.94	mg/l	20.0		82	65-120	7	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: Annual Outfall 010

Report Number: IOB1001

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
IOB1001-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOB1001-01	Boron-200.7	Boron	mg/l	0.00040	0.050	1.00
IOB1001-01	Chloride - 300.0	Chloride	mg/l	4.20	0.50	150
IOB1001-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.15	0.26	10.00
IOB1001-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB1001-01	Sulfate-300.0	Sulfate	mg/l	2.00	0.50	250
IOB1001-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	79	10	850

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 Project Manager

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

Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
Received: 02/11/05

DATA QUALIFIERS AND DEFINITIONS

- 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.
- 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-2** The RPD exceeded the method control limit.
- 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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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05
 Received: 02/11/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 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 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	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.

Subcontracted Laboratories

Alta Analytical Perspectives

Analysis Performed: 1613-Dioxin-HR

Samples: IOB1001-01

Analysis Performed: EDD + Level 4

Samples: IOB1001-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr

Samples: IOB1001-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4

Samples: IOB1001-01

Analysis Performed: Gross Alpha

Samples: IOB1001-01

Analysis Performed: Gross Beta

Samples: IOB1001-01

Analysis Performed: Strontium 90

Samples: IOB1001-01

Analysis Performed: Tritium

Samples: IOB1001-01

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: Annual Outfall 010

Report Number: IOB1001

Sampled: 02/11/05

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

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IOB1001 <Page 41 of 41>

10B1001

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 Annual Outfall 010 Stormwater at Building 203		Total Recoverable Metals: Al, + PP Sb, Cd, Cu, Pb, Hg, B, V, TCDD (and all congeners) Oil & Grease (EPA 413.1) Cl-, SO4, NO3+NO2-N, Perchlorate TDS, TSS VOCs (624), NPDES + PP VOCs A+A+2CVE Pesticides/PCBs - PP Gross Alpha, Gross Beta, Tritium (906.0", Sr-90) Radium 226 & 228		Temp = 54.1 pH = 6.5		
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Sb, Cd, Cu, Pb, Hg, B, V, TCDD (and all congeners) Oil & Grease (EPA 413.1) Cl-, SO4, NO3+NO2-N, Perchlorate TDS, TSS VOCs (624), NPDES + PP VOCs A+A+2CVE Pesticides/PCBs - PP Gross Alpha, Gross Beta, Tritium (906.0", Sr-90) Radium 226 & 228		Comments		
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Field Readings	
Outfall 010	W	1L Poly	1	2-11-05 15:30	HNO3	1A	Analyze for Total Combined RA-228 & RA-228 only if Gross Alpha/Beta > 15pCi/L	
Outfall 010-Dup	W	1L Poly	1		HNO3	1B		
Outfall 010	W	1L Amber	2		None	2A, 2B		
Outfall 010	W	1L Amber	2		HCl	3A, 3B		
Outfall 010	W	Poly-500 ml	2		None	4A, 4B		
Outfall 010	W	Poly-500 ml	2		None	5A, 5B		
Outfall 010	W	VOAs	3		HCl	6A, 6B, 6C		
Outfall 010	W	VOA	3		None	7A, 7B, 7C		
Outfall 010	W	1L Amber	2		None	8A, 8B		
Outfall 010	W	1 Gal Poly VOAs	1		None	9A		
Outfall 010	W	1 Gal Poly VOAs	2		None	9B, 9C		
Outfall 010	W	1 Gal Poly	1		None	10A, 10B		
Outfall 010	W	500ml Poly	1		None	11A		
Trip Blanks	W	VOA	3		NaOH	12		
Trip Blank	W	VOAs	3		None	13A, 13B, 13C		
Trip Blank	W	VOAs	3		HCl	14A, 14B, 14C		
Relinquished By				Date/Time: 2/1/05 1700	Received By			Date/Time: 2/1/05 1700
Relinquished By				Date/Time: 2/1/05 2030	Received By			Date/Time: 2/1/05 2030
Relinquished By				Date/Time:	Received By		Date/Time:	

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Perchlorate Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample Integrity: (Check) On Ice: 31

March 25, 2005

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

Attention: Bronwyn Kelly

Project: Annual Outfall 010
Sampled: 02/11/05
Del Mar Analytical Number: IOB1001

Dear Ms. Kelly:

Aquatic Testing Laboratories performed Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), Eberline Services tested gross alpha/gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) and Alta Analytical Perspectives performed Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	EBERLINE ID	ALTA ID
Outfall 010	IOB1001-01	A-05021208-001	R502138-8267-001	P5072 2989 001

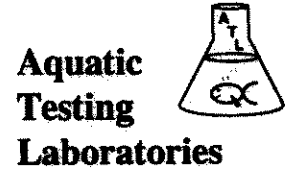
Attached are the original reports from the subcontract laboratories. If you have any questions or require further assistance, please do not hesitate to contact me at (949) 261-1022 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager

LABORATORY REPORT



"dedicated to providing quality aquatic toxicity testing"

Date: February 16, 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-05021208-001
Sample ID.: IOB1001-01

Sample Control: The samples were received by ATL in a chilled state, with the chain of custody record attached.

Date Sampled: 02/11/05
Date Received: 02/12/05
Date Tested: 02/12/05 to 02/16/05

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>
IOB1001-01	100% Survival (TUa = 0.0)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05021208-001
 Client/ID: Del Mar IOB1001-01

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	Rw 1200
	100%	20.8	9.1	7.0	0	0	
24 Hr	Control	20.3	6.9	7.2	0	0	Rw 1100
	100%	20.2	6.8	6.8	0	0	
48 Hr	Control	20.4	7.4	7.5	0	0	Rw 1200
	100%	20.4	7.2	6.9	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	Rw 1200
	100%	20.3	7.9	6.8	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	Rw 1100
	100%	19.6	7.5	6.7	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	Rw 1100
	100%	20.5	7.3	6.7	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 7.0; Conductivity: 71 umho; Temp: 4°C;
 DO: 9.1 mg/l; Alkalinity: 25 mg/l; Hardness: 29 mg/l; NH₃-N: 0.4 mg/l.
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No
 Control: Alkalinity: 54 mg/l; Hardness: 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 %



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 # IOB1001

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: IOB1001-01 Water	Sampled: 02/11/05 15:30	
Bioassay-Acute 96hr	02/13/05 03:30	FH minnow, EPA/821-R02-012, Sub to AqTox Labs
Containers Supplied:		
1 gal Poly (IOB1001-01X)		

SAMPLE INTEGRITY:

All containers intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Samples Preserved Properly: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>4°C</u>

<i>[Signature]</i>	2/12/05	0700	<i>[Signature]</i>	2/12/05	0700
Released By	Date	Time	Received By	Date	Time
<i>[Signature]</i>	2/12/05	0900	<i>[Signature]</i>	2-12-05	0900
Released By	Date	Time	Received By	Date	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. IOB1001
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502138-8267

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/Mnjv

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

Eberline Services

ANALYSIS RESULTS

SDG <u>8267</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502138-01</u>	Contract <u>PROJECT# IOB1001</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>
IOB1001-01	8267-001	02/11/05	03/01/05	GrossAlpha	4.98 ± 1.5	pCi/L	1.06
			03/01/05	Gross Beta	8.16 ± 1.6	pCi/L	1.92
			03/03/05	H3	271 ± 150	pCi/L	240
			02/25/05	Sr90	-0.061 ± 0.24	pCi/L	0.485

Certified by *[Signature]*
Report Date 03/08/05
Page 1

Eberline Services

QC RESULTS

SDG <u>8267</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502138-01</u>	Contract <u>PROJECT# IOB1001</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

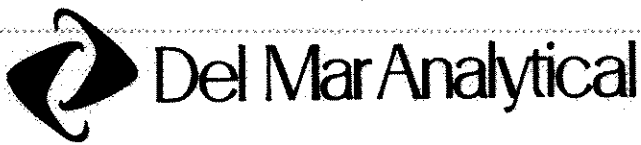
<u>DUPLICATES</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8261-004	GrossAlpha	3.40 ± 1.4	0.926
	Gross Beta	6.02 ± 1.4	1.80
	H3	393 ± 160	242
	Sr90	-0.186 ± 0.19	0.431

<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



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
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 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89129 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB1001

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: IOB1001-01 - Water Sampled: 02/11/05 15:30		
EDD + Level 4-OUT	03/11/05 15:30	
Gross Alpha-O	02/11/06 15:30	900.0, IF RESULT > 15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 15:30	900.0, IF RESULT > 50 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/11/06 15:30	HOLD for Gross A&B results; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 15:30	EPA 905.0
Tritium-O	02/11/06 15:30	EPA 906.0

Containers Supplied:

1 gal Poly (IOB1001-01S) *w/ FNO₂*

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>	2-14-05	1730	<i>[Signature]</i>	2/15/05	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 2/15/05 10:00 CoC No. IUR1001

Sample # 015

Container I.D. No. 2 Blue coolers #24 Requested TAT (Days) 2 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 1)
- 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 FLO Date: 2/15/05 Time: 10:00

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe
<u>≅ Bkg</u>							

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. _____ Calibration date _____

**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: IOB1001-01

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_001	Date Extracted:	01 Mar 05
Date Collected:	11 Feb 05	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	2.29			69	82.8	
1,2,3,7,8-PeCDD	ND	1.65			70.8	88.3	
1,2,3,4,7,8-HxCDD	ND	3.45			74.1	83.8	
1,2,3,6,7,8-HxCDD	ND	3.21			80.2	83.8	
1,2,3,7,8,9-HxCDD	ND	3.83			77.1	83.8	
1,2,3,4,6,7,8-HpCDD	75.4	6.41			65	64.9	
OCDD	883	11			58.7	64.9	
2,3,7,8-TCDF	ND	1.24			71.6	82.6	
1,2,3,7,8-PeCDF	ND	1.79			78.2	84.3	
2,3,4,7,8-PeCDF	ND	1.86			67.3	84.3	
1,2,3,4,7,8-HxCDF	ND	0.867			69.2	83.8	
1,2,3,6,7,8-HxCDF	ND	0.843			77.3	83.8	
2,3,4,6,7,8-HxCDF	ND	1.12			68.3	83.8	
1,2,3,7,8,9-HxCDF	ND	1.67			64	83.8	
1,2,3,4,6,7,8-HpCDF	16.8	2.36		J	54.2	64.9	
1,2,3,4,7,8,9-HpCDF	ND	3.46			58.3	64.9	
OCDF	155	10.2			55.7	64.9	
Totals & TEQs							
TCDDs	ND	2.29			 <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	1.65					
HxCDDs	7.38	3.5					
HpCDDs	163	6.41					
TCDFs	ND	1.24					
PeCDFs	ND	1.82					
HxCDFs	2.68	1.09	9.88				
HpCDFs	92.9	2.87					
Total PCDD/Fs	1,290		1,300				


AAP 2005 Rev. B

Checkcode: 4361

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			88	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			78.6	82.9	
1,2,3,4,7,8-HxCDF	ND	0.812			79.4	86.4	
1,2,3,6,7,8-HxCDF	ND	0.764			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	1.76			64.7	69.8	
1,2,3,4,7,8,9-HpCDF	ND	2.67			65.1	69.8	
OCDF	ND	11.1			67.2	69.8	
Totals & TEQs							
TCDDs	ND	1.65			 ALTA ANALYTICAL PERSPECTIVES 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	1.55					
HxCDDs	ND	2.59					
HpCDDs	ND	1.98					
TCDFs	ND	1.04					
PeCDFs	ND	1.94					
HxCDFs	ND	0.974					
HpCDFs	ND	2.19					
Total PCDD/Fs	0		0				

Checkcode: 3386

AAP 2005 Rev. B

Reviewer: *[Signature]*
 Date: 02 Mar 05

Sample Summary
 Part 1

ALTA ANALYTICAL PERSPECTIVES

Method 1613

Analyte	0_2888_MS 001	IOB1001-01	IOB0893-01	IOB0896-01	IOB0897-01	IOB1014-01	IOB0890-01	IOB0880-01	IOB1006-01	IOB1002-01	IOB0892-01	IOB1004-01	IOB0888-01	IOB0891-01
	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L
2,3,7,8-TCDD	(1.65)	(2.29)	(2.06)	(2.02)	(1.34)	(1.71)	(2.29)	(2.65)	(1.61)	(1.44)	(2.87)	(1.79)	(3.24)	(3.01)
1,2,3,7,8-PeCDD	(1.65)	(1.65)	(1.79)	(2.08)	(2.11)	(1.73)	(3.2)	(1.89)	(1.62)	(2.04)	(3.14)	(2.82)	(2.18)	(5.38)
1,2,3,4,7,8-HxCDD	(2.67)	(3.45)	(2.65)	(2.71)	(2.48)	(3.88)	(4.19)	(2.42)	3.57	(2.74)	(5.91)	(12.2)	(4.91)	(4.94)
1,2,3,7,8-HxCDD	(2.4)	(3.21)	(2.87)	(2.7)	(2.34)	(3.8)	(4.11)	(2.41)	8.47	(2.88)	(5.98)	(12)	(4.54)	(4.7)
1,2,3,4,6,7,8-HpCDD	(1.88)	75.4	31.5	10	(9.38)	12.2	(8.34)	48.8	207	(3.13)	(7.12)	(13.8)	(5.54)	(9.81)
OCDD	(4.78)	883	287	134	70.4	187	58.1	471	2120	183	70.2	213	80.3	50
2,3,7,8-TCDF	(1.04)	(1.24)	(1.64)	(1.65)	(0.986)	(2.08)	(1.37)	(1.64)	(1.49)	(1.03)	(2.58)	(2.71)	(2.39)	(2.61)
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.75)	(1.44)	(2.33)	(1.84)	(3.71)	(1.88)	(2.35)	(2.11)	(4.02)	(2.52)	(2.98)	(2.48)
2,3,4,7,8-HxCDF	(1.88)	(1.88)	(2.8)	(1.48)	(2.42)	(1.89)	(3.86)	(2.03)	(2.31)	(1.95)	(3.97)	(2.53)	(3)	(2.48)
1,2,3,4,7,8-HpCDF	(0.812)	(0.867)	(0.9)	(0.785)	(0.943)	(1.38)	(1.38)	(1.47)	(0.97)	(0.815)	(1.55)	(0.86)	(1.82)	(1.13)
2,3,4,6,7,8-HpCDF	(0.784)	(0.843)	(0.827)	(0.706)	(0.871)	(1.31)	(1.3)	(1.51)	0.898	(0.79)	(1.42)	(0.24)	(1.53)	(1.19)
1,2,3,7,8-HxCDF	(1.01)	(1.12)	(1.04)	(0.933)	(1.12)	(1.65)	(1.73)	(1.9)	(1.1)	(0.99)	(1.91)	(8.29)	(2.03)	(1.48)
1,2,3,4,6,7,8-HpCDF	(1.42)	(1.67)	(1.68)	(1.47)	(1.73)	(2.41)	(2.59)	(2.85)	(1.7)	(1.51)	(2.81)	(12.4)	(2.74)	(2.08)
1,2,3,4,6,7,8-HpCDF	(1.78)	18.8	(1.89)	(4.87)	(1.9)	4.04	(3.28)	18.8	27.2	(1.89)	(4.35)	(3.42)	(2.06)	(3.28)
OCDF	(2.67)	(3.48)	(2.95)	(7.47)	(3.25)	(2.63)	(4.59)	(2.68)	4.43	(2.59)	(7.3)	(5.49)	(3.04)	(4.88)
	(11.1)	155	(11)	(22.4)	(12.4)	(9.53)	(14.9)	34.9	87.1	(10.1)	(7.89)	(20.8)	(13.1)	(8.89)
Checksums	3385	4361	4681	4965	5239	5527	5797	6067	6335	6612	6929	4355	4822	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: 02/11/06

P5072 - Totals
Project ID: General Analytical HRMS

Sample Summary
Part 2



Method 1613

Analyte	0_2888_M8001	IOB1001-01	IOB0883-01	IOB0886-01	IOB0887-01	IOB1014-01	IOB0888-01	IOB0889-01	IOB1008-01	IOB1002-01	IOB0882-01	IOB1004-01	IOB0885-01	IOB0881-01
	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L
Totals														
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	7.38	4.44	0	0	0	0	0	38.8	0	0	0	0	0
HpCDDs	0	153	85.1	25.2	9.48	29.6	0	0	0	0	0	0	0	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	8.53	0	0	0	0	0
PeCDFs	0	0	0.858	0	0	0.76	0.258	0	2.57	0	0.458	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
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	159	79.9	197	56.4	648	2,900	182	70.7	256	82.6	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	56.4	663	2,830	193	70.7	256	82.6	50
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	42.2	1,330	361	215	128	238	119	691	2,840	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	178	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.8	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	178	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.8	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Checksum	3385	4361	4881	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 315)

() = DL
 [] = EMPC

Reviewer: *ASMAKOS*
 Date: _____

P5072 - Others
Project ID: General Analytical HRMS

Sample Summary
Part 3

ALTA ANALYTICAL PERSPECTIVES

Method 1613

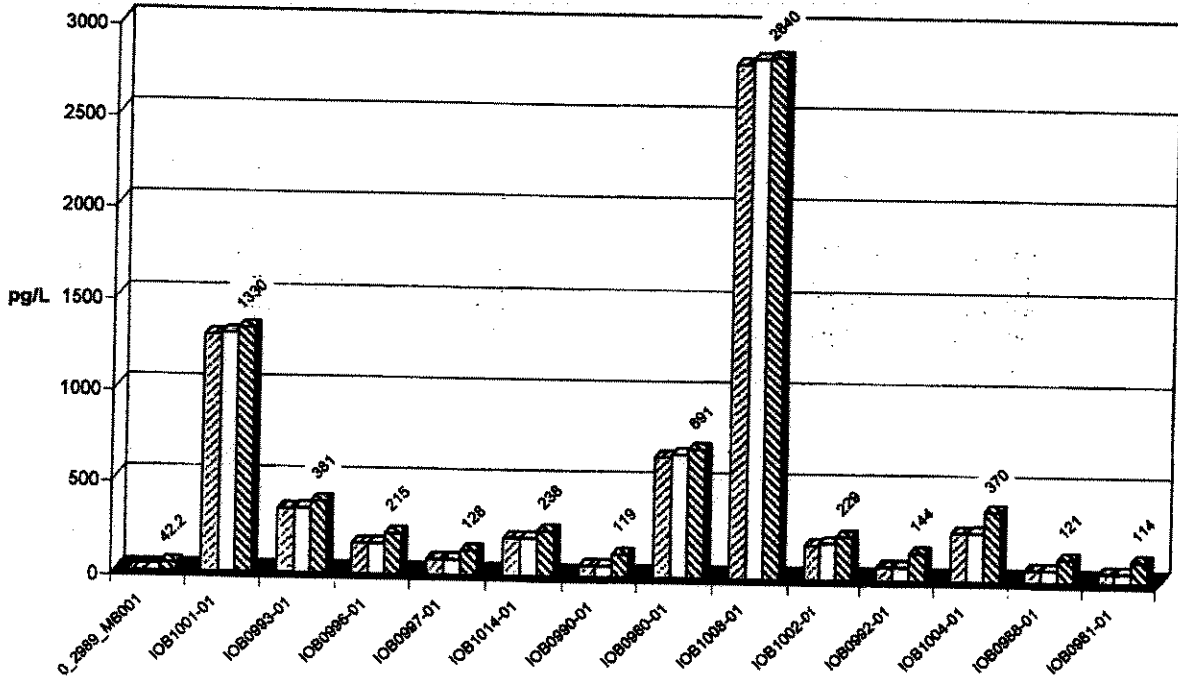
Analyte	I_2000_M8001	IOB1001-01	IOB0883-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1006-01	IOB1002-01	IOB0982-01	IOB1004-01	IOB0988-01	IOB0981-01
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
Other PCDD/Fs (ND=0, EMPC=0)														
Other TCDD	0	0	0	0	0	0	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	33.6	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	6.53	0	0	0	0	0
Other PeCDF	0	0	0.858	0	0	0.78	0.258	0	2.57	0	0.456	0	0	0
Other HxCDF	0	2.88	0	0	0	0	0	4.13	32.8	0	0	0	0	0
Other HpCDF	0	78.1	0	0	0	6.16	0	25.7	71.6	5.96	0	0	0	0
Other PCDD/Fs (ND=0, EMPC=EMPC)														
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	8.88	47.7	0	0	0	0	0
Other HpCDD	0	77.2	33.6	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	0.258	0.368	2.57	0	0.456	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	78.1	0	0	0	6.16	0	25.7	71.6	5.96	0	0	0	0
Checkcode	3385	4361	4881	4865	5239	5527	5797	0067	0335	0612	3829	4355	4822	4900

() = DL
 [] = EMPC

Reviewer:
 Date: 03/24/03

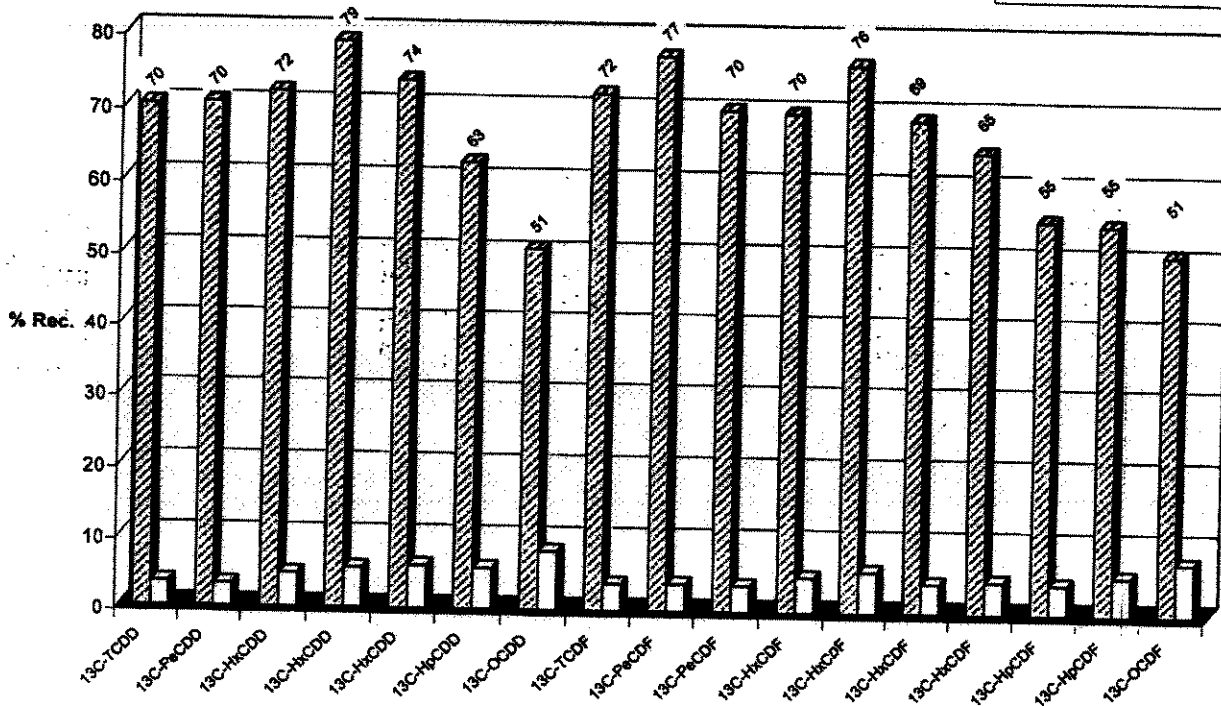
Totals
Project ID: General Analytical HRMS
P5072

▨ Total PCDD/Fs (ND=0; EMPC=0)
 □ Total PCDD/Fs (ND=0; EMPC=EMPC)
 ▩ Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



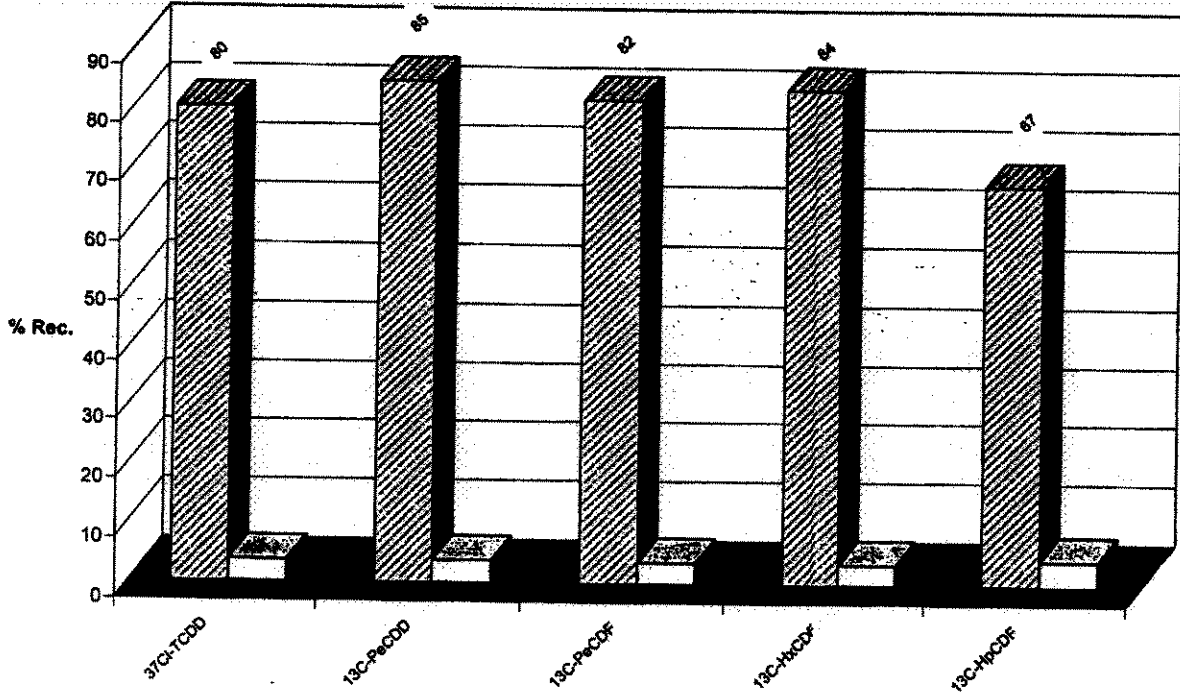
Mean Recoveries of Extraction Standards (N=14)
Project ID: General Analytical HRMS
P5072

▨ 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) 370-4687 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 # IOB1001

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	Pace Analytical, MN- SUB 1700 Elm Street, Ste 200 Minneapolis, MN 55414 Phone: (612) 607-1700 Fax: (612) 607-6444 <div style="text-align: right; font-size: 2em; font-family: cursive;">107682</div>

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

Analysis	Expiration	Comments
Sample ID: IOB1001-01 Water	Sampled: 02/11/05 15:30	001
1613-Dioxin-HR	02/18/05 15:30	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 15:30	
Containers Supplied:		
1 L Amber (IOB1001-01C)		
1 L Amber (IOB1001-01D)		

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	Samples Received On Ice::	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp):	23°C

Released By: [Signature] Date: 2/14/05 Time: 1700 Received By: M. [Signature] Date: 2/15/05 Time: 0900

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



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

814592
To Be Completed by Pace Analytical and Client
Section C

Page: 2 of 2

Section B

Required Client Information:

Report to: SCOTT UNZE
 Copy to: SCOTT UNZE
 Invoice to: SCOTT UNZE
 P.O. 1700 Elm Street
 Project Name: Safe 200
 Project Number: APLS / NW 55414

Section A

Required Client Information:

Company: Pace
 Address: 1700 Elm Street
 Suite: 200
 Phone: APLS / NW 55414

Section D

Required Client Information:

SAMPLE ID
 One character per box.
 (A-Z, 0-9 / -)

Section C

Client Information (Check quote/contract):

Requested Due Date: 3 Day
 Turn Around Time (TAT) in calendar days.
 Project Manager: SCOTT UNZE
 Project #: 1613: P00/DR
 Profile #: 1613: P00/DR
 Requested Analytes: 1613: P00/DR

Matrix	Code	Matrix Code
Water	WT	WT
Soil	SL	
Oil	OL	
Wipe	WP	
Air	AR	
Tissue	TS	
Other	OT	

Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ SO ₄	Methanol	Other

DATE COLLECTED	TIME COLLECTED	Remarks / Lab ID
09/21/05	09:21	1613: P00/DR

#	ITEM	DATE COLLECTED	TIME COLLECTED	Remarks / Lab ID
1	TOB0981-01	09/21/05	09:21	1613: P00/DR
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

DATE	TIME	Remarks / Lab ID
09/21/05	09:21	1613: P00/DR

DATE	TIME	Remarks / Lab ID
09/21/05	09:21	1613: P00/DR

SITE LOCATION
 NC SC GA Other
 NPDES GROUND WATER DRINKING WATER
 UST RCRA Other

REGULATORY AGENCY
 State: VA West of 15:25 Band Road

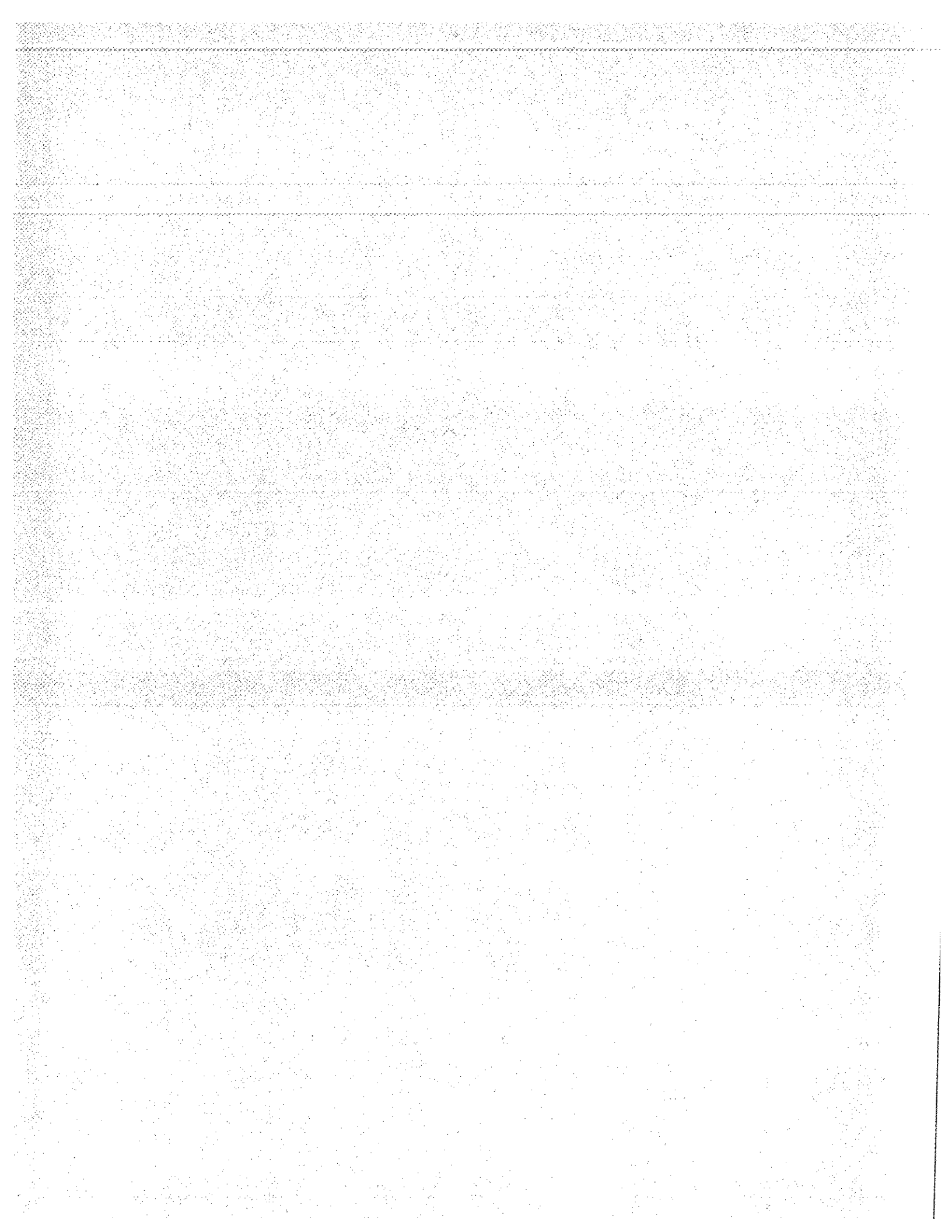
REQUISITIONED BY / AFFILIATION
 DATE: 3-1-05 TIME: 10:55

SAMPLE CONDITION
 Temp in °C: 31
 Received on Ice: Y/N
 Sealed Cooler: Y/N
 Samples Intact: Y/N

SAMPLE NOTES
 Email to: Scott.Unze@paceabs.com

SIGNATURE OF SAMPLER
 SIGNATURE: [Signature]
 DATE SIGNED: MM/DD/YY

SAMPLER NAME AND SIGNATURE
 PRINT NAME OF SAMPLER: [Name]
 SIGNATURE OF SAMPLER: [Signature]
 DATE SIGNED: MM/DD/YY



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

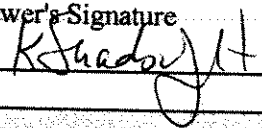
AMEC Earth & Environmental
 550 South Wadsworth Boulevard
 Suite 500
 Lakewood, CO 80226

Package ID T711DF29
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta

Reviewer K. Shadowlight

Analysis/Method Dioxins

Date: March 9, 2005
 Reviewer's Signature


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

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple SDGs
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 9, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 001	IOB1560-01	25788-001	water	1613
Outfall 004	IOB1556-01	25786-001	water	1613
Outfall 005	IOB1557-01	25787-001	water	1613
Outfall 006	IOB1559-01	25784-001	water	1613
Outfall 009	IOB1574-01	25789-001	water	1613
Outfall 010	IOB1575-01	25785-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 0.8°C and 1.6°C ; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There were two initial calibrations, analyzed 08/30/04 and 10/04/04. The calibrations each consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibrations were acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6543-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 (6543-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 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. Compounds flagged by the laboratory with a "D" qualifier indicated possible diphenylether interference and were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.



Sample ID: IOB1575-01 <i>outfall 010</i>		EPA Method 1613						
Client Data		Laboratory Data						
Name: Del Mar Analytical, Irvine	Lab Sample: 25785-001	Date Received: 24-Feb-05						
Project: IOB1575	QC Batch No.: 6543	Date Extracted: 25-Feb-05						
Date Collected: 18-Feb-05	Date Analyzed DB-5: 28-Feb-05	Date Analyzed DB-225: NA						
Time Collected: 1515								
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.595			IS 13C-2,3,7,8-TCDD	72.4	25 - 164	
1,2,3,7,8-PeCDD	ND	1.32			13C-1,2,3,7,8-PeCDD	69.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.98			13C-1,2,3,4,7,8-HxCDD	66.4	32 - 141	
1,2,3,6,7,8-HxCDD	9.92			J	13C-1,2,3,6,7,8-HxCDD	69.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	3.93			13C-1,2,3,4,6,7,8-HpCDD	69.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	485				13C-OCDD	64.5	17 - 157	
OCDD	6080				13C-2,3,7,8-TCDF	73.2	24 - 169	
2,3,7,8-TCDF	ND	0.609			13C-1,2,3,7,8-PeCDF	66.1	24 - 185	
1,2,3,7,8-PeCDF	ND	1.74			13C-2,3,4,7,8-PeCDF	66.8	21 - 178	
2,3,4,7,8-PeCDF	ND	1.57			13C-1,2,3,4,7,8-HxCDF	60.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.34			13C-1,2,3,6,7,8-HxCDF	60.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	1.97			13C-2,3,4,6,7,8-HxCDF	59.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.12			13C-1,2,3,7,8,9-HxCDF	63.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.12			13C-1,2,3,4,6,7,8-HpCDF	57.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	88.1				13C-1,2,3,4,7,8,9-HpCDF	62.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	7.23			J	13C-OCDF	61.9	17 - 157	
OCDF	1230				CRS 37Cl-2,3,7,8-TCDD	84.1	35 - 197	
Totals								
Total TCDD	ND	0.595						
Total PeCDD	ND	1.32						
Total HxCDD	29.5							
Total HpCDD	775							
Total TCDF	ND	1.14						
Total PeCDF	ND							
Total HxCDF	67.4							
Total HpCDF	647							
Footnotes								
a. Sample specific estimated detection limit.								
b. Estimated maximum possible concentration.								
c. Method detection limit.								
d. Lower control limit - upper control limit.								

Analyst: MS
 Approved By: William J. Luksemburg 01-Mar-2005 16:49

REC VALIDATED

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT46
 Task Order 313150010
 SDG No. IOB1574, IOB1575

No. of Analyses 2

Laboratory Del Mar
 Reviewer P. Meeks
 Analysis/Method Metals

Date: 03/21/05
 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.,
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

Qualifications applied for:

1. Detects below the reporting limit.
2. antimony detected in the CCBs.
3. Both antimony MDLs raised and Outfall 010 result raised.

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1574 & IOB1575

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#: IOB1574, IOB1575
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 21, 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.: IOB1574, 1575
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 009	Outfall 009	IOB1574-01	water	ILM04
Outfall 010	Outfall 010	IOB1575-01	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 and accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for all samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

2.4 BLANKS

Antimony was detected in both bracketing CCBs at approximately 1.10 µg/L and in method blank 5B25067 at 0.275 µg/L, and antimony was detected in the site samples at concentrations below the level reported in the CCBs. The CCB detects indicated the laboratory could not detect antimony at the level reported in the CCBs. The reviewer raised the MDLs to the level reported in the CCBs, 1.10 µg/L, and qualified the results as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

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

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B25067-BS1 and the mercury LCS sample was identified as 5B22064. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Analytes detected below the reporting limit were qualified as estimated, "J." 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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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
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05

Received: 02/18/05

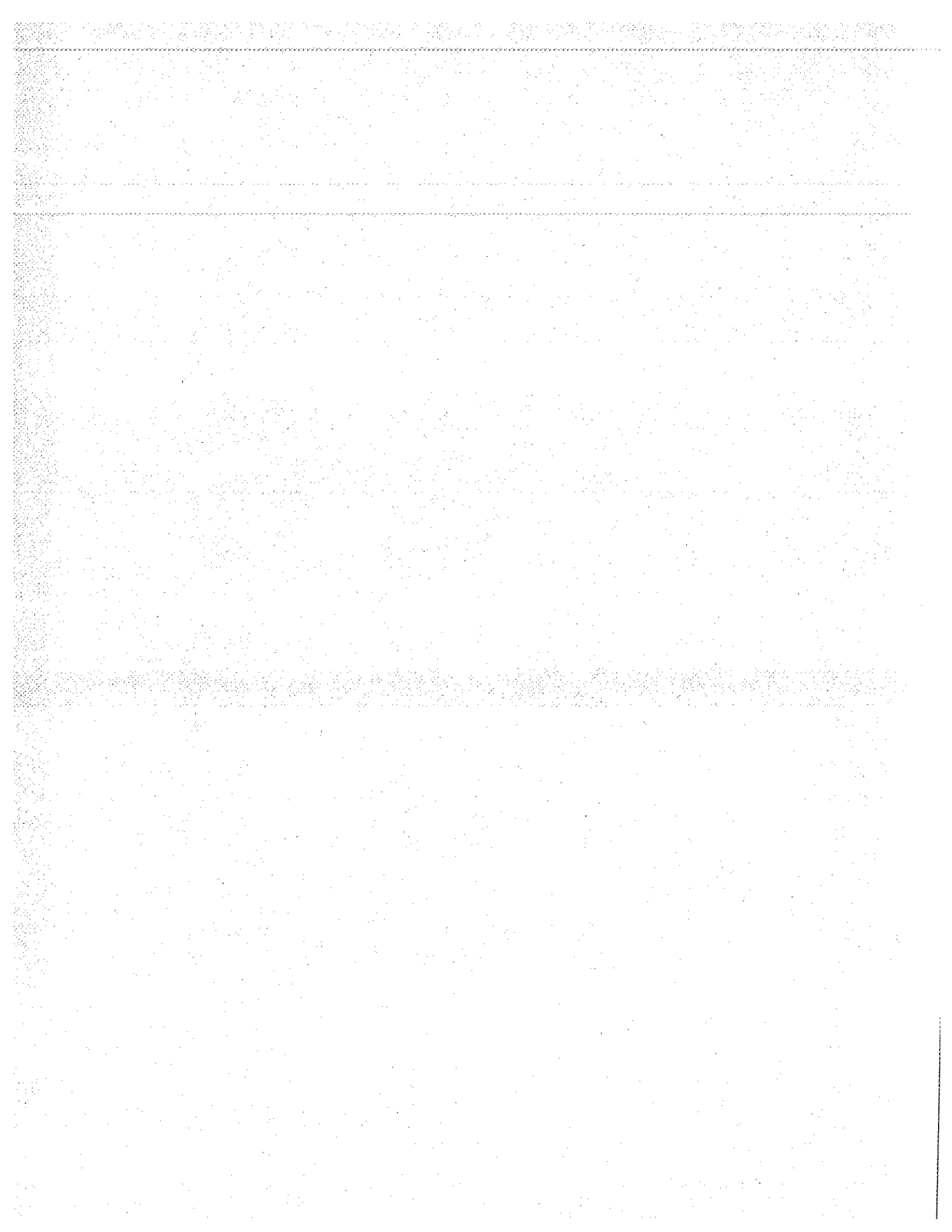
DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IOB1575-01 (DRAFT: Outfall 010 - Water)										
Reporting Units: ug/l										
Antimony	EPA 200.8	5B25067	0.18	2.0	0.34	1	02/25/05	02/28/05	UJ B, J	B, S
Cadmium	EPA 200.8	5B25067	0.015	1.0	0.19	1	02/25/05	02/28/05	J J	DNQ
Copper	EPA 200.8	5B25067	0.49	2.0	11	1	02/25/05	02/28/05		
Lead	EPA 200.8	5B25067	0.13	1.0	6.2	1	02/25/05	02/28/05		
Mercury	EPA 245.1	5B22064	0.063	0.20	0.14	1	02/22/05	02/22/05	J J	DNQ

PM 3/21/05

AMEC VALIDATED
LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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

LABORATORY REPORT

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

Project: Routine Outfall 010

Sampled: 02/18/05
 Received: 02/18/05
 Issued: 03/25/05 10:59

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
 IOB1575-01

CLIENT ID
 Outfall 010

MATRIX
 Water

Reviewed By:

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



Del Mar Analytical

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

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 300 North Lake Avenue, Suite 1200
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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05
 Received: 02/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1575-01 (Outfall 010 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B25067	0.18	2.0	0.34	1	02/25/05	02/28/05	B, J
Cadmium	EPA 200.8	5B25067	0.015	1.0	0.19	1	02/25/05	02/28/05	J
Copper	EPA 200.8	5B25067	0.49	2.0	11	1	02/25/05	02/28/05	
Lead	EPA 200.8	5B25067	0.13	1.0	6.2	1	02/25/05	02/28/05	
Mercury	EPA 245.1	5B22064	0.063	0.20	0.14	1	02/22/05	02/22/05	J

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

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Sampled: 02/18/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1575-01 (Outfall 010 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5B18129	0.15	0.50	6.8	1	02/18/05	02/19/05	
Nitrate/Nitrite-N	EPA 300.0	5B18129	0.075	0.11	0.13	1	02/18/05	02/19/05	
Oil & Grease	EPA 413.1	5B28071	0.94	5.0	ND	1	02/28/05	02/28/05	
Sulfate	EPA 300.0	5B18129	0.25	0.50	2.7	1	02/18/05	02/19/05	
Total Dissolved Solids	SM2540C	5B24111	10	10	100	1	02/24/05	02/24/05	
Total Suspended Solids	EPA 160.2	5B25089	10	10	200	1	02/25/05	02/25/05	

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Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05
 Received: 02/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 010 (IOB1575-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/18/2005 15:15	02/18/2005 18:30	02/18/2005 22:00	02/19/2005 02:28

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 Project Manager

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22064 Extracted: 02/22/05											
Blank Analyzed: 02/22/2005 (5B22064-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 02/22/2005 (5B22064-BS1)											
Mercury	7.98	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 02/22/2005 (5B22064-MS1)											
						Source: IOB1509-01					
Mercury	8.18	0.20	0.063	ug/l	8.00	ND	102	70-130			
Matrix Spike Dup Analyzed: 02/22/2005 (5B22064-MSD1)											
						Source: IOB1509-01					
Mercury	8.20	0.20	0.063	ug/l	8.00	ND	102	70-130	0	20	
Batch: 5B25067 Extracted: 02/25/05											
Blank Analyzed: 02/28/2005 (5B25067-BLK1)											
Antimony	0.275	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 02/28/2005 (5B25067-BS1)											
Antimony	87.7	2.0	0.18	ug/l	80.0		110	85-115			
Cadmium	77.6	1.0	0.015	ug/l	80.0		97	85-115			
Copper	81.8	2.0	0.49	ug/l	80.0		102	85-115			
Lead	79.6	1.0	0.13	ug/l	80.0		100	85-115			
Matrix Spike Analyzed: 02/28/2005 (5B25067-MS1)											
						Source: IOB1837-02					
Antimony	89.6	2.0	0.18	ug/l	80.0	0.31	112	70-130			
Cadmium	77.7	1.0	0.015	ug/l	80.0	ND	97	70-130			
Copper	121	2.0	0.49	ug/l	80.0	39	102	70-130			
Lead	81.9	1.0	0.13	ug/l	80.0	1.7	100	70-130			

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 Wendy Kirkeeng For 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
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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 010 Report Number: IOB1575	Sampled: 02/18/05 Received: 02/18/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B25067 Extracted: 02/25/05											
Matrix Spike Analyzed: 02/28/2005 (5B25067-MS2)						Source: IOB1620-01					
Antimony	93.1	2.0	0.18	ug/l	80.0	0.41	116	70-130			
Cadmium	81.4	1.0	0.015	ug/l	80.0	0.68	101	70-130			
Copper	93.9	2.0	0.49	ug/l	80.0	12	102	70-130			
Lead	112	1.0	0.13	ug/l	80.0	27	106	70-130			
Matrix Spike Dup Analyzed: 02/28/2005 (5B25067-MSD1)						Source: IOB1837-02					
Antimony	87.3	2.0	0.18	ug/l	80.0	0.31	109	70-130	3	20	
Cadmium	75.7	1.0	0.015	ug/l	80.0	ND	95	70-130	3	20	
Copper	118	2.0	0.49	ug/l	80.0	39	99	70-130	3	20	
Lead	78.6	1.0	0.13	ug/l	80.0	1.7	96	70-130	4	20	

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 Project Manager

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

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Report Number: IOB1575

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5B18129 Extracted: 02/18/05										
Blank Analyzed: 02/18/2005 (5B18129-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 02/18/2005 (5B18129-BS1)										
Chloride	5.11	0.50	0.26	mg/l	5.00		102	90-110		
Sulfate	10.6	0.50	0.18	mg/l	10.0		106	90-110		
Matrix Spike Analyzed: 02/18/2005 (5B18129-MS1) Source: IOB1556-01										
Chloride	7.47	0.50	0.26	mg/l	5.00	2.1	107	80-120		
Sulfate	15.3	0.50	0.18	mg/l	10.0	4.7	106	80-120		
Matrix Spike Dup Analyzed: 02/18/2005 (5B18129-MSD1) Source: IOB1556-01										
Chloride	7.43	0.50	0.26	mg/l	5.00	2.1	107	80-120	1	20
Sulfate	14.3	0.50	0.18	mg/l	10.0	4.7	96	80-120	7	20
Batch: 5B24111 Extracted: 02/24/05										
Blank Analyzed: 02/24/2005 (5B24111-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 02/24/2005 (5B24111-BS1)										
Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110		
Duplicate Analyzed: 02/24/2005 (5B24111-DUP1) Source: IOB1821-01										
Total Dissolved Solids	374	10	10	mg/l		380			2	10

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 Wendy Kirkeeng For Michele Harper
 Project Manager



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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
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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05

Received: 02/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B25089 Extracted: 02/25/05											
Blank Analyzed: 02/25/2005 (5B25089-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/25/2005 (5B25089-BS1)											
Total Suspended Solids	956	10	10	mg/l	1000		96	85-115			
Duplicate Analyzed: 02/25/2005 (5B25089-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOB1979-01 ND				10	
Batch: 5B28071 Extracted: 02/28/05											
Blank Analyzed: 02/28/2005 (5B28071-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/28/2005 (5B28071-BS1)											
Oil & Grease	16.7	5.0	0.94	mg/l	20.0		84	65-120			M-NR1
LCS Dup Analyzed: 02/28/2005 (5B28071-BSD1)											
Oil & Grease	17.7	5.0	0.94	mg/l	20.0		88	65-120	6	20	

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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 010 Report Number: IOB1575	Sampled: 02/18/05 Received: 02/18/05
--	---	---

Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOB1575-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.78	5.0	15
IOB1575-01	Chloride - 300.0	Chloride	mg/l	6.80	0.50	150
IOB1575-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.13	0.11	10.00
IOB1575-01	Sulfate-300.0	Sulfate	mg/l	2.70	0.50	250
IOB1575-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	100	10	850

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

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



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

Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05
Received: 02/18/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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

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IOB1575 <Page 10 of 11>



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

Project ID: Routine Outfall 010

Report Number: IOB1575

Sampled: 02/18/05

Received: 02/18/05

Certification Summary

Del Mar Analytical, Irvine

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

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

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOB1575-01

Analysis Performed: EDD + Level 4
 Samples: IOB1575-01

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

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10B1575

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 Routine Outfall 010 Stormwater at Building 203		TDS, TSS		Temp = 54.9 pH=	
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691		Oil & Grease (EPA 413.1)		Comments	
Sampler: <i>Polo ch</i>		Fax Number: (626) 568-6515		TCDD (and all congeners)			
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg
Outfall 010	W	Poly-1L	1	2-18-05 15:15	HNO3	1A	X
Outfall 010-Dup	W	Poly-1L	1		HNO3	1B	X
Outfall 010	W	Glass-Amber	2		None	2A, 2B	X
Outfall 010	W	Glass-Amber	2		HCl	3A, 3B	X
Outfall 010	W	Poly-500 ml	2		None	4A, 4B	X
Outfall 010	W	Poly-500 ml	2		None	5A, 5B	X
Relinquished By	<i>[Signature]</i>	Date/Time	2-18-05 15:20	Received By	<i>[Signature]</i>	Date/Time	2-18-05 15:20
Relinquished By	<i>[Signature]</i>	Date/Time	2-17-05 18:30	Received By	<i>[Signature]</i>	Date/Time	2-18-05 18:30
Relinquished By	<i>[Signature]</i>	Date/Time		Received By	<i>[Signature]</i>	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) <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>			



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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 010
Sampled: 02/18/05
Del Mar Analytical Number: IOB1575

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	Alta ID
Outfall 010	IOB1575-01	25785-001

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

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 01, 2005

Alta Project I.D.: 25785

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on February 24, 2005 under your Project Name "IOB1575". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,



Martha M. Maier
HRMS Services Director



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

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



Section I: Sample Inventory Report

Date Received: 2/24/2005

Alta Lab. ID

Client Sample ID

25785-001

IOB1575-01

SECTION II



Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	6543	Lab Sample:	0-MB001		
Sample Size:	1.000 L	Date Extracted:	25-Feb-05	Date Analyzed DB-5:	28-Feb-05		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.866		IS 13C-2,3,7,8-TCDD	75.9	25 - 164	
1,2,3,7,8-PeCDD	ND	1.15		13C-1,2,3,7,8-PeCDD	73.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.88		13C-1,2,3,4,7,8-HxCDD	70.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.86		13C-1,2,3,6,7,8-HxCDD	73.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.84		13C-1,2,3,4,6,7,8-HpCDD	67.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.38		13C-OCDD	56.3	17 - 157	
OCDD	ND	8.88		13C-2,3,7,8-TCDF	78.7	24 - 169	
2,3,7,8-TCDF	ND	0.545		13C-1,2,3,7,8-PeCDF	68.1	24 - 185	
1,2,3,7,8-PeCDF	ND	1.62		13C-2,3,4,7,8-PeCDF	73.3	21 - 178	
2,3,4,7,8-PeCDF	ND	1.45		13C-1,2,3,4,7,8-HxCDF	60.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.24		13C-1,2,3,6,7,8-HxCDF	64.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.869		13C-2,3,4,6,7,8-HxCDF	63.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.958		13C-1,2,3,7,8,9-HxCDF	65.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.55		13C-1,2,3,4,6,7,8-HpCDF	54.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	2.22		13C-1,2,3,4,7,8,9-HpCDF	59.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.68		13C-OCDF	54.9	17 - 157	
OCDF	ND	4.49		CRS 37Cl-2,3,7,8-TCDD	77.4	35 - 197	
Totals				Footnotes			
Total TCDD	ND	0.866		a. Sample specific estimated detection limit.			
Total PeCDD	ND	1.15		b. Estimated maximum possible concentration.			
Total HxCDD	ND	1.86		c. Method detection limit.			
Total HpCDD	ND	3.38		d. Lower control limit - upper control limit.			
Total TCDF	ND	0.545					
Total PeCDF	ND	1.54					
Total HxCDF	ND	1.37					
Total HpCDF	ND	2.38					

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:49



EPA Method 1613

OPR Results

Matrix: Aqueous		QC Batch No.: 6543	Lab Sample: 0-OPR001
Sample Size: 1.000 L		Date Extracted: 25-Feb-05	Date Analyzed DB-5: 28-Feb-05
		Date Analyzed DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits
Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	8.67	6.7 - 15.8
1,2,3,7,8-PeCDD	50.0	43.8	35 - 71
1,2,3,4,7,8-HxCDD	50.0	42.5	35 - 82
1,2,3,6,7,8-HxCDD	50.0	43.5	38 - 67
1,2,3,7,8,9-HxCDD	50.0	43.7	32 - 81
1,2,3,4,6,7,8-HpCDD	50.0	42.5	35 - 70
OCDD	100	87.0	78 - 144
2,3,7,8-TCDF	10.0	7.98	7.5 - 15.8
1,2,3,7,8-PeCDF	50.0	41.4	40 - 67
2,3,4,7,8-PeCDF	50.0	42.3	34 - 80
1,2,3,4,7,8-HxCDF	50.0	42.0	36 - 67
1,2,3,6,7,8-HxCDF	50.0	43.0	42 - 65
2,3,4,6,7,8-HxCDF	50.0	42.3	35 - 78
1,2,3,7,8,9-HxCDF	50.0	43.5	39 - 65
1,2,3,4,6,7,8-HpCDF	50.0	41.8	41 - 61
1,2,3,4,7,8,9-HpCDF	50.0	42.7	39 - 69
OCDF	100	88.8	63 - 170

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:49



Sample ID: IOB1575-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25785-001
Project:	IOB1575	Sample Size:	0.996 L	QC Batch No.:	6543
Date Collected:	18-Feb-05			Date Analyzed DB-5:	28-Feb-05
Time Collected:	1515			Date Analyzed DB-225:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.595			72.4 25 - 164
1,2,3,7,8-PeCDD	ND	1.32			69.2 25 - 181
1,2,3,4,7,8-HxCDD	ND	1.98			66.4 32 - 141
1,2,3,6,7,8-HxCDD	9.92		J		69.5 28 - 130
1,2,3,7,8,9-HxCDD	ND	3.93			69.7 23 - 140
1,2,3,4,6,7,8-HpCDD	485				64.5 17 - 157
OCDD	6080				73.2 24 - 169
2,3,7,8-TCDF	ND	0.609			66.1 24 - 185
1,2,3,7,8-PeCDF	ND	1.74			66.8 21 - 178
2,3,4,7,8-PeCDF	ND	1.57			60.2 26 - 152
1,2,3,4,7,8-HxCDF	ND	1.34			60.1 26 - 123
1,2,3,6,7,8-HxCDF	ND	1.97			59.0 28 - 136
2,3,4,6,7,8-HxCDF	ND	1.12			63.1 29 - 147
1,2,3,7,8,9-HxCDF	ND	1.12			57.7 28 - 143
1,2,3,4,6,7,8-HpCDF	88.1				62.3 26 - 138
1,2,3,4,7,8,9-HpCDF	7.23		J		61.9 17 - 157
OCDF	1230				84.1 35 - 197
Totals					
Total TCDD	ND	0.595			
Total PeCDD	ND	1.32			
Total HxCDD	29.5				
Total HpCDD	775				
Total TCDF	ND	1.14			
Total PeCDF	ND		3.93		
Total HxCDF	67.4				
Total HpCDF	647				
Footnotes					
a. Sample specific estimated detection limit.					
b. Estimated maximum possible concentration.					
c. Method detection limit.					
d. Lower control limit - upper control limit.					

Analyst: MS

Approved By: William J. Luksemburg 01-Mar-2005 16:49

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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



CURRENT CERTIFICATIONS

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

Department of the Navy

U.S. Army Corps of Engineers

U.S. EPA Region 5

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

Commonwealth of Kentucky — (Certificate No. 90063)

Commonwealth of Virginia — (Certificate No. 00013)

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

State of Arizona — (Certificate No. AZ0639)

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

State of Arkansas, Department of Environmental Quality

State of California — (Certificate No. 1640)

State of Colorado

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

State of Florida — (Certificate No. 87456)

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

State of Louisiana, Department of Environmental Quality

State of Maine

State of Michigan (Certificate No. 81178087)

State of Mississippi — (Approval granted through CA certification)

State of Nevada — (Certificate No. CA413)

State of New Jersey — (Certificate No. CA003)

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

State of North Carolina — (Certification No. 06700)

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

State of New Mexico

State of Oklahoma — (D9919)

State of Oregon — (Certificate No. CA413)

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

State of South Carolina — (Certificate No. 87002001)

State of Tennessee — (Certificate No. 02996)

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

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

State of Washington — (Certification No. C091)

State of Wisconsin — (Certificate No. 998036160)

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



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4687 Fax (909) 370-1048
 9484 Chasapeake Drive, Suite 805, 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
 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOB1575

SENDING LABORATORY:

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

RECEIVING LABORATORY:

Alta Analytical
 1104 Windfield Way 25785 1.6°C
 El Dorado Hills, CA 95762
 Phone: (916) 933-1640
 Fax: (916) 933-0940

Standard TAT is requested unless specific due date is requested => Due Date: 2 Weeks Initials: VB

Analysis	Expiration	Sampled:	Comments
Sample ID: IOB1575-01 Water		02/18/05 15:15	Instant Notification
1613-Dioxin-HR	02/25/05 15:15		J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	03/18/05 15:15		Excel EDD, email to pm, Include Std logs for Lvl IV
Containers Supplied:			
1 L Amber (IOB1575-01C)			
1 L Amber (IOB1575-01D)			

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	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: Va Bank Date: 2-23-05 Time: 1700 Received By: Bethna G. Benedict Date: 02/18/05 Time: 0905

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25785

1. Date Samples Arrived: <u>2/24/05 0905</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1325 2/24/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.6°C</u>			
	YES	NO	NA
5. Shipping Container(s) Intact? If not, describe condition in comment section.	<input checked="" type="checkbox"/>		
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	<input checked="" type="checkbox"/>		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>79043642 7350</u>	<input checked="" type="checkbox"/>		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. Intact? If not intact, describe condition in comment section.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. Sample Container Intact? If no, indicate sample condition in comment section.	<input checked="" type="checkbox"/>		
10. Chain of Custody (COC) or other Sample Documentation Present?	<input checked="" type="checkbox"/>		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	<input checked="" type="checkbox"/>		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		<input checked="" type="checkbox"/>	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			<input checked="" type="checkbox"/>

Comments:

samples initials found on sample label.

ALTA Analytical Laboratory
El Dorado Hills, CA 95762

APPENDIX G

Section 25

February Outfall 011

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF30
 Task Order 313150010
 SDG No. Multi

Laboratory Alta Analytical Perspective

No. of Analyses 13

Reviewer H. Chang

Date: March 18, 2005

Analysis/Method Dioxin&Furans/1613

Reviewer's Signature

H. Chang

ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., 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^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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: IOB1004-01 Outfall Oil Composite **Method 1613**

Client Data		Sample Data		Laboratory Data	
Name:	Pace Inc.	Matrix:	Aqueous	Project No.:	P5072
Project ID:	General Analytical HRMS	Weight/Volume:	0.99 L	Sample ID:	P5072_2989_011
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	1.79			72.2 84
1,2,3,7,8-PeCDD	ND	2.92			72.5 87
1,2,3,4,7,8-HxCDD	ND	12.2			68.3 83.2
1,2,3,6,7,8-HxCDD	ND	12			77.6 83.2
1,2,3,7,8,9-HxCDD	ND	13.8			71.1 83.2
1,2,3,4,6,7,8-HpCDD	20.8	9.88			61.1 72.2
OCDD	213	31.3		J	43.9 72.2
2,3,7,8-TCDF	ND	2.71			69.7 84
1,2,3,7,8-PeCDF	ND	2.52			73.4 78.3
2,3,4,7,8-PeCDF	ND	2.53			70.3 78.3
1,2,3,4,7,8-HxCDF	ND	6.66			71.2 83.2
1,2,3,6,7,8-HxCDF	ND	6.24			78 83.2
2,3,4,6,7,8-HxCDF	ND	8.23			69.5 83.2
1,2,3,7,8,9-HxCDF	ND	12.4			64.6 83.2
1,2,3,4,6,7,8-HpCDF	ND	3.42			57.2 72.2
1,2,3,4,7,8,9-HpCDF	ND	5.49			55.1 72.2
OCDF	ND	20.8			46.5 72.2
Totals & TEQs					
TCDDs	ND	1.79			
PeCDDs	ND	2.92			
HxCDDs	ND	12.7			
HpCDDs	43.1	9.88			
TCDFs	ND	2.71			
PeCDFs	ND	2.52			
HxCDFs	ND	8.1			
HpCDFs	ND	4.35			
Total PCDD/Fs	256		256		

ALTA ANALYTICAL PERSPECTIVES
 2714 Exchange Drive
 Wilmington
 North Carolina 28405
 USA
 Tel: 910 794-1613
 Fax: 910 794-3919
 e-mail: yi@ultratrace.com
 web: www.ultratrace.com

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



ACTION ITEMS^a

1. **Case Narrative**
Deficiencies

2. **Out of Scope**
Analyses

3. **Analyses Not Conducted**

4. **Missing Hardcopy**
Deliverables

5. **Incorrect Hardcopy**
Deliverables

6. **Deviations from Analysis**

- Protocol, e.g.,
- Holding Times
- GC/MS Tune/Inst. Perform
- Calibrations
- Blanks
- Surrogates
- Matrix Spike/Dup LCS
- Field QC
- Internal Standard Performance
- Compound Identification and
- Quantitation
- System Performance

Detects below the calibration range were qualified "J."
 False negative and false positives noted.
 Several transcription errors were noted.

COMMENTS^b

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple 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°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°C , 2.3°C , and 3°C . The samples were received at Alta Analytical Perspectives with cooler temperatures of 1°C and 3°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.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: HYDRAZINES

SAMPLE DELIVERY GROUP: IOB1004

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 #: IOB1004
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Hydrazines
QC Level: Level IV
No. of Samples: 1
Reviewer: P. Meeks
Date of Review: March 31, 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	IOB1004-01	939456	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 02/14/05, with correlation coefficients of ≥ 0.995 for the hydrazines. The ICV and CCV bracketing the sample analysis 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 RPDs were within the control limit of $\leq 20\%$. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogates were not utilized in this analysis. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MSD/MSD analyses were performed on Outfall 002; therefore, no assessment was made with respect to this criterion. Method accuracy and precision were assessed based on LCS/LCSD 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 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

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

REPORT

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

Attention: Michele Harper
Sample: Liquid / 1 Sample
Project Name: IOB1004
P.O. Number: IOB1004
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 939706
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

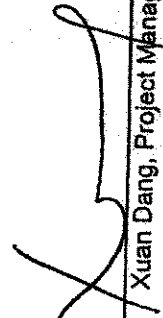
Sample ID	Sample Description	Monomethyl Hydrazine		Unsymmetrical Dimethyl Hydrazine		Hydrazine	
		Rev	Qual	Rev	Qual	Rev	Qual
704765-MB	Method Blank	*	ND	*	ND	*	ND
939706	Outfall Oil IOB1004-01	U	ND	U	ND	U	ND
MDL			1.2		0.27		0.39
PQL			5.0		5.0		1.0

PM 2/30/05

MDL: Method Detection Limit, ug/L
PQL: Practical Quantitation Limit, ug/L
ND: Not Detected at or above the MDL value.
N/A: Not Applicable

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

AMEC VALIDATED


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: IOB1004

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#: IOB1004
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 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOB1004
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011 Composite	Outfall 011 Composite	IOB1004-01	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. Not all analytes were requested on the COC. The remaining analytes were requested in a memo from MWH personnel dated 03/01/05. A duplicate was submitted for Outfall 011 Composite; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP and ICP/MS metals and 80-120% for mercury. Thallium, antimony, and manganese were recovered below the control limit in the 0.1 ppb, 0.2 ppb, and 1.0 ppb reporting limit check standards, respectively; therefore, nondetected antimony and thallium were qualified as estimated, "UJ," and manganese detected in Outfall 011 Composite 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

Boron was detected in a bracketing CCB at 0.0737 mg/L; therefore, boron detected in Outfall 011 Composite was qualified as estimated, "UJ." Antimony was detected in both CCBs bracketing the analysis of Outfall 011 Composite, indicating that the laboratory was not able to report antimony at the level of the MDL. The reviewer raised the antimony MDL to the highest level of interference reported in the CCBs, 0.94 µg/L, and qualified the result as estimated. 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 the site sample was analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%.

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper, cadmium, manganese, and nickel were detected above the applicable reporting limit in the ICSA. The results for aluminum, sodium, and potassium were above the calibration range of the instrument in the ICSA and ICSAB analyses and the manganese result was above the calibration range in the ICSA analysis. As aluminum, sodium, magnesium, and potassium were not reported in the site sample, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS and ICP/MS LCS samples associated with the retained results were identified as 5B17127-BS1 and 5B17112-BS1, respectively. The mercury LCS sample was identified as 5B15070-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site 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 sample.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



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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
 9530 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: IOB1004

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	Real	Real
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont. Reporting Units: mg/l											
Barium	EPA 200.8	5B17112	0.00014	0.0010	0.024	1	02/17/05	02/22/05			
Boron	EPA 200.7	5B17127	0.0074	0.050	0.047	1	02/17/05	02/20/05	J UJ		
Iron	EPA 200.8	5B17112	0.0032	0.010	2.2	1	02/17/05	02/22/05			B, UJ

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE



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

MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
 300 North Lake Avenue, Suite 1200 Outfall 011
 Pasadena, CA 91101 Report Number: IOB1004
 Attention: Bronwyn Kelly
 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	Dev Qual	Qual Code
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.											
Reporting Units: ug/l											
Antimony	EPA 200.8	5B17112	0.94	2.0	0.94	1	02/17/05	02/22/05	J		
Arsenic	EPA 200.8	5B17112	0.49	1.0	0.63	1	02/17/05	02/22/05	B		B, \$, *:
Beryllium	EPA 200.8	5B17112	0.037	0.50	0.10	1	02/17/05	02/22/05	J		DNQ
Cadmium	EPA 200.8	5B17112	0.015	1.0	0.13	1	02/17/05	02/22/05	J		DNQ
Chromium	EPA 200.8	5B17112	0.26	1.0	3.9	1	02/17/05	02/24/05	J		DNQ
Cobalt	EPA 200.8	5B17112	0.10	1.0	0.84	1	02/17/05	02/22/05	J		DNQ
Copper	EPA 200.8	5B17112	0.49	2.0	4.4	1	02/17/05	02/22/05	J		DNQ
Lead	EPA 200.8	5B17112	0.13	1.0	1.6	1	02/17/05	02/22/05	J		
Manganese	EPA 200.8	5B17112	0.44	1.0	43	1	02/17/05	02/22/05	J		*3
Mercury	EPA 245.1	5B15070	0.063	0.20	ND	1	02/15/05	02/15/05	J		*3
Nickel	EPA 200.8	5B17112	0.15	1.0	3.4	1	02/17/05	02/22/05	J		
Selenium	EPA 200.8	5B17112	0.36	2.0	ND	1	02/17/05	02/22/05	J		
Silver	EPA 200.8	5B17112	0.089	1.0	ND	1	02/17/05	02/22/05	J		
Thallium	EPA 200.8	5B17112	0.075	1.0	ND	1	02/17/05	02/23/05	J		*3
Vanadium	EPA 200.8	5B17112	0.86	1.0	5.5	1	02/17/05	02/23/05	J		DNQ
Zinc	EPA 200.8	5B17112	3.1	20	17	1	02/17/05	02/22/05	J		DNQ

pm 3/30/05

LEVEL III
AMEC VALIDATED

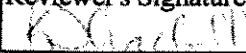
DRAFT REPORT
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 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF46
 Task Order 313150010
 SDG No. IOB1004
 No. of Analyses 2

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method TPH-Purgeable

Date April 1, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative	
Deficiencies	_____
2. Out of Scope	
Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy	
Deliverables	_____
5. Incorrect Hardcopy	
Deliverables	_____
6. Deviations from Analysis	
GC/MS Tune/Inst. Perform	_____
Calibrations	_____
Blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification and	_____
Quantitation	_____
System Performance	_____
COMMENTS^b	Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/PURGEABLE

SAMPLE DELIVERY GROUP: IOB1004

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#: IOB1004
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 011 Composite	Outfall 011 Composite	IOB1004-01	water	8015M/GRO
Trip Blank	Trip Blank	IOB1004-02	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 (5B20029-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 (5B20029-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 calibration and by the laboratory MDL. No qualifications were required.



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 (658) 505-8596 FAX (658) 505-9689
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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 796-3620 FAX (702) 796-3621

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

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
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B20029	50	100	ND	1	02/20/05	02/21/05	u
Surrogate: 4-BFB (FID) (65-140%)					88 %				
Sample ID: IOB1004-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B20029	50	100	ND	1	02/20/05	02/20/05	u
Surrogate: 4-BFB (FID) (65-140%)					85 %				

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 T711TF47
 Task Order 313150010
 SDG No. IOB1004

No. of Analyses 1

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method TPH-Extractable

Date April 1, 2005
 Reviewer's Signature K. Shadowlight

ACTION ITEMS^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
COMMENTS^b	Acceptable as reviewed.
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOB1004

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#: IOB1004
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 011 Composite	Outfall 011 Composite	IOB1004-01	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 12/21/04. 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 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 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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17461 Derian 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5B12001	0.082	0.50	ND	0.99	02/12/05	02/14/05	ll
Surrogate: n-Octacosane (40-125%)					55 %				

Re Qual / Qual
ll

AMEC VALIDATED

LEVEL III

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 T711VO72
 Task Order 313150010
 SDG No. IOB1004

No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: April 1, 2005

Reviewer's Signature



ACTION ITEMS^a

1. **Case Narrative**
Deficiencies
2. **Out of Scope**
Analyses
3. **Analyses Not Conducted**
4. **Missing Hardcopy**
Deliverables
5. **Incorrect Hardcopy**
Deliverables
6. **Deviations from Analysis** **Qualifications required for calibration 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

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOB1004

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#: IOB1004
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 1, 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-composite	Outfall 011-composite	IOB1004-01	water	624/8260B
Trip Blank	Trip Blank	IOB1004-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the analyses presented in this SDG. As the samples were couriered directly to the laboratory, 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

Two initial calibrations dated 11/03/04 (acrolein, acrylonitrile, and Freon 113 only) and 02/01/05 were associated with this SDG. The 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, and the %RSD for trichlorotrifluoroethane (Freon 113) analyzed by EPA SW-846 Method 8260B was ≤15%. Two continuing calibrations associated with the sample analyses were analyzed 02/17/05 (14:08 and 15:09). The RRFs were ≥0.05 in all of the continuing calibrations, except for the RRF for acrolein. Acrolein was rejected, "R," in both of the samples of this SDG. The %Ds for acrolein and acrylonitrile exceeded 20% in the continuing calibration; therefore, the nondetect result for acrylonitrile were qualified as estimated, "UJ," in sample Outfall 011. No qualifications were required for the Trip blank. The %Ds were ≤20% for the remaining target compounds listed on the result summaries. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated

from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Two water method blanks (5B17014-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 (5B17014-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

An MS/MSD analyses were not performed with the samples of this SDG. Method accuracy was based on LCS performance. 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. No qualifications were required.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed 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-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 011. 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.



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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: IOB1004

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	QUAL CODE
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water)										
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	UJ	KLI
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	UJ	KLI
Sample ID: IOB1004-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	UJ	KLI
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	UJ	KLI

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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: IOB1004

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	Per Qual	Overall Code
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water)											
Reporting Units: ug/l											
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R		R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	UJ		C
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	U		C
Surrogate: Dibromofluoromethane (80-120%)					95 %						
Surrogate: Toluene-d8 (80-120%)					104 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %						
Sample ID: IOB1004-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l											
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R		R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	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%)					104 %						
Surrogate: Toluene-d8 (80-120%)					106 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					103 %						

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

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	Anal Code
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water)											
Reporting Units: ug/l											
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05			
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05			
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05			
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05			
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05			
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05			
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05			
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05			
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05			
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05			
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05			
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05			
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05			
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05			
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05			
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05			
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05			
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05			
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05			
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05			
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05			
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05			
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05			
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05			
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05			
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05			
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05			
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05			
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05			
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05			
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05			
Surrogate: Dibromofluoromethane (80-120%)											108 %
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: 13267 (Study 1)
 Outfall 011

Report Number: IOB1004

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
Sample ID: IOB1004-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)									108 %
Surrogate: Toluene-d8 (80-120%)									101 %
Surrogate: 4-Bromofluorobenzene (80-120%)									98 %

Handwritten: Raw Data, Quality Control



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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: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

DRAFT: FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water)											
Reporting Units: ug/l											
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B17014	1.2	5.0	ND	1	02/17/05	02/17/05	U		
Surrogate: Dibromofluoromethane (80-120%)					108 %						
Surrogate: Toluene-d8 (80-120%)					101 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %						
Sample ID: IOB1004-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l											
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B17014	1.2	5.0	ND	1	02/17/05	02/17/05	U		
Surrogate: Dibromofluoromethane (80-120%)					108 %						
Surrogate: Toluene-d8 (80-120%)					101 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %						

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LEVEL IV



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOB1004

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 #: IOB1004
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 300.0, 330.5, 405.1, 335.2, 218.6, 160.2, 120.1, 160.5, 415.1, 413.1, 350.2, 418.1, and 180.1. Standard Methods for the Examination of Water and Wastewater Method SM5540-C and SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011-Composite	Outfall 011-Composite	IOB1004-01	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. A memo from MWH personnel dated 03/01/05 requested analysis for ammonia, BOD, chloride, nitrate/nitrite, oil and grease, sulfate, surfactants, total dissolved solids, total suspended solids, total settleable solids, turbidity, cyanide, conductivity, and total organic carbon. The COC accounted for the remaining analyses presented in this SDG. 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 28-day analytical holding time for total recoverable hydrocarbons, ammonia, fluoride, sulfate, oil and grease, total organic carbon, and conductivity, the 14-day analytical holding time for cyanide, the seven-day holding time for total dissolved solids and total suspended solids, the 48-hour holding time for turbidity, nitrate/nitrite, surfactants, total settleable solids, and biological oxygen demand, and the 24-hour hexavalent chromium and residual chlorine holding times were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . The initial and continuing calibration verification 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. The total cyanide reporting limit check standard was recovered above control limits at 156%; however, as cyanide was not detected in Outfall 011-Composite, no qualifications were required. Calibration is not applicable to residual chlorine, oil and grease, total dissolved solids, total settleable solids, or total suspended solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5B12055-BLK1 at 0.040 NTU; however, the method blank result was insufficient to qualify the Outfall 011-Composite result. Hexavalent chromium was detected in a bracketing CCB at 0.21 µg/L; however, as hexavalent chromium was not detected in Outfall 011-Composite, no qualifications were required. The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

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

2.11 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

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: IOB1004-01 (DRAFT: Outfall 011-composite - 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

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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: 13267 (Study 1) Outfall 011 Report Number: IOB1004	Sampled: 02/11/05 Received: 02/11/05
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DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5B11129	0.10	0.10	ND	1	02/11/05	02/11/05	u

REV QUAL
QUAL CODE

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MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
 300 North Lake Avenue, Suite 1200 Outfall 011
 Pasadena, CA 91101 Report Number: IOB1004
 Attention: Bronwyn Kelly
 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: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5B12055	0.080	2.0	53	2	02/12/05	02/12/05	RES QUAL / QUAL CODE

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MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
 300 North Lake Avenue, Suite 1200 Outfall 011
 Pasadena, CA 91101 Report Number: IOB1004
 Attention: Bronwyn Kelly 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: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5B16120	1.0	1.0	130	1	02/16/05	02/16/05	REV QUAL QUAL CODE

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

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: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5B15110	0.30	0.50	0.56	1	02/15/05	02/15/05	
Biochemical Oxygen Demand	EPA 405.1	5B11108	0.59	2.0	3.3	1	02/11/05	02/16/05	
Chloride	EPA 300.0	5B11120	0.26	0.50	5.1	1	02/11/05	02/12/05	
Chromium VI	EPA 218.6	5B11047	0.000045	0.0010	ND	1	02/11/05	02/11/05	U
Total Cyanide	EPA 335.2	5B12048	0.0022	0.0050	ND	1	02/12/05	02/12/05	J ↓
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	0.62	1	02/11/05	02/12/05	J ↓
Oil & Grease	EPA 413.1	5B17117	0.94	5.0	ND	1	02/17/05	02/17/05	U ↓
Residual Chlorine	EPA 330.5	5B11072	0.10	0.10	ND	1	02/11/05	02/11/05	U ↓
Sulfate	EPA 300.0	5B11120	0.18	0.50	13	1	02/11/05	02/12/05	U
Surfactants (MBAS)	SM5540-C	5B12050	0.088	0.20	ND	2	02/12/05	02/12/05	U RL-1
Total Dissolved Solids	SM2540C	5B16119	10	10	98	1	02/16/05	02/16/05	
Total Organic Carbon	EPA 415.1	5B23083	0.25	1.0	11	1	02/23/05	02/23/05	
Total Suspended Solids	EPA 160.2	5B17122	10	10	46	1	02/17/05	02/17/05	

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LEVEL IV

DRAFT REPORT
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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOB1004

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 #: IOB1004
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: March 30, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0, and 120.1*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011-Composite	Outfall 011-Composite	IOB1004-01	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 ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8595 FAX (858) 505-9689
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MWH-Pasadena/Boeing	Project ID: 13267 (Study 1)	
300 North Lake Avenue, Suite 1200	Outfall 011	Sampled: 02/11/05
Pasadena, CA 91101	Report Number: IOB1004	Received: 02/11/05
Attention: Bronwyn Kelly		

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	SB16069	0.80	4.0	ND	1	02/16/05	02/17/05	U

AMEC VALIDATED

LEVEL IV


DRAFT REPORT
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV41
 Task Order 313150010
 SDG No. IOB1004
 No. of Analyses 1

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Semivolatiles

Date: April 1, 2005
 Reviewer's Signature 

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., 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 ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB1004

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#: IOB1004
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 1, 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-composite	Outfall 011-composite	IOB1004-01	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 3°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 $\leq 35\%$ 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 $\leq 20\%$, 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. 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 ± 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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 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: IOB1004

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 Code
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water)										
Reporting Units: ug/l										
Acenaphthene	EPA 625	5B14010	0.10	0.50	ND	0.98	02/14/05	02/18/05		
Acenaphthylene	EPA 625	5B14010	0.10	0.50	ND	0.98	02/14/05	02/18/05		
Aniline	EPA 625	5B14010	2.9	10	ND	0.98	02/14/05	02/18/05		
Anthracene	EPA 625	5B14010	0.083	0.50	ND	0.98	02/14/05	02/18/05		
Benzidine	EPA 625	5B14010	2.4	5.0	ND	0.98	02/14/05	02/18/05	L2	
Benzoic acid	EPA 625	5B14010	3.7	20	ND	0.98	02/14/05	02/18/05		
Benzo(a)anthracene	EPA 625	5B14010	0.038	5.0	ND	0.98	02/14/05	02/18/05		
Benzo(a)pyrene	EPA 625	5B14010	0.14	2.0	ND	0.98	02/14/05	02/18/05		
Benzo(b)fluoranthene	EPA 625	5B14010	0.050	2.0	ND	0.98	02/14/05	02/18/05		
Benzo(g,h,i)perylene	EPA 625	5B14010	0.059	5.0	ND	0.98	02/14/05	02/18/05		
Benzo(k)fluoranthene	EPA 625	5B14010	0.053	0.50	ND	0.98	02/14/05	02/18/05		
Benzyl alcohol	EPA 625	5B14010	0.21	5.0	0.27	0.98	02/14/05	02/18/05	J	DNG
Bis(2-chloroethoxy)methane	EPA 625	5B14010	0.072	0.50	ND	0.98	02/14/05	02/18/05		
Bis(2-chloroethyl)ether	EPA 625	5B14010	0.084	0.50	ND	0.98	02/14/05	02/18/05		
Bis(2-chloroisopropyl)ether	EPA 625	5B14010	0.11	0.50	ND	0.98	02/14/05	02/18/05		
Bis(2-ethylhexyl)phthalate	EPA 625	5B14010	1.1	5.0	ND	0.98	02/14/05	02/18/05		
4-Bromophenyl phenyl ether	EPA 625	5B14010	0.12	1.0	ND	0.98	02/14/05	02/18/05		
Butyl benzyl phthalate	EPA 625	5B14010	0.34	5.0	ND	0.98	02/14/05	02/18/05		
4-Chloroaniline	EPA 625	5B14010	0.20	2.0	ND	0.98	02/14/05	02/18/05		
2-Chloronaphthalene	EPA 625	5B14010	0.059	0.50	ND	0.98	02/14/05	02/18/05		
4-Chloro-3-methylphenol	EPA 625	5B14010	0.34	2.0	ND	0.98	02/14/05	02/18/05		
4-Chlorophenyl phenyl ether	EPA 625	5B14010	0.056	0.50	ND	0.98	02/14/05	02/18/05		
2-Chlorophenol	EPA 625	5B14010	0.12	1.0	ND	0.98	02/14/05	02/18/05		
Chrysene	EPA 625	5B14010	0.072	0.50	ND	0.98	02/14/05	02/18/05		
Dibenz(a,h)anthracene	EPA 625	5B14010	0.083	0.50	ND	0.98	02/14/05	02/18/05		
Dibenzofuran	EPA 625	5B14010	0.075	0.50	ND	0.98	02/14/05	02/18/05		
Di-n-butyl phthalate	EPA 625	5B14010	0.26	2.0	ND	0.98	02/14/05	02/18/05		
1,2-Dichlorobenzene	EPA 625	5B14010	0.11	0.50	ND	0.98	02/14/05	02/18/05		
1,3-Dichlorobenzene	EPA 625	5B14010	0.13	0.50	ND	0.98	02/14/05	02/18/05		
1,4-Dichlorobenzene	EPA 625	5B14010	0.050	0.50	ND	0.98	02/14/05	02/18/05		
3,3-Dichlorobenzidine	EPA 625	5B14010	0.93	5.0	ND	0.98	02/14/05	02/18/05		
2,4-Dichlorophenol	EPA 625	5B14010	0.21	2.0	ND	0.98	02/14/05	02/18/05		
Diethyl phthalate	EPA 625	5B14010	0.12	1.0	ND	0.98	02/14/05	02/18/05		
2,4-Dimethylphenol	EPA 625	5B14010	0.31	2.0	ND	0.98	02/14/05	02/18/05		
Dimethyl phthalate	EPA 625	5B14010	0.081	0.50	ND	0.98	02/14/05	02/18/05		
4,6-Dinitro-2-methylphenol	EPA 625	5B14010	0.38	5.0	ND	0.98	02/14/05	02/18/05		
2,4-Dinitrophenol	EPA 625	5B14010	2.7	5.0	ND	0.98	02/14/05	02/18/05		
2,4-Dinitrotoluene	EPA 625	5B14010	0.23	5.0	ND	0.98	02/14/05	02/18/05		
2,6-Dinitrotoluene	EPA 625	5B14010	0.24	5.0	ND	0.98	02/14/05	02/18/05		
Di-n-octyl phthalate	EPA 625	5B14010	0.17	5.0	ND	0.98	02/14/05	02/18/05		
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B14010	0.087	1.0	ND	0.98	02/14/05	02/18/05		

Handwritten notes and arrows on the right side of the table, including 'Qual Code', 'L2', 'J', 'U', 'J', 'C', 'DNG', and 'UJ#5'. A vertical arrow points downwards through the 'Qualifiers' column.

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. IOB1004 <Page 12 of 58>

AMEC VALIDATED

LEVEL IV

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

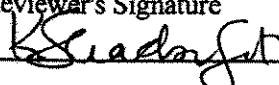
AMEC Earth & Environmental
 550 South Wadsworth Boulevard
 Suite 500
 Lakewood, CO 80226

Package ID T711PP24
 Task Order 313150010
 SDG No. IOB1004
 No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method Pesticides

Date April 1, 2005
 Reviewer's Signature


ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for %D continuing calibration outliers
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
COMMENTS ^b	
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: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB1004

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#: IOB1004
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
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 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 Composite	Outfall 011 Composite	IOB1004-01	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 cooler was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. 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 analyses 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 ± 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 02/17/05 associated with the pesticide analysis of this SDG, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analysis in this SDG which consisted of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242, Aroclor 1248, and Aroclor 1254 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

The pesticide analysis of sample Outfall 011 Composite was bracketed by four continuing calibrations, two preceding and two following the analyses. The %Ds for target compounds endrin aldehyde (02/17/05), 4,4'-DDT and methoxychlor (02/18/05 at 03:14 a.m. and 03:41 a.m.) and heptachlor, 4,4'-DDT, endrin aldehyde and endrin ketone (02/18/05 at 03:41 a.m.) exceeded 15% on the primary channel; therefore, the aforementioned target compounds were qualified as estimated, "UJ," in sample Outfall 011 Composite. The remaining %Ds were within the Method QC limit of $\pm 15\%$ for the remaining calibrations. The PCB analysis for this SDG was bracketed by two CCVs and the %Ds for Aroclor 1016 and Aroclor 1260 were $\leq 15\%$. 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 (5B17042-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 (5B17042-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 the pesticide and PCB analyses of the samples were within the laboratory-established control 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 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 sample. The following are findings associated with field QC samples:

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with 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 the sample, quantitation was verified by recalculating a representative number of

DATA VALIDATION REPORT

blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL studies. The water reporting limits were not adjusted for sample amounts on the result summaries; however, the dilution factors listed on the summaries reflected the sample volumes extracted. Results were reported in ug/L (ppb). No qualifications were required.



17461 Dorian 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
 9464 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 796-3620 FAX (702) 796-3621

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

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	Raw Qual	Final Qual
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.											
Reporting Units: ug/l											
Aldrin	EPA 608	5B17042	0.030	0.10	ND	0.962	02/17/05	02/17/05		U	
alpha-BHC	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05			
beta-BHC	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05			
delta-BHC	EPA 608	5B17042	0.020	0.20	ND	0.962	02/17/05	02/17/05			
gamma-BHC (Lindane)	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05			
Chlordane	EPA 608	5B17042	0.20	1.0	ND	0.962	02/17/05	02/17/05			
4,4'-DDD	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05			
4,4'-DDE	EPA 608	5B17042	0.020	0.10	ND	0.962	02/17/05	02/17/05			
4,4'-DDT	EPA 608	5B17042	0.030	0.10	ND	0.962	02/17/05	02/17/05	CS	UJ	C
Dieldrin	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05		U	
Endosulfan I	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05			
Endosulfan II	EPA 608	5B17042	0.040	0.10	ND	0.962	02/17/05	02/17/05			
Endosulfan sulfate	EPA 608	5B17042	0.015	0.20	ND	0.962	02/17/05	02/17/05			
Endrin	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05			
Endrin aldehyde	EPA 608	5B17042	0.045	0.10	ND	0.962	02/17/05	02/17/05		UJ	C
Endrin ketone	EPA 608	5B17042	0.020	0.10	ND	0.962	02/17/05	02/17/05	CS	UJ	C
Heptachlor	EPA 608	5B17042	0.030	0.10	ND	0.962	02/17/05	02/17/05		UJ	C
Heptachlor epoxide	EPA 608	5B17042	0.020	0.10	ND	0.962	02/17/05	02/17/05		U	
Methoxychlor	EPA 608	5B17042	0.035	0.10	ND	0.962	02/17/05	02/17/05	CS	UJ	C
Toxaphene	EPA 608	5B17042	1.5	5.0	ND	0.962	02/17/05	02/17/05		U	
Surrogate: Tetrachloro-m-xylene (35-120%)											61 %
Surrogate: Decachlorobiphenyl (45-120%)											81 %

Raw Qual
 Final Qual

U
 ↓
 UJ
 U
 ↓
 UJ
 UJ
 U
 UJ
 U

C
 C
 C
 C

AMEC
 10/11/05

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 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1004

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	Qual Code
Sample ID: IOB1004-01 (DRAFT: Outfall 011-composite - Water) - cont.										
Reporting Units: ug/l										
Aroclor 1016	EPA 608	5B17042	0.20	1.0	ND	0.962	02/17/05	02/18/05		u ↓
Aroclor 1221	EPA 608	5B17042	0.10	1.0	ND	0.962	02/17/05	02/18/05		
Aroclor 1232	EPA 608	5B17042	0.15	1.0	ND	0.962	02/17/05	02/18/05		
Aroclor 1242	EPA 608	5B17042	0.15	1.0	ND	0.962	02/17/05	02/18/05		
Aroclor 1248	EPA 608	5B17042	0.25	1.0	ND	0.962	02/17/05	02/18/05		
Aroclor 1254	EPA 608	5B17042	0.25	1.0	ND	0.962	02/17/05	02/18/05		
Aroclor 1260	EPA 608	5B17042	0.40	1.0	ND	0.962	02/17/05	02/18/05		
Surrogate: Decachlorobiphenyl (45-120%)					74 %					

ANALYZED

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 T711RA4
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 11

Laboratory Del Mar

Date: 03/24/05

Reviewer P. Meeks

Reviewer's Signature

Analysis/Method Radionuclides

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:
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*

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

Data Qualifier Reference Table

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

Qualification Code Reference Table

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

***#**

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: 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, 903.1, 904.0, 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 007 RE1	IOB0993-01 RE1	8377-001	water	906.0
Outfall 009	IOB0996-01	8262-001	water	900.0, 905.0, 906.0
Outfall 009 RE1	IOB0996-01 RE1	8378-001	water	906.0
Outfall 008	IOB0997-01	8266-001	water	900.0, 905.0, 906.0
Outfall 008 RE1	IOB0997-01 RE1	8379-001	water	906.0
Outfall 010	IOB1001-01	8267-001	water	900.0, 905.0, 906.0
Outfall 010 RE1	IOB1001-01 RE1	8380-001	water	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 $4\pm 2^{\circ}\text{C}$. Eberline, the subcontract laboratory, did not provide sample receipt temperature information; 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." The gross alpha and gross beta results were not qualified for lack of preservation, as the method also specifies a five-day holding time for unpreserved samples.

Eberline noted on their login sheets that Outfall 007, Outfall 008, Outfall 009 and Outfall 010 were received preserved, in plastic containers. The method states that tritium samples should not be preserved. Per a telephone conversation with M. Mannion of Eberline, these samples were adjusted back to a pH of 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." Del Mar Analytical sent additional aliquots of Outfall 007, Outfall 008, Outfall 009, and Outfall 010 for tritium reanalyses. These samples were received in the proper containers and were not preserved.

Additionally, according to the Los Angeles Regional Water Quality Control Board's guidance letter dated 01/12/05, 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.

After all analyses were complete, Del Mar Analytical sent extra volume of Outfall 001 to Eberline for gross alpha reanalysis and radium-228 and radium-226 analyses. These aliquots were received properly preserved. 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. These instructions did not appear on the transfer COC to Eberline and subsequently only unfiltered analyses 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 gross alpha reanalysis was requested for Outfall 001, and tritium reanalyses were requested for Outfall 007, Outfall 008, Outfall 009, and Outfall 010. To distinguish between the original and reanalysis results, the reviewer added "RE1," suffices to the original MWH and Del Mar Analytical IDs. No qualifications were required.

2.1.3 Holding Times

The tritium, radium, 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).

Gross Beta

The initial calibrations were performed in June 1997. All gross beta detector efficiencies were at least 20% and were considered acceptable.

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.

Strontium-90

The initial calibrations were performed in June 1997. 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.

Radium

The radium-226 cell efficiencies were determined in May 2004. The radium-226 continuing calibration results were within the laboratory-established control limits. The radium-228 calibration utilized actinium-228 and was verified in June 2003. The radium-228 tracer, barium-133, was calibrated in March 2004. The tracer chemical yields were greater than 90%. And the actinium chemical yields were greater than 65%. 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

Six blank spikes (8261-002, 8237-002, 8269-002, 2008-002, 9479-004, 8377-002) 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 analyses for gross alpha, gross beta, tritium, and strontium on Outfall 002, Outfall 007, and Outfall 003 Substrate, and for tritium on Outfall 007 RE1. 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 associated 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 for gross alpha, gross beta, and tritium on Outfall 002 and Outfall 007 and for tritium on Outfall 007 RE1. 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: Multiple
Analysis: RAD

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>8263</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502134-01</u>	Contract <u>PROJECT# IOB1004</u>
Received Date <u>02/15/05</u>	Matrix <u>WATER</u>

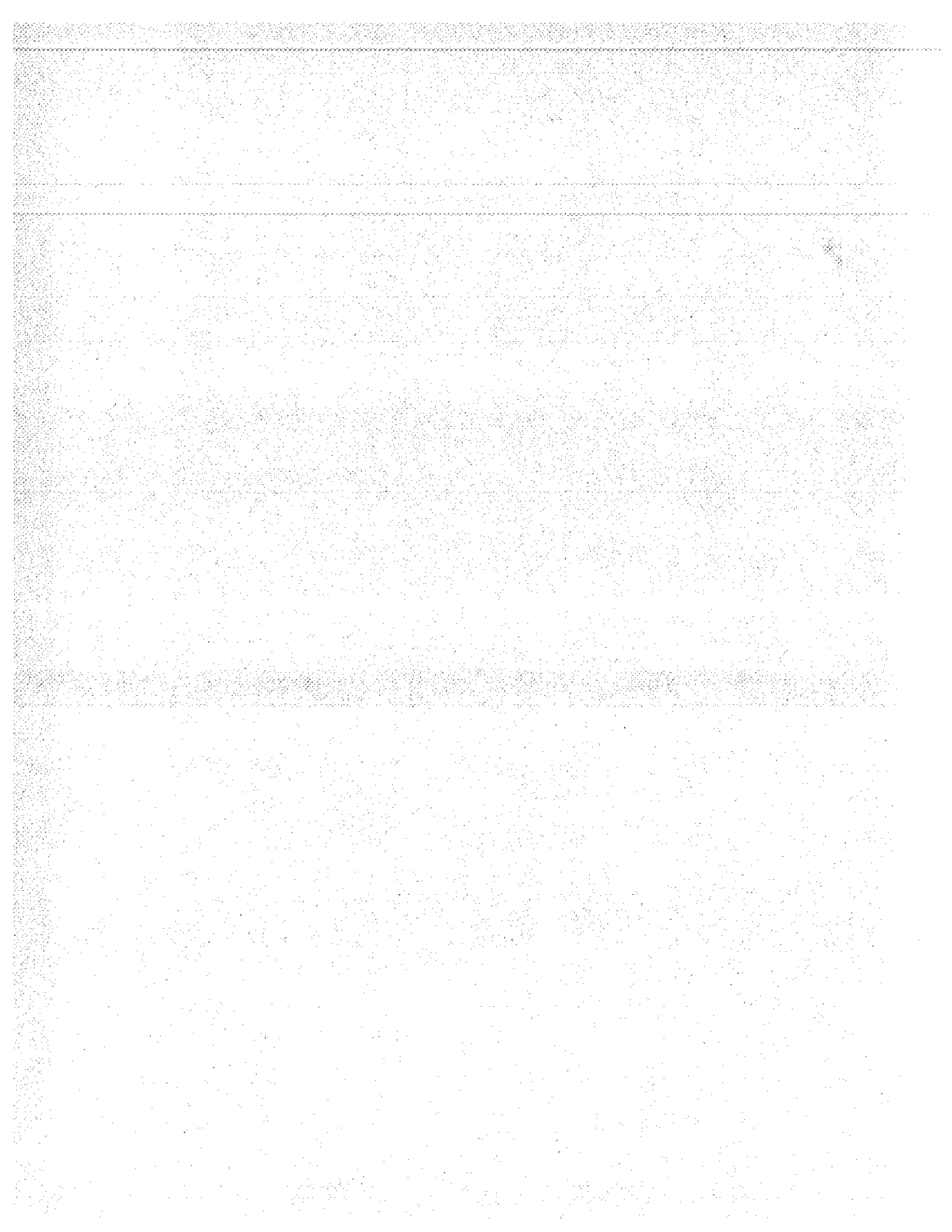
Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Rev Qual	Qual Code
Outfall 011 IOB1004-01	8263-001		02/11/05	03/01/05	GrossAlpha	2.03 ± 0.91	pCi/L	0.787	J	R, Q
				03/01/05	Gross Beta	2.30 ± 1.2	pCi/L	1.78		
				03/02/05	H3	21.1 ± 140	pCi/L	240	U	
				02/25/05	Sr90	-0.060 ± 0.23	pCi/L	0.470	U	

PM 3/24/05

AMEC VALIDATED

LEVEL IV

Certified by <u><i>[Signature]</i></u>
Report Date <u>03/08/05</u>
Page 1





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

LABORATORY REPORT

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

Project: Outfall 011

Sampled: 02/11/05
 Received: 02/11/05
 Issued: 04/05/05 12:14

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(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	CLIENT ID	MATRIX
IOB1004-01	Outfall 011-composite	Water
IOB1004-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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
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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: IOB1004

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 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
Wendy Kirkeeng For Michele Harper
Project Manager



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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 (658) 505-8596 FAX (658) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Outfall 011

Report Number: IOB1004

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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOB1004 <Page 3 of 58>



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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: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - 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
 Wendy Kirkeeng For Michele Harper
 Project Manager

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

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

Project ID: Outfall 011

Report Number: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5B12001	0.082	0.50	ND	0.99	02/12/05	02/14/05	
<i>Surrogate: n-Octacosane (40-125%)</i>					55 %				

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 011

Report Number: IOB1004

Sampled: 02/11/05

Received: 02/11/05

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
Sample ID: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B20029	0.050	0.10	ND	1	02/20/05	02/21/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					88 %				
Sample ID: IOB1004-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B20029	0.050	0.10	ND	1	02/20/05	02/20/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					85 %				

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

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

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

Project ID: Outfall 011

Report Number: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - Water)									
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B17014	1.2	5.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				
Sample ID: IOB1004-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B17014	1.2	5.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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: IOB1004

Sampled: 02/11/05

Received: 02/11/05

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: IOB1004-01 (Outfall 011-composite - Water)

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%)					95 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %				

Sample ID: IOB1004-02 (Trip Blank - Water)

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%)					104 %				
Surrogate: Toluene-d8 (80-120%)					106 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					103 %				

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

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 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 (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: Outfall 011

Report Number: IOB1004

Sampled: 02/11/05

Received: 02/11/05

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: IOB1004-01 (Outfall 011-composite - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 011

Report Number: IOB1004

Sampled: 02/11/05

Received: 02/11/05

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: IOB1004-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	

Surrogate: Dibromofluoromethane (80-120%)

108 %

Surrogate: Toluene-d8 (80-120%)

101 %

Surrogate: 4-Bromofluorobenzene (80-120%)

98 %

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 011

Report Number: IOB1004

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
Sample ID: IOB1004-01 (Outfall 011-composite - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	
Sample ID: IOB1004-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	
Cyclohexane	EPA 624 (MOD.)	5B17014	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: Outfall 011

Report Number: IOB1004

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: IOB1004-01 (Outfall 011-composite - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B14010	0.10	0.50	ND	0.98	02/14/05	02/18/05	
Acenaphthylene	EPA 625	5B14010	0.10	0.50	ND	0.98	02/14/05	02/18/05	
Aniline	EPA 625	5B14010	2.9	10	ND	0.98	02/14/05	02/18/05	
Anthracene	EPA 625	5B14010	0.083	0.50	ND	0.98	02/14/05	02/18/05	
Benzidine	EPA 625	5B14010	2.4	5.0	ND	0.98	02/14/05	02/18/05	L2
Benzoic acid	EPA 625	5B14010	3.7	20	ND	0.98	02/14/05	02/18/05	
Benzo(a)anthracene	EPA 625	5B14010	0.038	5.0	ND	0.98	02/14/05	02/18/05	
Benzo(a)pyrene	EPA 625	5B14010	0.14	2.0	ND	0.98	02/14/05	02/18/05	
Benzo(b)fluoranthene	EPA 625	5B14010	0.050	2.0	ND	0.98	02/14/05	02/18/05	
Benzo(g,h,i)perylene	EPA 625	5B14010	0.059	5.0	ND	0.98	02/14/05	02/18/05	
Benzo(k)fluoranthene	EPA 625	5B14010	0.053	0.50	ND	0.98	02/14/05	02/18/05	
Benzyl alcohol	EPA 625	5B14010	0.21	5.0	0.27	0.98	02/14/05	02/18/05	J
Bis(2-chloroethoxy)methane	EPA 625	5B14010	0.072	0.50	ND	0.98	02/14/05	02/18/05	
Bis(2-chloroethyl)ether	EPA 625	5B14010	0.084	0.50	ND	0.98	02/14/05	02/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B14010	0.11	0.50	ND	0.98	02/14/05	02/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B14010	1.1	5.0	ND	0.98	02/14/05	02/18/05	
4-Bromophenyl phenyl ether	EPA 625	5B14010	0.12	1.0	ND	0.98	02/14/05	02/18/05	
Butyl benzyl phthalate	EPA 625	5B14010	0.34	5.0	ND	0.98	02/14/05	02/18/05	
4-Chloroaniline	EPA 625	5B14010	0.20	2.0	ND	0.98	02/14/05	02/18/05	
2-Chloronaphthalene	EPA 625	5B14010	0.059	0.50	ND	0.98	02/14/05	02/18/05	
4-Chloro-3-methylphenol	EPA 625	5B14010	0.34	2.0	ND	0.98	02/14/05	02/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5B14010	0.056	0.50	ND	0.98	02/14/05	02/18/05	
2-Chlorophenol	EPA 625	5B14010	0.12	1.0	ND	0.98	02/14/05	02/18/05	
Chrysene	EPA 625	5B14010	0.072	0.50	ND	0.98	02/14/05	02/18/05	
Dibenz(a,h)anthracene	EPA 625	5B14010	0.083	0.50	ND	0.98	02/14/05	02/18/05	
Dibenzofuran	EPA 625	5B14010	0.075	0.50	ND	0.98	02/14/05	02/18/05	
Di-n-butyl phthalate	EPA 625	5B14010	0.26	2.0	ND	0.98	02/14/05	02/18/05	
1,2-Dichlorobenzene	EPA 625	5B14010	0.11	0.50	ND	0.98	02/14/05	02/18/05	
1,3-Dichlorobenzene	EPA 625	5B14010	0.13	0.50	ND	0.98	02/14/05	02/18/05	
1,4-Dichlorobenzene	EPA 625	5B14010	0.050	0.50	ND	0.98	02/14/05	02/18/05	
3,3-Dichlorobenzidine	EPA 625	5B14010	0.93	5.0	ND	0.98	02/14/05	02/18/05	
2,4-Dichlorophenol	EPA 625	5B14010	0.21	2.0	ND	0.98	02/14/05	02/18/05	
Diethyl phthalate	EPA 625	5B14010	0.12	1.0	ND	0.98	02/14/05	02/18/05	
2,4-Dimethylphenol	EPA 625	5B14010	0.31	2.0	ND	0.98	02/14/05	02/18/05	
Dimethyl phthalate	EPA 625	5B14010	0.081	0.50	ND	0.98	02/14/05	02/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B14010	0.38	5.0	ND	0.98	02/14/05	02/18/05	
2,4-Dinitrophenol	EPA 625	5B14010	2.7	5.0	ND	0.98	02/14/05	02/18/05	
2,4-Dinitrotoluene	EPA 625	5B14010	0.23	5.0	ND	0.98	02/14/05	02/18/05	
2,6-Dinitrotoluene	EPA 625	5B14010	0.24	5.0	ND	0.98	02/14/05	02/18/05	
Di-n-octyl phthalate	EPA 625	5B14010	0.17	5.0	ND	0.98	02/14/05	02/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B14010	0.087	1.0	ND	0.98	02/14/05	02/18/05	

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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 011

Report Number: IOB1004

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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5B14010	0.089	0.50	ND	0.98	02/14/05	02/18/05	
Fluorene	EPA 625	5B14010	0.075	0.50	ND	0.98	02/14/05	02/18/05	
Hexachlorobenzene	EPA 625	5B14010	0.13	1.0	ND	0.98	02/14/05	02/18/05	
Hexachlorobutadiene	EPA 625	5B14010	0.38	2.0	ND	0.98	02/14/05	02/18/05	
Hexachlorocyclopentadiene	EPA 625	5B14010	1.8	5.0	ND	0.98	02/14/05	02/18/05	
Hexachloroethane	EPA 625	5B14010	0.51	3.0	ND	0.98	02/14/05	02/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B14010	0.19	2.0	ND	0.98	02/14/05	02/18/05	
Isophorone	EPA 625	5B14010	0.059	1.0	ND	0.98	02/14/05	02/18/05	
2-Methylnaphthalene	EPA 625	5B14010	0.13	1.0	0.16	0.98	02/14/05	02/18/05	B, J
2-Methylphenol	EPA 625	5B14010	0.28	2.0	ND	0.98	02/14/05	02/18/05	
4-Methylphenol	EPA 625	5B14010	0.20	5.0	ND	0.98	02/14/05	02/18/05	
Naphthalene	EPA 625	5B14010	0.13	1.0	ND	0.98	02/14/05	02/18/05	
2-Nitroaniline	EPA 625	5B14010	0.18	5.0	ND	0.98	02/14/05	02/18/05	
3-Nitroaniline	EPA 625	5B14010	0.35	5.0	ND	0.98	02/14/05	02/18/05	
4-Nitroaniline	EPA 625	5B14010	0.49	5.0	ND	0.98	02/14/05	02/18/05	
Nitrobenzene	EPA 625	5B14010	0.10	1.0	ND	0.98	02/14/05	02/18/05	
2-Nitrophenol	EPA 625	5B14010	0.23	2.0	ND	0.98	02/14/05	02/18/05	
4-Nitrophenol	EPA 625	5B14010	0.73	5.0	ND	0.98	02/14/05	02/18/05	
N-Nitrosodimethylamine	EPA 625	5B14010	0.22	2.0	ND	0.98	02/14/05	02/18/05	C
N-Nitroso-di-n-propylamine	EPA 625	5B14010	0.18	2.0	ND	0.98	02/14/05	02/18/05	
N-Nitrosodiphenylamine	EPA 625	5B14010	0.077	1.0	ND	0.98	02/14/05	02/18/05	
Pentachlorophenol	EPA 625	5B14010	0.78	2.0	ND	0.98	02/14/05	02/18/05	
Phenanthrene	EPA 625	5B14010	0.071	0.50	ND	0.98	02/14/05	02/18/05	
Phenol	EPA 625	5B14010	0.14	1.0	ND	0.98	02/14/05	02/18/05	
Pyrene	EPA 625	5B14010	0.059	0.50	ND	0.98	02/14/05	02/18/05	
1,2,4-Trichlorobenzene	EPA 625	5B14010	0.10	1.0	ND	0.98	02/14/05	02/18/05	
2,4,5-Trichlorophenol	EPA 625	5B14010	0.075	2.0	ND	0.98	02/14/05	02/18/05	
2,4,6-Trichlorophenol	EPA 625	5B14010	0.10	1.0	ND	0.98	02/14/05	02/18/05	
Surrogate: 2-Fluorophenol (35-120%)					77 %				
Surrogate: Phenol-d6 (45-120%)					80 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					88 %				
Surrogate: Nitrobenzene-d5 (45-120%)					78 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					75 %				
Surrogate: Terphenyl-d14 (45-135%)					71 %				

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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: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B17042	0.030	0.10	ND	0.962	02/17/05	02/17/05	
alpha-BHC	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
beta-BHC	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
delta-BHC	EPA 608	5B17042	0.020	0.20	ND	0.962	02/17/05	02/17/05	
gamma-BHC (Lindane)	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
Chlordane	EPA 608	5B17042	0.20	1.0	ND	0.962	02/17/05	02/17/05	
4,4'-DDD	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
4,4'-DDE	EPA 608	5B17042	0.020	0.10	ND	0.962	02/17/05	02/17/05	
4,4'-DDT	EPA 608	5B17042	0.030	0.10	ND	0.962	02/17/05	02/17/05	C5
Dieldrin	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
Endosulfan I	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
Endosulfan II	EPA 608	5B17042	0.040	0.10	ND	0.962	02/17/05	02/17/05	
Endosulfan sulfate	EPA 608	5B17042	0.015	0.20	ND	0.962	02/17/05	02/17/05	
Endrin	EPA 608	5B17042	0.015	0.10	ND	0.962	02/17/05	02/17/05	
Endrin aldehyde	EPA 608	5B17042	0.045	0.10	ND	0.962	02/17/05	02/17/05	
Endrin ketone	EPA 608	5B17042	0.020	0.10	ND	0.962	02/17/05	02/17/05	C5
Heptachlor	EPA 608	5B17042	0.030	0.10	ND	0.962	02/17/05	02/17/05	
Heptachlor epoxide	EPA 608	5B17042	0.020	0.10	ND	0.962	02/17/05	02/17/05	
Methoxychlor	EPA 608	5B17042	0.035	0.10	ND	0.962	02/17/05	02/17/05	C5
Toxaphene	EPA 608	5B17042	1.5	5.0	ND	0.962	02/17/05	02/17/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					61 %				
Surrogate: Decachlorobiphenyl (45-120%)					81 %				

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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: IOB1004

Sampled: 02/11/05

Received: 02/11/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B17042	0.20	1.0	ND	0.962	02/17/05	02/18/05	
Aroclor 1221	EPA 608	5B17042	0.10	1.0	ND	0.962	02/17/05	02/18/05	
Aroclor 1232	EPA 608	5B17042	0.15	1.0	ND	0.962	02/17/05	02/18/05	
Aroclor 1242	EPA 608	5B17042	0.15	1.0	ND	0.962	02/17/05	02/18/05	
Aroclor 1248	EPA 608	5B17042	0.25	1.0	ND	0.962	02/17/05	02/18/05	
Aroclor 1254	EPA 608	5B17042	0.25	1.0	ND	0.962	02/17/05	02/18/05	
Aroclor 1260	EPA 608	5B17042	0.40	1.0	ND	0.962	02/17/05	02/18/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					74 %				

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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5B17112	0.00014	0.0010	0.024	1	02/17/05	02/22/05	
Boron	EPA 200.7	5B17127	0.0074	0.050	0.047	1	02/17/05	02/20/05	J
Iron	EPA 200.8	5B17112	0.0032	0.010	2.2	1	02/17/05	02/22/05	

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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B17112	0.18	2.0	0.63	1	02/17/05	02/22/05	J
Arsenic	EPA 200.8	5B17112	0.49	1.0	1.1	1	02/17/05	02/22/05	B
Beryllium	EPA 200.8	5B17112	0.037	0.50	0.10	1	02/17/05	02/22/05	J
Cadmium	EPA 200.8	5B17112	0.015	1.0	0.13	1	02/17/05	02/22/05	J
Chromium	EPA 200.8	5B17112	0.26	1.0	3.9	1	02/17/05	02/24/05	
Cobalt	EPA 200.8	5B17112	0.10	1.0	0.84	1	02/17/05	02/22/05	J
Copper	EPA 200.8	5B17112	0.49	2.0	4.4	1	02/17/05	02/22/05	
Lead	EPA 200.8	5B17112	0.13	1.0	1.6	1	02/17/05	02/22/05	
Manganese	EPA 200.8	5B17112	0.44	1.0	43	1	02/17/05	02/22/05	
Mercury	EPA 245.1	5B15070	0.063	0.20	ND	1	02/15/05	02/15/05	
Nickel	EPA 200.8	5B17112	0.15	1.0	3.4	1	02/17/05	02/22/05	
Selenium	EPA 200.8	5B17112	0.36	2.0	ND	1	02/17/05	02/22/05	
Silver	EPA 200.8	5B17112	0.089	1.0	ND	1	02/17/05	02/22/05	
Thallium	EPA 200.8	5B17112	0.075	1.0	ND	1	02/17/05	02/22/05	
Vanadium	EPA 200.8	5B17112	0.86	1.0	5.5	1	02/17/05	02/23/05	
Zinc	EPA 200.8	5B17112	3.1	20	17	1	02/17/05	02/22/05	J

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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: IOB1004

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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5B15110	0.30	0.50	0.56	1	02/15/05	02/15/05	
Biochemical Oxygen Demand	EPA 405.1	5B11108	0.59	2.0	3.3	1	02/11/05	02/16/05	
Chloride	EPA 300.0	5B11120	0.26	0.50	5.1	1	02/11/05	02/12/05	
Chromium VI	EPA 218.6	5B11047	0.000045	0.0010	ND	1	02/11/05	02/11/05	
Total Cyanide	EPA 335.2	5B12048	0.0022	0.0050	ND	1	02/12/05	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	0.62	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B17117	0.94	5.0	ND	1	02/17/05	02/17/05	
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	13	1	02/11/05	02/12/05	
Surfactants (MBAS)	SM5540-C	5B12050	0.088	0.20	ND	2	02/12/05	02/12/05	RL-1
Total Dissolved Solids	SM2540C	5B16119	10	10	98	1	02/16/05	02/16/05	
Total Organic Carbon	EPA 415.1	5B23083	0.25	1.0	11	1	02/23/05	02/23/05	
Total Suspended Solids	EPA 160.2	5B17122	10	10	46	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: Outfall 011

Report Number: IOB1004

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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5B11129	0.10	0.10	ND	1	02/11/05	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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5B12055	0.080	2.0	53	2	02/12/05	02/12/05	

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Received: 02/11/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5B16069	0.80	4.0	ND	1	02/16/05	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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5B16120	1.0	1.0	130	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: IOB1004-01 (Outfall 011-composite - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5B1701	0.49	1.0	ND	1	02/17/05	02/17/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					96 %				

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Sampled: 02/11/05

Received: 02/11/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 011-composite (IOB1004-01) - Water					
EPA 160.5	2	02/11/2005 16:00	02/11/2005 20:30	02/11/2005 22:30	02/11/2005 23:00
EPA 180.1	2	02/11/2005 16:00	02/11/2005 20:30	02/12/2005 12:00	02/12/2005 13:00
EPA 218.6	1	02/11/2005 16:00	02/11/2005 20:30	02/11/2005 22:30	02/11/2005 23:25
EPA 300.0	2	02/11/2005 16:00	02/11/2005 20:30	02/11/2005 23:00	02/12/2005 06:36
EPA 330.5	1	02/11/2005 16:00	02/11/2005 20:30	02/11/2005 18:06	02/11/2005 23:00
EPA 405.1	2	02/11/2005 16:00	02/11/2005 20:30	02/11/2005 23:50	02/16/2005 13:30
EPA 624	3	02/11/2005 16:00	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 18:57
SM5540-C	2	02/11/2005 16:00	02/11/2005 20:30	02/12/2005 13:09	02/12/2005 17:41
Sample ID: Trip Blank (IOB1004-02) - Water					
EPA 624	3	02/11/2005 16:00	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 21:01

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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 RPD	RPD Limit	Data Qualifiers
Batch: 5B15078 Extracted: 02/15/05										
Blank Analyzed: 02/15/2005 (5B15078-BLK1)										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
LCS Analyzed: 02/15/2005 (5B15078-BS1)										
Total Recoverable Hydrocarbons	4.46	1.0	0.31	mg/l	5.00		89	65-120		M-NR1
LCS Dup Analyzed: 02/15/2005 (5B15078-BSD1)										
Total Recoverable Hydrocarbons	4.21	1.0	0.31	mg/l	5.00		84	65-120	6	20

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-8689
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 300 North Lake Avenue, Suite 1200
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 Attention: Bronwyn Kelly

Project ID: Outfall 011

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METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B12001 Extracted: 02/12/05											
Blank Analyzed: 02/14/2005 (5B12001-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	0.104			mg/l	0.200		52	40-125			
LCS Analyzed: 02/14/2005 (5B12001-BS1)											
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			
LCS Dup Analyzed: 02/14/2005 (5B12001-BSD1)											
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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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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 300 North Lake Avenue, Suite 1200
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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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B20029 Extracted: 02/20/05											
Blank Analyzed: 02/20/2005 (5B20029-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00927			mg/l	0.0100		93	65-140			
LCS Analyzed: 02/20/2005 (5B20029-BS1)											
GRO (C4 - C12)	0.616	0.10	0.050	mg/l	0.800		77	70-140			
Surrogate: 4-BFB (FID)	0.0260			mg/l	0.0300		87	65-140			
Matrix Spike Analyzed: 02/20/2005 (5B20029-MS1)						Source: IOB1121-09					
GRO (C4 - C12)	0.219	0.10	0.050	mg/l	0.220	ND	100	60-140			
Surrogate: 4-BFB (FID)	0.00982			mg/l	0.0100		98	65-140			
Matrix Spike Dup Analyzed: 02/20/2005 (5B20029-MSD1)						Source: IOB1121-09					
GRO (C4 - C12)	0.209	0.10	0.050	mg/l	0.220	ND	95	60-140	5	20	
Surrogate: 4-BFB (FID)	0.0104			mg/l	0.0100		104	65-140			

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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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FREON 113 (EPA 8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17014-BLK1)											
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B12011 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12011-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	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			
LCS Analyzed: 02/12/2005 (5B12011-BS1)											
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			
Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1) Source: IOB0980-01											
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			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1) Source: IOB0980-01											
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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PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5B17014 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17014-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120		

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17014-BS1)											
Benzene	24.9	1.0	0.28	ug/l	25.0		100	70-120			
Bromodichloromethane	25.7	2.0	0.30	ug/l	25.0		103	70-140			
Bromoform	24.2	5.0	0.32	ug/l	25.0		97	55-135			
Bromomethane	29.1	5.0	0.34	ug/l	25.0		116	60-140			
Carbon tetrachloride	26.2	0.50	0.28	ug/l	25.0		105	70-140			
Chlorobenzene	23.4	2.0	0.36	ug/l	25.0		94	80-125			
Chloroethane	27.4	5.0	0.33	ug/l	25.0		110	60-145			
Chloroform	26.2	2.0	0.33	ug/l	25.0		105	75-130			
Chloromethane	25.8	5.0	0.30	ug/l	25.0		103	40-145			
Dibromochloromethane	24.7	2.0	0.28	ug/l	25.0		99	65-145			
1,2-Dichlorobenzene	23.3	2.0	0.32	ug/l	25.0		93	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0		94	80-120			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0		92	80-120			
1,1-Dichloroethane	25.5	2.0	0.27	ug/l	25.0		102	70-135			
1,2-Dichloroethane	25.9	0.50	0.28	ug/l	25.0		104	60-150			
1,1-Dichloroethene	24.6	5.0	0.32	ug/l	25.0		98	75-135			
trans-1,2-Dichloroethene	25.4	2.0	0.27	ug/l	25.0		102	70-130			
1,2-Dichloropropane	24.8	2.0	0.35	ug/l	25.0		99	70-120			
cis-1,3-Dichloropropene	25.6	2.0	0.22	ug/l	25.0		102	75-130			
trans-1,3-Dichloropropene	25.7	2.0	0.24	ug/l	25.0		103	75-135			
Ethylbenzene	26.4	2.0	0.25	ug/l	25.0		106	80-120			
Methylene chloride	25.4	5.0	0.48	ug/l	25.0		102	60-135			
1,1,2,2-Tetrachloroethane	23.2	2.0	0.24	ug/l	25.0		93	60-135			
Tetrachloroethene	23.2	2.0	0.32	ug/l	25.0		93	75-125			
Toluene	24.6	2.0	0.36	ug/l	25.0		98	75-120			
1,1,1-Trichloroethane	27.1	2.0	0.30	ug/l	25.0		108	75-140			
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0		100	70-125			
Trichloroethene	23.4	2.0	0.26	ug/l	25.0		94	80-120			
Trichlorofluoromethane	28.0	5.0	0.34	ug/l	25.0		112	65-145			
Vinyl chloride	27.7	0.50	0.26	ug/l	25.0		111	50-130			
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0		108	80-120			

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
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PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05											
Matrix Spike Analyzed: 02/17/2005 (5B17014-MS1)						Source: IOB1001-01					
Benzene	25.2	1.0	0.28	ug/l	25.0	ND	101	70-120			
Bromodichloromethane	26.3	2.0	0.30	ug/l	25.0	ND	105	70-140			
Bromoform	23.7	5.0	0.32	ug/l	25.0	ND	95	55-140			
Bromomethane	28.7	5.0	0.34	ug/l	25.0	ND	115	50-145			
Carbon tetrachloride	26.8	0.50	0.28	ug/l	25.0	ND	107	70-145			
Chlorobenzene	23.0	2.0	0.36	ug/l	25.0	ND	92	80-125			
Chloroethane	26.4	5.0	0.33	ug/l	25.0	ND	106	50-145			
Chloroform	26.9	2.0	0.33	ug/l	25.0	ND	108	70-135			
Chloromethane	24.7	5.0	0.30	ug/l	25.0	ND	99	35-145			
Dibromochloromethane	24.8	2.0	0.28	ug/l	25.0	ND	99	65-145			
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130			
1,3-Dichlorobenzene	23.4	2.0	0.35	ug/l	25.0	ND	94	75-130			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0	ND	92	80-120			
1,1-Dichloroethane	26.4	2.0	0.27	ug/l	25.0	ND	106	65-135			
1,2-Dichloroethane	27.2	0.50	0.28	ug/l	25.0	ND	109	60-150			
1,1-Dichloroethene	25.2	5.0	0.32	ug/l	25.0	ND	101	65-140			
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135			
1,2-Dichloropropane	24.9	2.0	0.35	ug/l	25.0	ND	100	65-130			
cis-1,3-Dichloropropene	26.0	2.0	0.22	ug/l	25.0	ND	104	70-140			
trans-1,3-Dichloropropene	26.3	2.0	0.24	ug/l	25.0	ND	105	70-140			
Ethylbenzene	26.1	2.0	0.25	ug/l	25.0	ND	104	70-130			
Methylene chloride	26.0	5.0	0.48	ug/l	25.0	ND	104	60-135			
1,1,2,2-Tetrachloroethane	23.1	2.0	0.24	ug/l	25.0	ND	92	60-145			
Tetrachloroethene	22.7	2.0	0.32	ug/l	25.0	ND	91	70-130			
Toluene	25.2	2.0	0.36	ug/l	25.0	ND	101	70-120			
1,1,1-Trichloroethane	28.0	2.0	0.30	ug/l	25.0	ND	112	75-140			
1,1,2-Trichloroethane	25.1	2.0	0.30	ug/l	25.0	ND	100	60-135			
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125			
Trichlorofluoromethane	28.7	5.0	0.34	ug/l	25.0	ND	115	55-145			
Vinyl chloride	26.3	0.50	0.26	ug/l	25.0	ND	105	40-135			
Surrogate: Dibromofluoromethane	27.5			ug/l	25.0		110	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	26.5			ug/l	25.0		106	80-120			

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 Project Manager



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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: IOB1004

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
Batch: 5B17014 Extracted: 02/17/05											
Matrix Spike Dup Analyzed: 02/17/2005 (5B17014-MSD1)						Source: IOB1001-01					
Benzene	25.1	1.0	0.28	ug/l	25.0	ND	100	70-120	0	20	
Bromodichloromethane	25.4	2.0	0.30	ug/l	25.0	ND	102	70-140	3	20	
Bromoform	21.6	5.0	0.32	ug/l	25.0	ND	86	55-140	9	25	
Bromomethane	31.0	5.0	0.34	ug/l	25.0	ND	124	50-145	8	25	
Carbon tetrachloride	26.5	0.50	0.28	ug/l	25.0	ND	106	70-145	1	25	
Chlorobenzene	23.9	2.0	0.36	ug/l	25.0	ND	96	80-125	4	20	
Chloroethane	29.6	5.0	0.33	ug/l	25.0	ND	118	50-145	11	25	
Chloroform	26.4	2.0	0.33	ug/l	25.0	ND	106	70-135	2	20	
Chloromethane	28.0	5.0	0.30	ug/l	25.0	ND	112	35-145	13	25	
Dibromochloromethane	23.4	2.0	0.28	ug/l	25.0	ND	94	65-145	6	25	
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130	0	20	
1,3-Dichlorobenzene	24.0	2.0	0.35	ug/l	25.0	ND	96	75-130	3	20	
1,4-Dichlorobenzene	23.6	2.0	0.37	ug/l	25.0	ND	94	80-120	3	20	
1,1-Dichloroethane	26.1	2.0	0.27	ug/l	25.0	ND	104	65-135	1	20	
1,2-Dichloroethane	24.5	0.50	0.28	ug/l	25.0	ND	98	60-150	10	20	
1,1-Dichloroethene	24.9	5.0	0.32	ug/l	25.0	ND	100	65-140	1	20	
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135	0	20	
1,2-Dichloropropane	24.3	2.0	0.35	ug/l	25.0	ND	97	65-130	2	20	
cis-1,3-Dichloropropene	25.2	2.0	0.22	ug/l	25.0	ND	101	70-140	3	20	
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140	7	25	
Ethylbenzene	27.0	2.0	0.25	ug/l	25.0	ND	108	70-130	3	20	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	ND	102	60-135	2	20	
1,1,2,2-Tetrachloroethane	20.8	2.0	0.24	ug/l	25.0	ND	83	60-145	10	30	
Tetrachloroethene	23.9	2.0	0.32	ug/l	25.0	ND	96	70-130	5	20	
Toluene	24.9	2.0	0.36	ug/l	25.0	ND	100	70-120	1	20	
1,1,1-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	75-140	1	20	
1,1,2-Trichloroethane	22.8	2.0	0.30	ug/l	25.0	ND	91	60-135	10	25	
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125	0	20	
Trichlorofluoromethane	28.5	5.0	0.34	ug/l	25.0	ND	114	55-145	1	25	
Vinyl chloride	30.0	0.50	0.26	ug/l	25.0	ND	120	40-135	13	30	
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	26.4			ug/l	25.0		106	80-120			

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 Project Manager



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 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

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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOB1004

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 Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17014-BLK1)										
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l						
Cyclohexane	ND	2.5	N/A	ug/l						

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4687 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (658) 505-8596 FAX (658) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOB1004

Sampled: 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 Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
Blank Analyzed: 02/18/2005 (5B14010-BLK1)										
Acenaphthene	ND	0.50	0.10	ug/l						
Acenaphthylene	ND	0.50	0.10	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	0.50	0.083	ug/l						
Benzidine	ND	5.0	2.4	ug/l						
Benzoic acid	ND	20	3.7	ug/l						
Benzo(a)anthracene	ND	5.0	0.038	ug/l						
Benzo(a)pyrene	ND	2.0	0.14	ug/l						
Benzo(b)fluoranthene	ND	2.0	0.050	ug/l						
Benzo(g,h,i)perylene	ND	5.0	0.059	ug/l						
Benzo(k)fluoranthene	ND	0.50	0.053	ug/l						
Benzyl alcohol	ND	5.0	0.21	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	0.072	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	0.084	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	0.11	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	0.12	ug/l						
Butyl benzyl phthalate	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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 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: IOB1004	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	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
Blank Analyzed: 02/18/2005 (5B14010-BLK1)										
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	

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
Blank Analyzed: 02/18/2005 (5B14010-BLK1)										
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			
LCS Analyzed: 02/18/2005 (5B14010-BS1)										
Acenaphthene	7.94	0.50	0.10	ug/l	10.0		79 55-120			
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			

M-NR1

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 Project Manager



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 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
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Report Number: IOB1004

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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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
LCS Analyzed: 02/18/2005 (5B14010-BS1)										
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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 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) 505-9889
 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: IOB1004

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
Batch: 5B14010 Extracted: 02/14/05										
LCS Analyzed: 02/18/2005 (5B14010-BS1)										
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			
LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)										
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	
Benzidine	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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 Project Manager



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17461 Darian 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
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Project ID: Outfall 011

Report Number: IOB1004

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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	Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05											
LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)											
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		

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 Project Manager



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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MWH-Pasadena/Boeing
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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOB1004

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
Batch: 5B14010 Extracted: 02/14/05											
LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)											
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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 Wendy Kirkeeng For Michele Harper
 Project Manager

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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) 370-4687 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
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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
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Batch: 5B17042 Extracted: 02/17/05

Blank Analyzed: 02/17/2005-02/18/2005 (5B17042-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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						
Eridosulfan 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	0.264			ug/l	0.500		53		35-120	
Surrogate: Decachlorobiphenyl	0.339			ug/l	0.500		68		45-120	

LCS Analyzed: 02/18/2005 (5B17042-BS1)

M-NR1

Aldrin	0.364	0.10	0.030	ug/l	0.500		73		45-115	
alpha-BHC	0.374	0.10	0.015	ug/l	0.500		75		45-115	
beta-BHC	0.373	0.10	0.015	ug/l	0.500		75		50-115	
delta-BHC	0.391	0.20	0.020	ug/l	0.500		78		55-120	
gamma-BHC (Lindane)	0.385	0.10	0.015	ug/l	0.500		77		45-115	
4,4'-DDD	0.415	0.10	0.015	ug/l	0.500		83		60-120	
4,4'-DDE	0.412	0.10	0.020	ug/l	0.500		82		55-120	
4,4'-DDT	0.424	0.10	0.030	ug/l	0.500		85		60-130	
Dieldrin	0.403	0.10	0.015	ug/l	0.500		81		55-120	
Endosulfan I	0.384	0.10	0.015	ug/l	0.500		77		50-115	
Endosulfan II	0.397	0.10	0.040	ug/l	0.500		79		60-125	
Endosulfan sulfate	0.425	0.20	0.015	ug/l	0.500		85		60-120	

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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
Batch: 5B17042 Extracted: 02/17/05										
LCS Analyzed: 02/18/2005 (5B17042-BS1)										
Endrin	0.446	0.10	0.015	ug/l	0.500	89	55-125			M-NR1
Endrin aldehyde	0.374	0.10	0.045	ug/l	0.500	75	55-115			
Endrin ketone	0.423	0.10	0.020	ug/l	0.500	85	60-120			
Heptachlor	0.404	0.10	0.030	ug/l	0.500	81	45-115			
Heptachlor epoxide	0.383	0.10	0.020	ug/l	0.500	77	50-120			
Methoxychlor	0.486	0.10	0.035	ug/l	0.500	97	60-135			
Surrogate: Tetrachloro- <i>m</i> -xylene	0.304			ug/l	0.500	61	35-120			
Surrogate: Decachlorobiphenyl	0.398			ug/l	0.500	80	45-120			
LCS Dup Analyzed: 02/18/2005 (5B17042-BSD1)										
Aldrin	0.354	0.10	0.030	ug/l	0.500	71	45-115	3	30	
alpha-BHC	0.353	0.10	0.015	ug/l	0.500	71	45-115	6	30	
beta-BHC	0.372	0.10	0.015	ug/l	0.500	74	50-115	0	30	
delta-BHC	0.380	0.20	0.020	ug/l	0.500	76	55-120	3	30	
gamma-BHC (Lindane)	0.371	0.10	0.015	ug/l	0.500	74	45-115	4	30	
4,4'-DDD	0.402	0.10	0.015	ug/l	0.500	80	60-120	3	30	
4,4'-DDE	0.407	0.10	0.020	ug/l	0.500	81	55-120	1	30	
4,4'-DDT	0.409	0.10	0.030	ug/l	0.500	82	60-130	4	30	
Dieldrin	0.396	0.10	0.015	ug/l	0.500	79	55-120	2	30	
Endosulfan I	0.379	0.10	0.015	ug/l	0.500	76	50-115	1	30	
Endosulfan II	0.386	0.10	0.040	ug/l	0.500	77	60-125	3	30	
Endosulfan sulfate	0.398	0.20	0.015	ug/l	0.500	80	60-120	7	30	
Endrin	0.433	0.10	0.015	ug/l	0.500	87	55-125	3	30	
Endrin aldehyde	0.366	0.10	0.045	ug/l	0.500	73	55-115	2	30	
Endrin ketone	0.392	0.10	0.020	ug/l	0.500	78	60-120	8	30	
Heptachlor	0.382	0.10	0.030	ug/l	0.500	76	45-115	6	30	
Heptachlor epoxide	0.378	0.10	0.020	ug/l	0.500	76	50-120	1	30	
Methoxychlor	0.446	0.10	0.035	ug/l	0.500	89	60-135	9	30	
Surrogate: Tetrachloro- <i>m</i> -xylene	0.277			ug/l	0.500	55	35-120			
Surrogate: Decachlorobiphenyl	0.364			ug/l	0.500	73	45-120			

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METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Limit	Data Qualifiers
Batch: 5B17042 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005-02/18/2005 (5B17042-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.451			ug/l	0.500		90	45-120		
LCS Analyzed: 02/18/2005 (5B17042-BS2)										
Aroclor 1016	2.54	1.0	0.20	ug/l	4.00		64	50-115		M-NR1
Aroclor 1260	2.69	1.0	0.40	ug/l	4.00		67	60-115		
Surrogate: Decachlorobiphenyl	0.378			ug/l	0.500		76	45-120		
LCS Dup Analyzed: 02/18/2005 (5B17042-BSD2)										
Aroclor 1016	3.09	1.0	0.20	ug/l	4.00		77	50-115	20	30
Aroclor 1260	2.98	1.0	0.40	ug/l	4.00		74	60-115	10	25
Surrogate: Decachlorobiphenyl	0.404			ug/l	0.500		81	45-120		

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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: IOB1004

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	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B15070 Extracted: 02/15/05											
Blank Analyzed: 02/15/2005 (5B15070-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 02/15/2005 (5B15070-BS1)											
Mercury	8.18	0.20	0.063	ug/l	8.00		102	85-115			
Matrix Spike Analyzed: 02/15/2005 (5B15070-MS1)											
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15070-MSD1)											
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103	70-130	0	20	
Batch: 5B17112 Extracted: 02/17/05											
Blank Analyzed: 02/18/2005-02/20/2005 (5B17112-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Arsenic	0.713	1.0	0.49	ug/l							J
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	0.00575	0.010	0.0032	mg/l							J
Lead	ND	1.0	0.13	ug/l							
Manganese	ND	1.0	0.44	ug/l							
Nickel	ND	1.0	0.15	ug/l							
Selenium	ND	2.0	0.36	ug/l							
Silver	ND	1.0	0.089	ug/l							
Thallium	0.343	1.0	0.075	ug/l							J
Vanadium	ND	1.0	0.86	ug/l							
Zinc	ND	20	3.1	ug/l							

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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOB1004

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17112 Extracted: 02/17/05										
LCS Analyzed: 02/18/2005-02/20/2005 (5B17112-BS1)										
Antimony	87.9	2.0	0.18	ug/l	80.0		110	85-115		
Arsenic	85.9	1.0	0.49	ug/l	80.0		107	85-115		
Barium	0.0779	0.0010	0.00014	mg/l	0.0800		97	85-115		
Beryllium	76.5	0.50	0.037	ug/l	80.0		96	85-115		
Cadmium	73.4	1.0	0.015	ug/l	80.0		92	85-115		
Chromium	80.5	1.0	0.26	ug/l	80.0		101	85-115		
Cobalt	79.2	1.0	0.10	ug/l	80.0		99	85-115		
Copper	80.0	2.0	0.49	ug/l	80.0		100	85-115		
Iron	0.799	0.010	0.0032	mg/l	0.800		100	85-115		
Lead	80.0	1.0	0.13	ug/l	80.0		100	85-115		
Manganese	78.9	1.0	0.44	ug/l	80.0		99	85-115		
Nickel	80.5	1.0	0.15	ug/l	80.0		101	85-115		
Selenium	76.6	2.0	0.36	ug/l	80.0		96	85-115		
Silver	77.7	1.0	0.089	ug/l	80.0		97	85-115		
Thallium	80.5	1.0	0.075	ug/l	80.0		101	85-115		
Vanadium	79.6	1.0	0.86	ug/l	80.0		100	85-115		
Zinc	75.4	20	3.1	ug/l	80.0		94	85-115		

Matrix Spike Analyzed: 02/18/2005-02/20/2005 (5B17112-MS1)

Source: IOB1070-01

Antimony	90.2	2.0	0.18	ug/l	80.0	0.61	112	70-130		
Arsenic	88.1	1.0	0.49	ug/l	80.0	0.70	109	70-130		
Barium	0.0947	0.0010	0.00014	mg/l	0.0800	0.016	98	70-130		
Beryllium	73.9	0.50	0.037	ug/l	80.0	ND	92	70-130		
Cadmium	73.9	1.0	0.015	ug/l	80.0	0.37	92	70-130		
Chromium	84.8	1.0	0.26	ug/l	80.0	2.7	103	70-130		
Cobalt	80.3	1.0	0.10	ug/l	80.0	0.43	100	70-130		
Copper	92.0	2.0	0.49	ug/l	80.0	11	101	70-130		
Iron	1.11	0.010	0.0032	mg/l	0.800	0.35	95	70-130		
Lead	91.8	1.0	0.13	ug/l	80.0	13	98	70-130		
Manganese	107	1.0	0.44	ug/l	80.0	25	102	70-130		
Nickel	83.5	1.0	0.15	ug/l	80.0	2.6	101	70-130		
Selenium	76.2	2.0	0.36	ug/l	80.0	0.48	95	70-130		
Silver	77.6	1.0	0.089	ug/l	80.0	ND	97	70-130		
Thallium	79.6	1.0	0.075	ug/l	80.0	0.42	99	70-130		
Vanadium	89.3	1.0	0.86	ug/l	80.0	8.0	102	70-130		
Zinc	338	20	3.1	ug/l	80.0	270	85	70-130		

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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOB1004

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17112 Extracted: 02/17/05											
Matrix Spike Dup Analyzed: 02/18/2005-02/20/2005 (5B17112-MSD1)						Source: IOB1070-01					
Antimony	91.1	2.0	0.18	ug/l	80.0	0.61	113	70-130	1	20	
Arsenic	87.3	1.0	0.49	ug/l	80.0	0.70	108	70-130	1	20	
Barium	0.0942	0.0010	0.00014	mg/l	0.0800	0.016	98	70-130	1	20	
Beryllium	74.9	0.50	0.037	ug/l	80.0	ND	94	70-130	1	20	
Cadmium	72.3	1.0	0.015	ug/l	80.0	0.37	90	70-130	2	20	
Chromium	84.7	1.0	0.26	ug/l	80.0	2.7	102	70-130	0	20	
Cobalt	79.9	1.0	0.10	ug/l	80.0	0.43	99	70-130	1	20	
Copper	91.8	2.0	0.49	ug/l	80.0	11	101	70-130	0	20	
Iron	1.14	0.010	0.0032	mg/l	0.800	0.35	99	70-130	3	20	
Lead	92.8	1.0	0.13	ug/l	80.0	13	100	70-130	1	20	
Manganese	105	1.0	0.44	ug/l	80.0	25	100	70-130	2	20	
Nickel	82.8	1.0	0.15	ug/l	80.0	2.6	100	70-130	1	20	
Selenium	76.5	2.0	0.36	ug/l	80.0	0.48	95	70-130	0	20	
Silver	77.3	1.0	0.089	ug/l	80.0	ND	97	70-130	0	20	
Thallium	80.4	1.0	0.075	ug/l	80.0	0.42	100	70-130	1	20	
Vanadium	88.8	1.0	0.86	ug/l	80.0	8.0	101	70-130	1	20	
Zinc	340	20	3.1	ug/l	80.0	270	88	70-130	1	20	

Batch: 5B17127 Extracted: 02/17/05

Blank Analyzed: 02/18/2005 (5B17127-BLK1)

Boron	ND	0.050	0.0074	mg/l
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LCS Analyzed: 02/18/2005 (5B17127-BS1)

Boron	0.463	0.050	0.0074	mg/l	0.500	93	85-115
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Matrix Spike Analyzed: 02/18/2005 (5B17127-MS1)

Boron	0.573	0.050	0.0074	mg/l	0.500	0.077	99	70-130
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METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5B17127 Extracted: 02/17/05

Matrix Spike Dup Analyzed: 02/18/2005 (5B17127-MSD1)

Source: IOB0814-02

Boron	0.565	0.050	0.0074	mg/l	0.500	0.077	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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B11047 Extracted: 02/11/05											
Blank Analyzed: 02/11/2005 (5B11047-BLK1)											
Chromium VI	ND	0.0010	0.000045	mg/l							
LCS Analyzed: 02/11/2005 (5B11047-BS1)											
Chromium VI	0.0521	0.0010	0.000045	mg/l	0.0500		104	90-110			
Matrix Spike Analyzed: 02/11/2005 (5B11047-MS1) Source: IOB0888-01											
Chromium VI	0.0370	0.0010	0.000045	mg/l	0.0500	0.00018	74	90-110			M2
Matrix Spike Dup Analyzed: 02/11/2005 (5B11047-MSD1) Source: IOB0888-01											
Chromium VI	0.0368	0.0010	0.000045	mg/l	0.0500	0.00018	73	90-110	1	10	M2
Batch: 5B11072 Extracted: 02/11/05											
Duplicate Analyzed: 02/11/2005 (5B11072-DUP1) Source: IOB0822-02											
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
Batch: 5B11108 Extracted: 02/11/05											
Blank Analyzed: 02/16/2005 (5B11108-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 02/16/2005 (5B11108-BS1)											
Biochemical Oxygen Demand	206	100	30	mg/l	198		104	85-115			
LCS Dup Analyzed: 02/16/2005 (5B11108-BSD1)											
Biochemical Oxygen Demand	204	100	30	mg/l	198		103	85-115	1	20	

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD 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	0.0050	0.0022	mg/l						
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LCS Analyzed: 02/12/2005 (5B12048-BS1)

Total Cyanide	0.192	0.0050	0.0022	mg/l	0.200		96		90-110	
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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B12048 Extracted: 02/12/05											
Matrix Spike Analyzed: 02/12/2005 (5B12048-MS1)						Source: IOB0928-01					
Total Cyanide	0.162	0.0050	0.0022	mg/l	0.200	ND	81	70-115			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12048-MSD1)						Source: IOB0928-01					
Total Cyanide	0.147	0.0050	0.0022	mg/l	0.200	ND	74	70-115	10	15	
Batch: 5B12050 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12050-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 02/12/2005 (5B12050-BS1)											
Surfactants (MBAS)	0.247	0.10	0.044	mg/l	0.250		99	90-110			
Matrix Spike Analyzed: 02/12/2005 (5B12050-MS1)						Source: IOB1021-01					
Surfactants (MBAS)	0.315	0.10	0.044	mg/l	0.250	0.084	92	50-125			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12050-MSD1)						Source: IOB1021-01					
Surfactants (MBAS)	0.284	0.10	0.044	mg/l	0.250	0.084	80	50-125	10	20	
Batch: 5B12055 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12055-BLK1)											
Turbidity	0.0400	1.0	0.040	NTU							J
Duplicate Analyzed: 02/12/2005 (5B12055-DUP1)						Source: IOB0952-01					
Turbidity	48.8	2.0	0.080	NTU		48			2	20	

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B15110 Extracted: 02/15/05											
Blank Analyzed: 02/15/2005 (5B15110-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 02/15/2005 (5B15110-BS1)											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
Matrix Spike Analyzed: 02/15/2005 (5B15110-MS1)											
						Source: IOB1000-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	ND	101	70-120			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15110-MSD1)											
						Source: IOB1000-01					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	6	15	
Batch: 5B16069 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16069-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 02/16/2005 (5B16069-BS1)											
Perchlorate	52.0	4.0	0.80	ug/l	50.0		104	85-115			
Matrix Spike Analyzed: 02/16/2005 (5B16069-MS1)											
						Source: IOB1060-02					
Perchlorate	51.9	4.0	0.80	ug/l	50.0	ND	104	80-120			
Matrix Spike Dup Analyzed: 02/16/2005 (5B16069-MSD1)											
						Source: IOB1060-02					
Perchlorate	51.6	4.0	0.80	ug/l	50.0	ND	103	80-120	1	20	
Batch: 5B16119 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16119-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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: Outfall 011

Report Number: IOB1004

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B16119 Extracted: 02/16/05											
LCS Analyzed: 02/16/2005 (5B16119-BS1)											
Total Dissolved Solids	988	10	10	mg/l	1000		99	90-110			
Duplicate Analyzed: 02/16/2005 (5B16119-DUP1)											
Total Dissolved Solids	1280	10	10	mg/l		1300			2	10	
Batch: 5B16120 Extracted: 02/16/05											
Duplicate Analyzed: 02/16/2005 (5B16120-DUP1)											
Specific Conductance	95.3	1.0	1.0	umhos/cm		95			0	5	
Batch: 5B17117 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17117-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/17/2005 (5B17117-BS1)											
Oil & Grease	17.6	5.0	0.94	mg/l	20.0		88	65-120			M-NR1
LCS Dup Analyzed: 02/17/2005 (5B17117-BSD1)											
Oil & Grease	16.4	5.0	0.94	mg/l	20.0		82	65-120	7	20	
Batch: 5B17122 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17122-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							

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



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

Project ID: Outfall 011

Report Number: IOB1004

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17122 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17122-BS1)											
Total Suspended Solids	953	10	10	mg/l	1000		95	85-115			
Duplicate Analyzed: 02/17/2005 (5B17122-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5B23083 Extracted: 02/23/05											
Blank Analyzed: 02/23/2005 (5B23083-BLK1)											
Total Organic Carbon	ND	1.0	0.25	mg/l							
LCS Analyzed: 02/23/2005 (5B23083-BS1)											
Total Organic Carbon	10.4	1.0	0.25	mg/l	10.0		104	90-110			
Matrix Spike Analyzed: 02/23/2005 (5B23083-MS1)											
Total Organic Carbon	6.12	1.0	0.25	mg/l	5.00	0.49	113	80-120			
Matrix Spike Dup Analyzed: 02/23/2005 (5B23083-MSD1)											
Total Organic Carbon	6.30	1.0	0.25	mg/l	5.00	0.49	116	80-120	3	20	

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 011

Report Number: IOB1004

Sampled: 02/11/05

Received: 02/11/05

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: P5B1701 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (P5B1701-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	0.930			ug/l	1.00		93	80-125			
LCS Analyzed: 02/17/2005 (P5B1701-BS1)											
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			
LCS Dup Analyzed: 02/17/2005 (P5B1701-BSD1)											
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			
Matrix Spike Analyzed: 02/17/2005 (P5B1701-MS1) Source: POB0398-01											
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			
Matrix Spike Dup Analyzed: 02/17/2005 (P5B1701-MSD1) Source: POB0398-01											
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
 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 011

Report Number: IOB1004

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.
- 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.
- 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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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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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: IOB1004

Sampled: 02/11/05
 Received: 02/11/05

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.

Subcontracted Laboratories

Alta Analytical Perspectives

2714 Exchange Drive - Wilmington, NC 28405

Analysis Performed: 1613-Dioxin-HR
 Samples: IOB1004-01

Analysis Performed: EDD + Level 4
 Samples: IOB1004-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnrc

Del Mar Analytical, Irvine

Wendy Kirkeeng For Michele Harper
 Project Manager



Del Mar Analytical

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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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: IOB1004

Sampled: 02/11/05
Received: 02/11/05

Aquatic Testing Laboratories-SUB *California Cert #1775*

4350 Transport Street, Unit 107 - Ventura, CA 93003

Samples: IOB1004-01

Analysis Performed: Bioassay-Acute 96hr

Samples: IOB1004-01

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

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

Method Performed: EPA 8260B

Samples: IOB1004-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4

Samples: IOB1004-01

Analysis Performed: Gross Alpha

Samples: IOB1004-01

Analysis Performed: Gross Beta

Samples: IOB1004-01

Analysis Performed: Radium, Combined

Samples: IOB1004-01

Analysis Performed: Strontium 90

Samples: IOB1004-01

Analysis Performed: Tritium

Samples: IOB1004-01

Truesdail Laboratories-SUB *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine

Samples: IOB1004-01

Analysis Performed: Level 4 Data Package

Samples: IOB1004-01

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

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IOB1004 <Page 58 of 58>

F A X



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 McIlvenna / 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

Other: Containers mislabeled

X

This Change Order supersedes all previous change orders submitted.

Thank you

-8505913.doc

1





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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

April 6, 2005

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

Attention: Bronwyn Kelly
Project: 13267 (Study1)/Outfall 011
Sampled: 02/11/05
Del Mar Analytical Number: IOB1004

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), Eberline Services tested gross alpha/gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) and Alta Analytical Perspectives performed Method 1613 Dioxin, and Truesdail Laboratories performed the Hydrazines by EPA 8315 analysis 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	ALTA ID	TRUESDAIL ID
Outfall 011-composite	IOB1004-01	A-05021209-001/002	R502134-8263	P5072 2989 011	939706-1

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

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-05021209-001/002
Sample I.D.: IOB1004-01

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:

Acute:	<u>Survival</u>	<u>TUa</u>
Fathead Minnow:	100%	0.0
Chronic:	<u>NOEC</u>	<u>TUc</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	100%	1.0

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05021209-001
 Client/ID: Del Mar IOB1004-01

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	LW 1200
	100%	21.0	9.7	6.7	0	0	
24 Hr	Control	20.3	6.9	7.7	0	0	LW 1100
	100%	20.3	6.2	7.0	0	0	
48 Hr	Control	20.4	7.4	7.5	0	0	LW 1200
	100%	20.5	7.4	7.0	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	LW 1200
	100%	20.3	8.7	6.8	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	LW 1100
	100%	19.6	7.8	6.9	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	LW 1100
	100%	20.5	7.6	6.9	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.7; Conductivity: 108 umho; Temp: 4°C;
 DO: 9.7 mg/l; Alkalinity: 34 mg/l; Hardness: 96 mg/l; NH₃-N: 0.3 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-05021209
Client/ID: Del Mar IOB1004-01

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%	25.8
6.25%	100%	26.5
12.5%	100%	28.2
25%	100%	27.3
50%	100%	25.8
100%	100%	25.4

* 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 (25.8 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 15.8%)
Statistically significantly different concentrations relative difference > 13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (slight 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) 505-9596 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) 796-3820 Fax (702) 796-3821

SUBCONTRACT ORDER - PROJECT # IOB1004

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: IOB1004-01 Water	Sampled: 02/11/05 16:00	Instant Notification
Bioassay-7 dy Chronic	02/13/05 04:00	ceriodaphnia, 13267
Bioassay-Acute 96hr	02/13/05 04:00	fathead minnow, 13267
Containers Supplied:		
1 gal Poly (IOB1004-01AP)		
1 gal Poly (IOB1004-01AQ)		

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

<i>[Signature]</i> Released By	2/12/05 Date	0700 Time	<i>[Signature]</i> Received By	2/12/05 Date	0700 Time
<i>[Signature]</i> Released By	2/12/05 Date	0900 Time	<i>[Signature]</i> Received By	2-12-05 Date	0900 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. IOB1004
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502134-8263

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

Eberline Services

ANALYSIS RESULTS

SDG <u>8263</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502134-01</u>	Contract <u>PROJECT# IOB1004</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>
IOB1004-01	8263-001	02/11/05	03/01/05	GrossAlpha	2.03 ± 0.91	pCi/L	0.787
			03/01/05	Gross Beta	2.30 ± 1.2	pCi/L	1.78
			03/02/05	H3	21.1 ± 140	pCi/L	240
			02/25/05	Sr90	-0.060 ± 0.23	pCi/L	0.470

Certified by <u><i>[Signature]</i></u>
Report Date <u>03/08/05</u>
Page 1

Eberline Services

QC RESULTS

SDG <u>8263</u> Work Order <u>R502134-01</u> Received Date <u>02/15/05</u>	Client <u>DEL MAR ANAL</u> Contract <u>PROJECT# IOB1004</u> Matrix <u>WATER</u>
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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	RPD (Tot)	3σ	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></u> Report Date <u>03/08/05</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) 370-4687 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
 2529 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3620 Fax (702) 796-3621

SUBCONTRACT ORDER - PROJECT # IOB1004

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: IOB1004-01 Water	Sampled: 02/11/05 16:00	Instant Notification
EDD + Level 4-OUT	03/11/05 16:00	
Gross Alpha-O	02/11/06 16:00	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 16:00	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/11/06 16:00	HOLD for Gross Alpha/Beta result; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 16:00	905.0
Tritium-O	02/11/06 16:00	906

Containers Supplied:

- 1 gal Poly (IOB1004-01AC) *w/ HNO₃*
- 40 ml Voa Vial (IOB1004-01AU)
- 40 ml Voa Vial (IOB1004-01AV)

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>Jesus Salas</i>	<i>2-14-05</i>	<i>1730</i>	<i>Z/L</i>	<i>2/15/05</i>	<i>10:00</i>
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 2/15/05 10:00 CoC No. F081004
F081004-C1

Container I.D. No. Blue Caddy AP 5100 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 1)
- 8. Samples are in correct container Yes No
- 9. Paperwork agrees with samples? Yes No
- 10. Samples have: Taps 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 3/14 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 _____


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: IOB1004-01

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:	0.99 L	Sample ID:	P5072_2989_011	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	1.79			72.2	84	
1,2,3,7,8-PeCDD	ND	2.92			72.5	87	
1,2,3,4,7,8-HxCDD	ND	12.2			68.3	83.2	
1,2,3,6,7,8-HxCDD	ND	12			77.6	83.2	
1,2,3,7,8,9-HxCDD	ND	13.8			71.1	83.2	
1,2,3,4,6,7,8-HpCDD	20.8	9.88		J	61.1	72.2	
OCDD	213	31.3			43.9	72.2	
2,3,7,8-TCDF	ND	2.71			69.7	84	
1,2,3,7,8-PeCDF	ND	2.52			73.4	78.3	
2,3,4,7,8-PeCDF	ND	2.53			70.3	78.3	
1,2,3,4,7,8-HxCDF	ND	6.66			71.2	83.2	
1,2,3,6,7,8-HxCDF	ND	6.24			78	83.2	
2,3,4,6,7,8-HxCDF	ND	8.23			69.5	83.2	
1,2,3,7,8,9-HxCDF	ND	12.4			64.6	83.2	
1,2,3,4,6,7,8-HpCDF	ND	3.42			57.2	72.2	
1,2,3,4,7,8,9-HpCDF	ND	5.49			55.1	72.2	
OCDF	ND	20.8			46.5	72.2	
Totals & TEQs							
TCDDs	ND	1.79			 <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	2.92					
HxCDDs	ND	12.7					
HpCDDs	43.1	9.88					
TCDFs	ND	2.71					
PeCDFs	ND	2.52					
HxCDFs	ND	8.1					
HpCDFs	ND	4.35					
Total PCDD/Fs	256		256				


AAP 2005 Rev. B

Checkcode: 4355

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. pp/L	DL pp/L	EMPC pp/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	88.4	
1,2,3,4,6,7,8-HpCDD	ND	1.98			74.9	69.8	
OCDD	ND	4.78			67.4	68.8	
2,3,7,8-TCDF	ND	1.04			81.1	80.8	
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			88.7	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	
1,2,3,4,7,8,9-HpCDF	ND	2.67			85.1	69.8	
OCDF	ND	11.1			67.2	69.8	
Totals & TEQs							
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					
Total PCDD/Fs	0		0				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer: *[Signature]*
Date: 02 Mar 05

P5072 - TEQ
 Project ID: General Analytical HRMS

Sample Summary		Method 1613													
Part 1		ALTA ANALYTICAL PERFORMANCE													
Analyte	0_2888_MS	IOS1001-01	IOS0883-01	IOS0886-01	IOS0987-01	IOS1014-01	IOS0990-01	IOS0888-01	IOS1006-01	IOS1002-01	IOS0992-01	IOS1004-01	IOS0888-01	IOS0981-01	
	001	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	
2,3,7,8-TCDF	(1.55)	(2.29)	(2.06)	(2.02)	(1.34)	(1.71)	(2.29)	(2.55)	(1.81)	(1.44)	(2.87)	(1.79)	(3.24)	(3.01)	
1,2,3,7,8-PeCDD	(1.55)	(1.85)	(1.79)	(2.09)	(2.11)	(1.73)	(3.2)	(1.89)	(1.82)	(2.04)	(3.14)	(2.92)	(2.18)	(5.36)	
1,2,3,4,7,8-HxCDD	(2.57)	(3.45)	(2.59)	(2.71)	(2.48)	(3.69)	(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)	(3.8)	(4.11)	(2.41)	8.47	(2.86)	(5.96)	(12)	(4.84)	(4.7)	
1,2,3,4,6,7,8-HpCDD	(3.9)	(3.83)	(3.13)	(3.33)	(2.82)	(4.98)	(4.85)	(2.88)	5.27	(3.13)	(7.12)	(13.8)	(5.54)	(6.81)	
OCDD	(1.88)	75.4	31.5	10	(8.35)	12.2	(6.34)	49.8	207	12.1	(10.8)	20.8	(3.18)	(8.5)	
	(4.78)	883	287	134	70.4	157	96.1	471	2120	183	70.2	213	50.3	80	
2,3,7,8-TCDF	(1.04)	(1.24)	(1.84)	(1.85)	(0.995)	(2.08)	(1.37)	(1.64)	(1.48)	(1.03)	(2.58)	(2.71)	(2.39)	(2.61)	
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.75)	(1.44)	(2.33)	(1.84)	(3.71)	(1.96)	(2.36)	(2.11)	(4.02)	(2.52)	(2.98)	(2.46)	
2,3,4,7,8-PeCDF	(1.98)	(1.88)	(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)	(1.36)	(1.39)	(1.47)	(0.87)	(0.815)	(1.55)	(5.66)	(1.62)	(1.13)	
1,2,3,6,7,8-HxCDF	(0.764)	(0.843)	(0.827)	(0.706)	(0.871)	(1.31)	(1.3)	(1.51)	(0.898)	(0.78)	(1.42)	(5.24)	(1.53)	(1.19)	
2,3,4,6,7,8-HpCDF	(1.01)	(1.12)	(1.04)	(0.933)	(1.12)	(1.85)	(1.73)	(1.9)	(1.1)	(0.98)	(1.81)	(8.23)	(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)	(2.65)	(1.7)	(1.51)	(2.61)	(12.4)	(2.74)	(2.99)	
1,2,3,4,7,8,9-HxCDF	(1.78)	16.8	(1.89)	(4.57)	(1.9)	4.04	(3.26)	10.8	27.2	(1.59)	(4.35)	(3.42)	(2.95)	(3.28)	
OCDF	(2.57)	(3.46)	(2.95)	(7.47)	(3.25)	(2.63)	(4.58)	(2.58)	(4.43)	(2.59)	(7.3)	(5.49)	(3.04)	(4.88)	
	(11.1)	155	(11)	(22.4)	(12.4)	(8.53)	(14.9)	34.9	87.1	(10.1)	(7.99)	(20.5)	(13.1)	(8.89)	
Checkouts	3385	4381	4681	4885	5239	5527	5797	0067	0336	0812	3929	4355	4822	4900	

(1) = DL
 () = EMPC

Reviewer: *[Signature]*
 Date: 1-22-10

P5072 - Totals
Project ID: General Analytical HRMS

Analyte	0_2989_NB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0988-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0989-01	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
Totals														
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	7.38	4.44	0	0	0	0	0	39.8	0	0	0	0	0
HpCDDs	0	153	65.1	25.2	9.48	29.8	0	101	415	12.1	0	43.1	12.2	0
OCDD	0	853	267	134	70.4	157	58.1	471	2120	163	70.2	213	50.3	50
TCDFs	0	0	0	0	0	0	0	0	8.53	0	0	0	0	0
PeCDFs	0	0	0.858	0	0	0.78	0.256	0	2.57	0	0.456	0	0	0
HxCDFs	0	2.88	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	5.98	0	0	0	0
OCDF	0	155	0	0	0	0	0	34.9	87.1	0	0	0	0	0
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	159	79.9	197	58.4	648	2,800	182	70.7	256	62.8	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	58.4	663	2,830	193	70.7	256	62.8	50
Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)	42.2	1,330	381	215	128	238	119	691	2,840	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.8	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	567	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.8	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Checkcode	3385	4361	4681	4965	5239	5527	5797	0067	0335	0612	3929	4355	4822	4900

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: 05/24/03

P5072 - Others
Project ID: General Analytical HRMS

Sample Summary
Part 3



Method 1613

Analyte	0_2989_NB001	IOB1001-01	IOB0993-01	IOB0986-01	IOB0987-01	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
Other PCDD/Fs (ND=0, EMPC=0)														
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	33.6	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	6.53	0	0	0	0	0
Other PeCDF	0	0	0.858	0	0	0.76	0.258	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
Other PCDD/Fs (ND=0, EMPC=EMPC)														
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	33.6	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	0.258	0.368	2.57	0	0.458	0	0	0
Other HxCDF	0	9.86	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
Checkcode	3385	4361	4661	4985	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

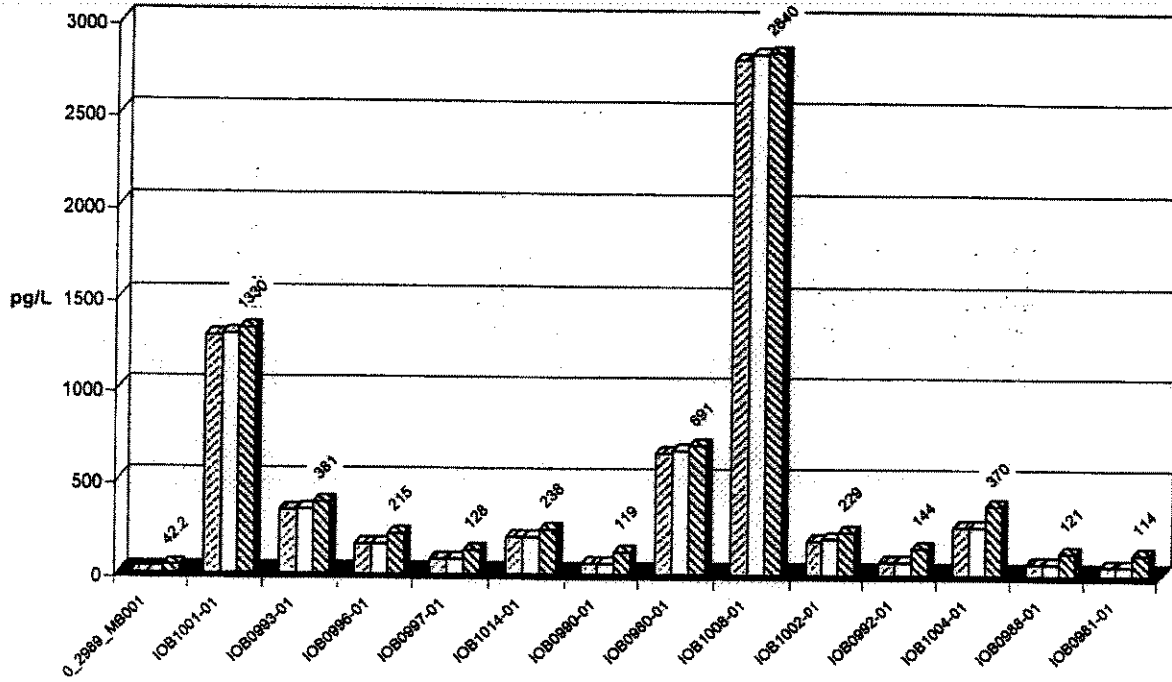
() = DL
 [] = EMPC

Reviewer: *ta*
 Date: 03/04/2003

Totals

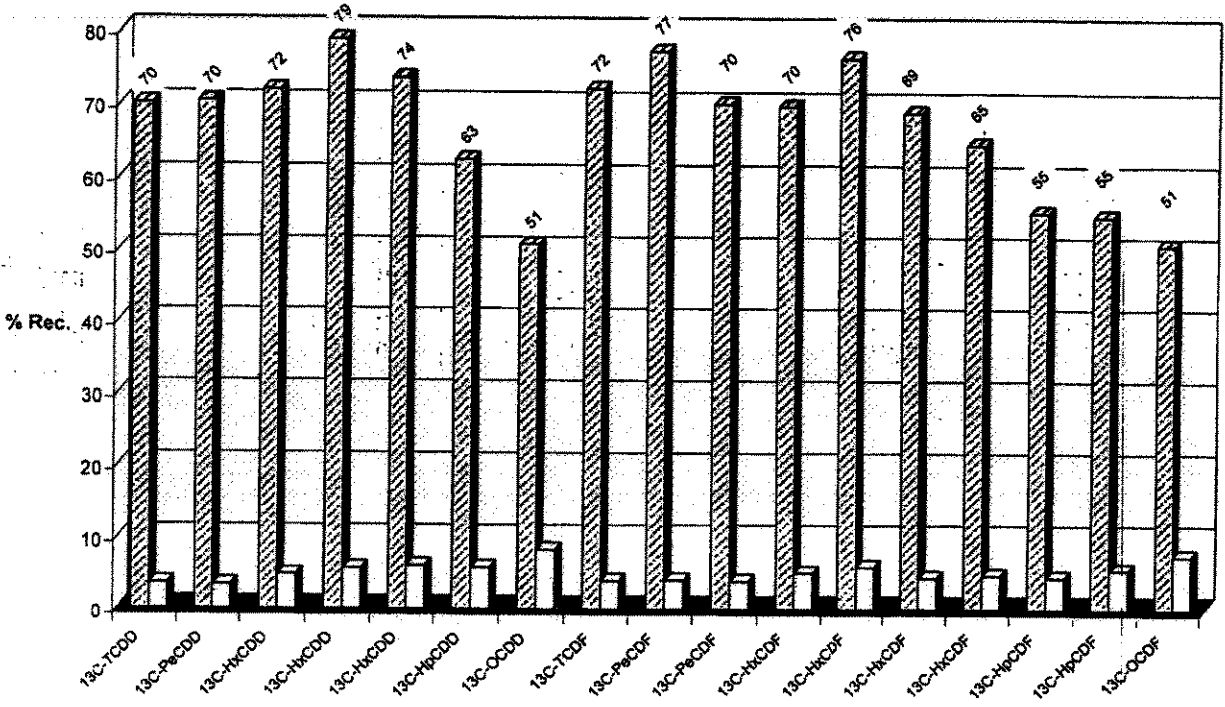
Project ID: General Analytical HRMS
P5072

- Total PCDD/Fs (ND=0; EMPC=0)
- Total PCDD/Fs (ND=0; EMPC=EMPC)
- Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



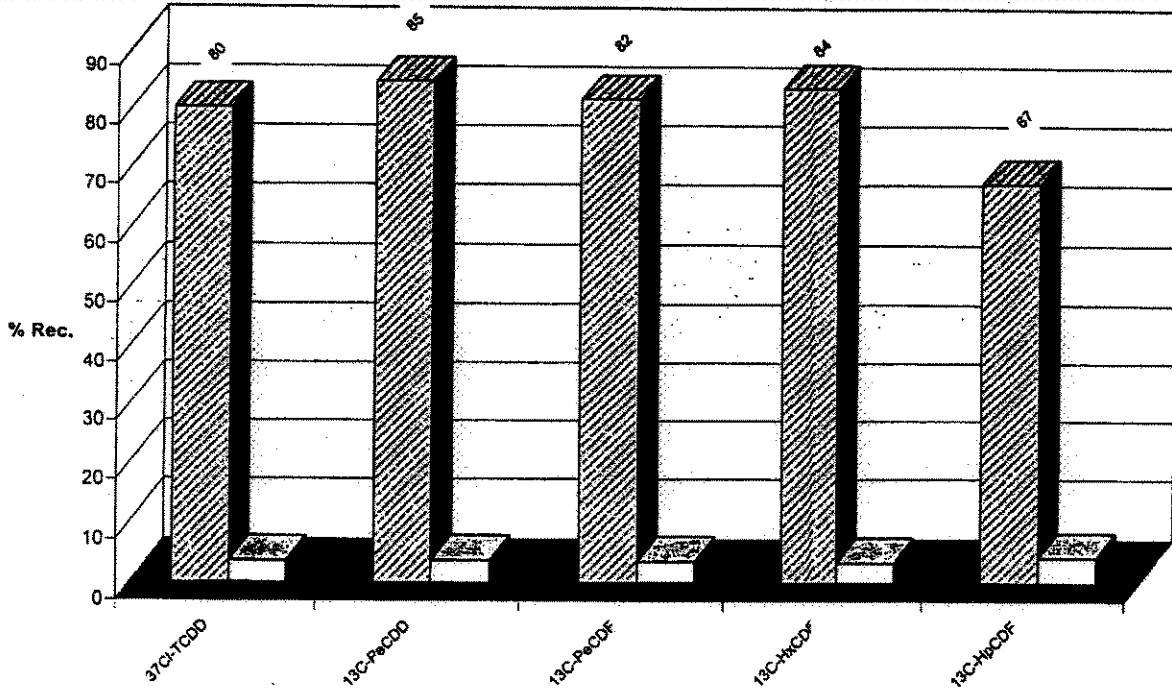
Mean Recoveries of Extraction Standards (N=14)
Project ID: General Analytical HRMS
P5072

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
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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 # IOB1004

107704

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: IOB1004-01 Water	Sampled: 02/11/05 16:00	Instant Notification
1613-Dioxin-HR	02/18/05 16:00	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 16:00	Excel EDD email to pm, Include Std logs for Lvl IV

107704001

Containers Supplied:
 1 L Amber (IOB1004-01G)
 1 L Amber (IOB1004-01H)

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

Released By: [Signature] Date: 2-14-05 Time: 1700 Received By: Bright Fleury Date: 2-15-05 Time: 9:00

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

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

February 22, 2005

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

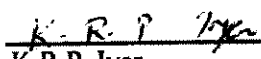
Project Name: IOB1004
Date Received: 02/14/05

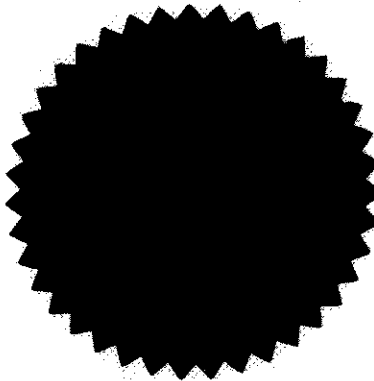
Truesdail Project: 939706

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>
939706-1	IOB1004-01	Water	02/11/05	16:00	Hydrazines by EPA 8315M

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


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




Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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February 22, 2005

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(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: IOB1004
Date Received: 02/14/05

Truesdail Project: 939706

Case Narrative

Sample Receipt The sample was received in good condition and no anomalies were noted during check-in. The sample was kept in a locked refrigerator until analysis. Thereafter, it is being kept in ambient storage for an additional 2 months before disposal.

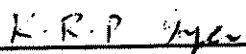
Analysis The analysis was performed as requested on the chain-of-custody.

Quality Control The analytical results for each batch of samples performed include a minimum of one set of laboratory control sample/laboratory control sample duplicate (LCS/LCSD), one matrix spike (MS) and a reagent blank (Method blank). Any exceptions or problems would be noted in the "comments" section.

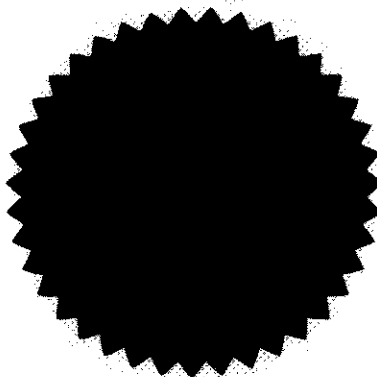
Comments The test results in this report meet all quality assurance requirements set forth by the method specification and all quality control recoveries were within the laboratory acceptance limits. No anomalies or nonconformance events occurred during the course of analysis.

The analytes were quantitated down to the Method Detection Limit (J flags) per client's request.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.



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





Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

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REPORT

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

Attention: Michele Harper
Liquid / 1 Sample
Project Name: IOB1004
P.O. Number: IOB1004
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 939706
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
939706	IOB1004-01	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.

Xuan Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1937

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

Client Contact: Michele Harper
Sample: Liquid / 1 Sample
Sample ID: IOB1004
P.O. Number: IOB1004
Method Number: 8315 (Modified)
Run Batch No.: Extraction: 2968; Analysis: 365
Investigation: Hydrazines in Liquid

REPORT

QC Lab. No.: 704765
Project Lab. No.: 939706
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: 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	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
Monomethyl Hydrazine	50.0	49.9	100	85-115	PASS
u-Dimethyl Hydrazine	50.0	46.8	93.5	85-115	PASS
Hydrazine	10.0	10.9	109	85-115	PASS

Quality Control/Quality Assurance Spikes Report

LCS/LCSD

Parameter	Spiked Conc.			Recovered Concentration			Percent Recovery (%)			Control Limits		
	ug/L	LCS	LCSD	ug/L	LCS	LCSD	LCS	LCSD	%D	% Rec.	Flag	
Monomethyl Hydrazine	50.0	51.2	50.8	0.0	102	102	0.68%	PASS	20	70-130		
u-Dimethyl Hydrazine	50.0	47.3	47.3	0.0	94.6	94.6	0.01%	PASS	20	70-130		
Hydrazine	10.0	11.5	11.6	0.0	115	116	1.07%	PASS	20	70-130		

MS/MSD

Parameter	Spiked Conc.			Recovered Concentration			Percent Recovery (%)			Control Limits		
	ug/L	MS	MSD	ug/L	MS	MSD	MS	MSD	% D	% Rec.	Flag	
Monomethyl Hydrazine	50.0	37.4	35.3	0.0	74.8	70.6	5.67%	PASS	20	0-150		
u-Dimethyl Hydrazine	50.0	44.3	44.7	0.0	88.6	89.3	0.82%	PASS	20	0-150		
Hydrazine	10.0	7.61	7.27	0.0	76.1	72.7	4.52%	PASS	20	0-150		

ICV: Initial Calibration Verification

QCS: Quality Control Standard

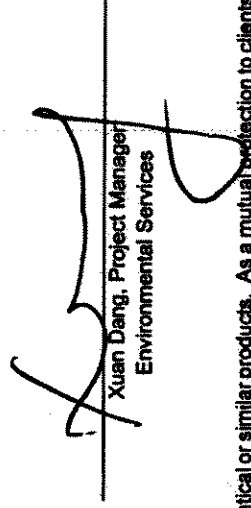
LCS: Laboratory Control Spike

MS: Matrix Spike

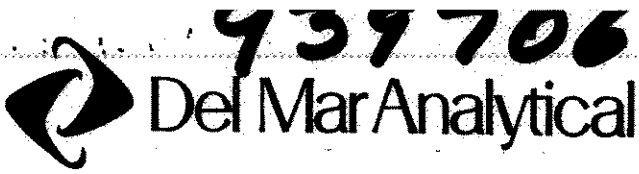
%D: Percent Difference

Flag: "Pass" if within Control Limits; otherwise "Fail"

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


Xuan Dang, Project Manager
Environmental Services

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
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 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB1004

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 <div style="text-align: right; margin-top: 20px;"> <i>14 LS 2/14/05</i> <i>Rec'd 02/11/05</i> <i>s23c 939706</i> </div>

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

Analysis	Expiration	Comments
Sample ID: IOB1004-01 Water	Sampled: 02/11/05 16:00	Instant Notification
Hydrazine-OUT	02/14/05 16:00	Sub Truesdail for Monomethylhydrazine, 13267
Level 4 Data Package	03/11/05 16:00	
Containers Supplied:		
1 L Amber (IOB1004-01AK)		
1 L Amber (IOB1004-01AL)		

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

Released By <i>[Signature]</i>	Date	Time	Received By <i>[Signature]</i>	Date	Time
Released By <i>[Signature]</i>	2/14/05	7:20	Received By <i>[Signature]</i>	2/14/05	7:22



Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 939706

Date Delivered: 02/14/05 Time: 07:22 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

ALERT!!
Level **III** QC

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Stubbins

Internal Chain of Custody Logbook

Number: 939706
Name: Del Mar

Storage Temperature: 4.0C

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				2/14/02	9:45		L. Johnson	<i>[Signature]</i>
	Hydrazine	2/14/02	10:30 AM	2/14/02	11 AM	100ml	TEST	<i>[Signature]</i>

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

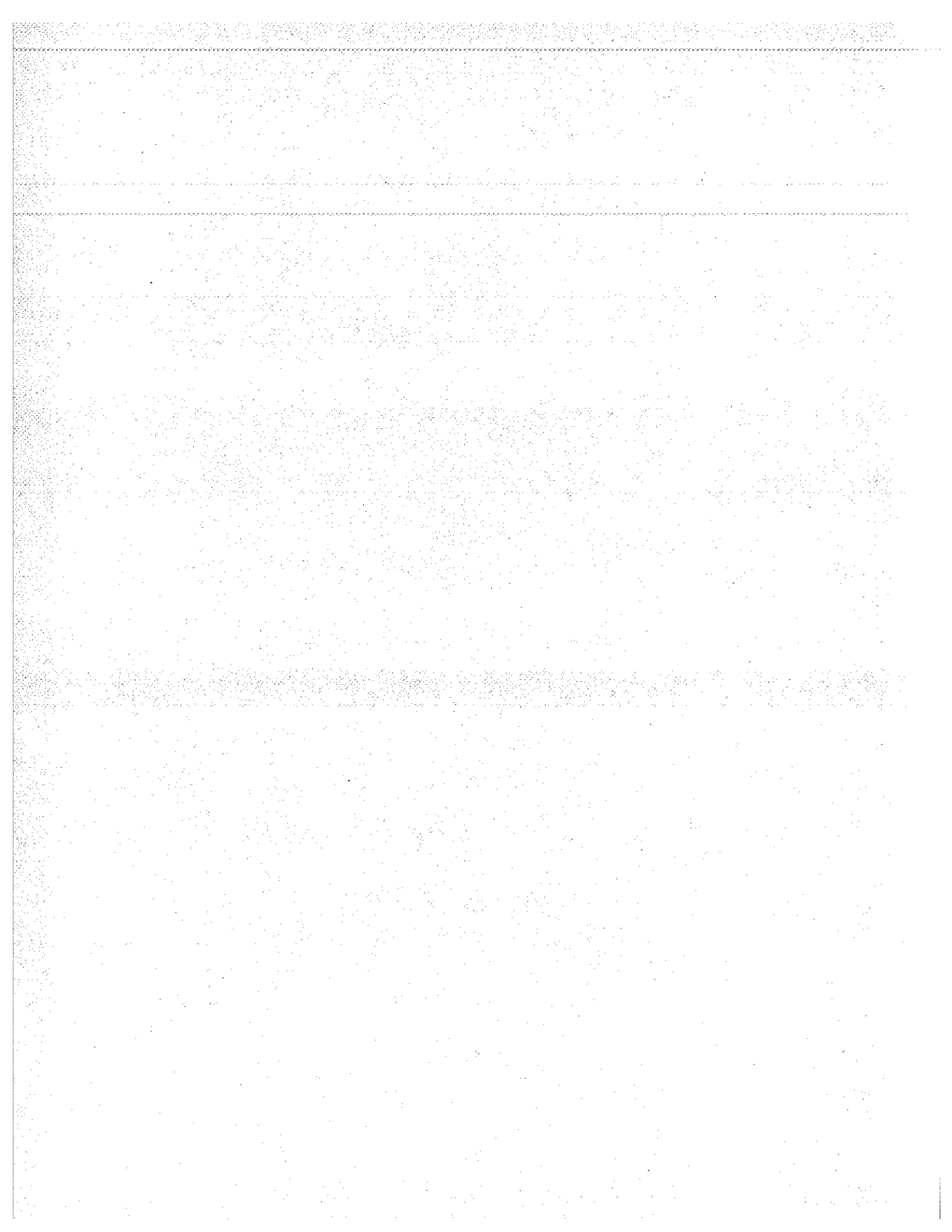
Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT67
 Task Order 313150010
 SDG No. IOB1014
 No. of Analyses 1


Laboratory Del Mar Analytical

Reviewer K. Okonzak

Analysis/Method Metals

Date: 4/05/05

Reviewer's Signature



ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications applied for: Analytes detected below the reporting limit were qualified as estimated, "J." Reporting limit check standard recoveries found outside of control limits. Detects and negative results for the associated method blank and CCBs. The antimony detect at 0.44 µg/L in the sample was qualified as estimated, "UJ," at a raised MDL of 0.9 µg/L due to bracketing CCB detects at approximately 0.9 µg/L.
COMMENTS ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	

Data Qualifier Reference Table

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

Qualification Code Reference Table

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

*#

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).

Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1014

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#: IOB1014
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: April 5, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011-grab	Outfall 011-grab	IOB1014-01	water	Total Recoverable Metals

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 analyses presented in the data package. No sample qualifications were required.

2.1.3 Holding Times

The date of collection recorded on the COC and the dates of analysis 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. The %RSDs for the tune were all within the 5% control limit. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS and ICP metals and 80-120% for mercury. The applicable reporting limit check standards were recovered within the AMEC control limits of 70-130%, with the following exceptions: arsenic was recovered at 47.9% in the 1.0 µg/L standard, nickel was recovered at 8.6% and 60.5%, respectively, in the 1.0 and 2.0 µg/L standards, and copper was recovered at 67% in the 2.0 µg/L standard. Therefore, the arsenic, nickel and copper detects for sample Outfall 011-grab were qualified as estimated, "J." No further qualifications were required.

2.4 BLANKS

There were detects and negative results reported in the associated method blank and calibration blank (CCB) analyses. The sample results were qualified for the blanks results as follows:

Findings	Associated Samples	Qualification of Data
Boron was detected in the bracketing CCBs at 0.025 and 0.021mg/L, respectively.	Outfall 011-grab	Boron detected in the sample was qualified, "UJ."
Chromium was detected in method blank 5B12041-BLK1 at 0.846 µg/L. The validator chose to report this original chromium MB result as opposed to the rerun MB result that the laboratory had reported for chromium, due to the fact that the original MB analysis was performed along with the site sample chromium analysis and is more indicative of the instrument conditions applicable to the chromium analysis.	Outfall 011-grab	Chromium detected in the sample was qualified, "UJ."
Nickel and vanadium were reported in method blank 5B12041-BLK1 at -0.77 and -0.98 µg/L, respectively.	Outfall 011-grab	Nickel and vanadium detected in the sample were qualified, "J."
Antimony was detected in the bracketing CCBs at 0.89 and 0.81 µg/L, respectively	Outfall 011-grab	The antimony detected in the sample was qualified, "UJ," at a raised MDL of 0.9 µg/L.

2.5 ICP and ICP/MS INTERFERENCE CHECK SAMPLE (ICS A/AB)

The results for the ICSA/ICSAB analyses reported in the raw data for the ICP analysis were within established control limits. No qualifications were required. There were no ICSA/AB analyses associated with the ICP/MS sample analyses; therefore, the ICP/MS results were not assessed for this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5B12041-BS1, and the ICP LCS sample was identified as 5B12044-BS1. The mercury LCS sample was identified as 5B12033-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS, ICP, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD analyses were associated with the site sample in this SDG; therefore, the sample was not assessed for this criterion.

2.8 MATRIX SPIKE

No MS/MSD analyses were associated with the site sample in this SDG; therefore, the sample was not assessed for this criterion. Method accuracy was assessed based on the 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 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 ICP-MS internal standard recoveries associated with 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 in sample Outfall 011-grab were qualified as estimated, "J." For the ICP/MS run, the antimony detects in the associated CCBs were found at approximately 2× the level of the 0.44 µg/L detect for antimony in sample Outfall 011-grab. Therefore, the antimony detected in sample Outfall 011-grab was qualified as estimated, "UJ," at a raised MDL of 0.9 µg/L. No qualifications were required.

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

The 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8396 FAX (619) 505-9689
 9530 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
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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	
									Rev Qual	Qual Code
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.										
Reporting Units: ug/l										
Antimony	EPA 200.8	5B12041	0.18 0.9	2.0	0.45 0.9	1	02/12/05	02/14/05	U J	J B ₁
Arsenic	EPA 200.8	5B12041	0.49	1.0	1.0	1	02/12/05	02/14/05	J	*3
Beryllium	EPA 200.8	5B12041	0.037	0.50	0.052	1	02/12/05	02/14/05	J J	DNQ
Cadmium	EPA 200.8	5B12041	0.015	1.0	0.11	1	02/12/05	02/14/05	J J	DNQ
Chromium	EPA 200.8	5B12041	0.26	1.0	1.8	1	02/12/05	02/14/05	U J	B
Cobalt	EPA 200.8	5B12041	0.10	1.0	0.60	1	02/12/05	02/14/05	J J	DNQ
Copper	EPA 200.8	5B12041	0.49	2.0	3.4	1	02/12/05	02/14/05	J	*3
Lead	EPA 200.8	5B12041	0.13	1.0	1.3	1	02/12/05	02/14/05		
Manganese	EPA 200.8	5B12041	0.44	1.0	36	1	02/12/05	02/14/05		
Mercury	EPA 245.1	5B12033	0.063	0.20	0.14	1	02/12/05	02/12/05	J J	DNQ
Nickel	EPA 200.8	5B12041	0.15	1.0	1.4	1	02/12/05	02/14/05	J	B ₁
Selenium	EPA 200.8	5B12041	0.36	2.0	ND	1	02/12/05	02/14/05	U	
Silver	EPA 200.8	5B12041	0.089	1.0	ND	1	02/12/05	02/14/05	U	
Thallium	EPA 200.8	5B12041	0.075	1.0	ND	1	02/12/05	02/14/05	U	
Vanadium	EPA 200.8	5B12041	0.86	1.0	3.7	1	02/12/05	02/14/05	J	B
Zinc	EPA 200.8	5B12041	3.1	20	16	1	02/12/05	02/15/05	J J	DNQ

100R
 4/6/05/05

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 9484 Chesapeake Cr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9089
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0143 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: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5B12041	0.00014	0.0010	0.020	1	02/12/05	02/14/05	Rev Qual
Boron	EPA 200.7	5B12044	0.0074	0.050	0.063	1	02/12/05	02/12/05	W B
Iron	EPA 200.8	5B12041	0.0032	0.010	1.6	1	02/12/05	02/15/05	B

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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 T711PP28
 Task Order 313150010
 SDG No. IOB1014

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method Pesticides/PCBs by Method 608

Date: April 6, 2005

Reviewer's Signature



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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB1014

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#: IOB1014
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: April 6, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary form as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	Method
Outfall 011-Grab	Outfall 011-Grab	IOB1014-01	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 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 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 with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 02/17/05 associated with the pesticide analysis of the sample, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analysis of the sample which consisted of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242, Aroclor 1248, and Aroclor 1254 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

In the continuing calibrations bracketing the pesticide analysis of the sample, all %Ds were $\leq 15\%$ with the exception of %Ds for 4,4'-DDT, endrin aldehyde, methoxychlor, and endrin ketone in one or more of the calibrations. Nondetect results for the aforementioned compounds were qualified as estimated, "UJ," in sample Outfall 011-Grab. Of the continuing calibrations associated with the PCB analysis of the sample, all %Ds were $\leq 15\%$ for Aroclor 1016 and Aroclor 1260. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No 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 (5B17042-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 (5B17042-BS1/BSD1 for pesticides and -BS2/-BSD2 for PCBs) was extracted and analyzed with this SDG. The recoveries for all spiked pesticide target compounds and Aroclors were within the laboratory-established QC limits and the RPDs were $\leq 30\%$ for pesticides, and $\leq 30\%$ and $\leq 25\%$ for Aroclors 1016 and 1260, respectively. 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 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 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 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 the sample, quantitation was verified by recalculating a representative number of blank spike and surrogate recoveries. Reporting limits were supported by the low level standard

DATA VALIDATION REPORT

of the initial calibrations and the laboratory MDL studies. The water reporting limits were not adjusted for sample amount on the result summaries; however, the dilution factor listed on the summaries reflected the sample volume extracted. Results were reported in ug/L (ppb). No qualifications were required.



Del Mar Analytical

17461 Deegan 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 (909) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 503-9680
 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: IOB1014

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
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont. Reporting Units: ug/l									
Aldrin	EPA 608	5B17042	0.030	0.10	ND	0.952	02/17/05	02/17/05	u
alpha-BHC	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
beta-BHC	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
delta-BHC	EPA 608	5B17042	0.020	0.20	ND	0.952	02/17/05	02/17/05	u
gamma-BHC (Lindane)	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
Chlordane	EPA 608	5B17042	0.20	1.0	ND	0.952	02/17/05	02/17/05	u
4,4'-DDD	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
4,4'-DDE	EPA 608	5B17042	0.020	0.10	ND	0.952	02/17/05	02/17/05	u
4,4'-DDT	EPA 608	5B17042	0.030	0.10	ND	0.952	02/17/05	02/17/05	u
Dieldrin	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
Endosulfan I	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
Endosulfan II	EPA 608	5B17042	0.040	0.10	ND	0.952	02/17/05	02/17/05	u
Endosulfan sulfate	EPA 608	5B17042	0.015	0.20	ND	0.952	02/17/05	02/17/05	u
Endrin	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	u
Endrin aldehyde	EPA 608	5B17042	0.045	0.10	ND	0.952	02/17/05	02/17/05	u
Endrin ketone	EPA 608	5B17042	0.020	0.10	ND	0.952	02/17/05	02/17/05	u
Heptachlor	EPA 608	5B17042	0.030	0.10	ND	0.952	02/17/05	02/17/05	u
Heptachlor epoxide	EPA 608	5B17042	0.020	0.10	ND	0.952	02/17/05	02/17/05	u
Methoxychlor	EPA 608	5B17042	0.035	0.10	ND	0.952	02/17/05	02/17/05	u
Toxaphene	EPA 608	5B17042	1.5	5.0	ND	0.952	02/17/05	02/17/05	u
Surrogate: Tetrachloro-m-xylene (35-120%)					45 %				
Surrogate: Decachlorobiphenyl (45-120%)					72 %				

AMEC VALIDATED

LEVEL IV

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 1014 E. Cropley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1040
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8196 FAX (619) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 783-0043 FAX (480) 785-0831
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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 Qualifier	Data Code
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.										
Reporting Units: ug/l										
Aroclor 1016	EPA 608	5B17042	0.20	1.0	ND	0.952	02/17/05	02/18/05	u	see anal qual code
Aroclor 1221	EPA 608	5B17042	0.10	1.0	ND	0.952	02/17/05	02/18/05		
Aroclor 1232	EPA 608	5B17042	0.15	1.0	ND	0.952	02/17/05	02/18/05		
Aroclor 1242	EPA 608	5B17042	0.15	1.0	ND	0.952	02/17/05	02/18/05		
Aroclor 1248	EPA 608	5B17042	0.25	1.0	ND	0.952	02/17/05	02/18/05		
Aroclor 1254	EPA 608	5B17042	0.25	1.0	ND	0.952	02/17/05	02/18/05		
Aroclor 1260	EPA 608	5B17042	0.40	1.0	ND	0.952	02/17/05	02/18/05		
Surrogate: Decachlorobiphenyl (45-120%)					70%					

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DRAFT REPORT
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 DATA SUBJECT TO CHANGE

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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. These 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>8264</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>RS02135-01</u>	Contract <u>PROJECT# IOB1014</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 01 IOB1014-01		8264-001	02/11/05	03/01/05	GrossAlpha	0.895 ± 0.76	pCi/L	1.05	UJ	R.Q
				03/01/05	Gross Beta	2.50 ± 1.3	pCi/L	1.90		
				03/02/05	H3	97.4 ± 140	pCi/L	237		
				02/25/05	Sr90	-0.216 ± 0.23	pCi/L	0.519		

pm 3/24/05

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LEVEL IV

Certified by <u><i>[Signature]</i></u>
Report Date <u>03/08/05</u>
Page 1

Eberline Services

ANALYSIS RESULTS

SDG #263	Client <u>DEL MAR ANAL</u>
Work Order <u>R502134-01</u>	Contract <u>PROJECT# IOB1004</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 011 IOB1004-01		8263-001	02/11/05	03/01/05	GrossAlpha	2.03 ± 0.91	pCi/L	0.787	J	R.Q
				03/01/05	Gross Beta	2.30 ± 1.2	pCi/L	1.78		
				03/02/05	H3	21.1 ± 140	pCi/L	240	U	
				02/25/05	Sr90	-0.060 ± 0.23	pCi/L	0.470	U	

mm 3/24/05

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Report Date <u>03/08/05</u>
Page 1

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

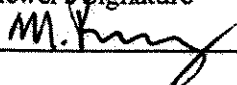
Package ID T711SV45
 Task Order 313150010
 SDG No. IOB1014

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: April 4, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications were required for calibration and LCS outliers.
COMMENTS ^b	

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB1014

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#: IOB1014
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 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 011	Outfall 011	IOB1014-01	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 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 $\leq 35\%$ 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 $\leq 20\%$, except for the %Ds for NDMA, benzoic acid, and 4-nitrophenol. NDMA, benzoic acid, and 4-nitrophenol were qualified as estimated nondetects, "UJ," in the sample of this SDG. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No further qualifications were required.

2.4 BLANKS

One method blank (5B14010-BLK1) was extracted and analyzed with this SDG. Fluorene, 2-methylnaphthalene, naphthalene, and phenanthrene were reported in the method blank at concentrations less than the reporting limits; however, the sample of this SDG did not have any

target compound detects. Review of the raw data indicated no reportable false negatives or false positives. No 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. Benzidine was not recovered in the BSD and its RPD exceeded the control limit. The RPD for NDMA exceeded the control limit. 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 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. No qualifications were required.

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for 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. 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.



Del Mar Analytical

17401 Brian Ave., Suite 100, Irvine, CA 92614 (949) 267-7622 FAX (949) 268-3322
 1074 E. Colton Dr., Suite A, Colton, CA 92324 (909) 371-4167 FAX (949) 371-1114
 9494 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-0590 FAX (619) 505-0600
 9630 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 705-0643 FAX (480) 705-0600
 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5B14010	0.089	0.50	ND	0.962	02/14/05	02/18/05	REV QUAL 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	ND	0.962	02/14/05	02/18/05	U
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%)					77 %				
Surrogate: Phenol-d6 (45-120%)					72 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					77 %				
Surrogate: Nitrobenzene-d5 (45-120%)					74 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					76 %				
Surrogate: Terphenyl-d14 (45-135%)					75 %				

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DRAFT REPORT
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LEVEL IV



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: Total Petroleum Hydrocarbons: Purgeable

SAMPLE DELIVERY GROUP: IOB1014

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#: IOB1014
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: April 6, 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	IOB1014-01	water	8015M/GRO
Trip Blank	Trip Blank	IOB1014-02	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°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 for the trip blank sample; however, as the laboratory analyzed the trip blank and included it in the data package, the analysis was validated. 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 all 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 (5B22003-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 (5B22003-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140% in the blank spike.

The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140% 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 site 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.



Del Mar Analytical

17467 DeJian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-1007
 1074 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1010
 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) 785-0857
 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: IOB1014

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 Qualifier
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont. Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B22003	0.050	0.10	ND	1	02/22/05	02/22/05	u
Surrogate: 4-BFB (FID) (65-140%)					78 %				
Sample ID: IOB1014-02 (DRAFT: Trip Blank - Water) Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B23023	0.050	0.10	ND	1	02/23/05	02/23/05	u
Surrogate: 4-BFB (FID) (65-140%)					93 %				

vet
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qual

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 T711TF51
 Task Order 313150010
 SDG No. IOB1014

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method EFH by Method 8015B

Date: April 6, 2005
 Reviewer's Signature L. Calvin

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOB1014

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#: IOB1014
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: April 6, 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	IOB1014-01	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 02/08/05. The %RSD was within the QC limit of $\leq 20\%$. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One method blank (5B19002-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 (5B19002-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The recoveries of alkane range C13-C22 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. 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

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 266-1244
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1044
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 503-8396 FAX (858) 505-9648
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0153
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 756-3622

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5B14105	0.082	0.50	ND	0.98	02/14/05	02/15/05	u
Surrogate: n-Octacosane (40-125%)					59 %				

AMEC VALIDATED

LEVEL 1

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

The results pertain only to the samples tested
 except in full, without



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOB1014

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#: IOB1014
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 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*, *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	IOB1014-01	water	624
Trip Blank	Trip Blank	IOB1014-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. The samples were properly preserved. The COCs noted that the samples were received intact; however, information regarding absence of headspace was not provided. 2-Chloroethylvinyl ether was analyzed from an unpreserved sample. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation reports were consistent with those specified in 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

Two initial calibrations dated 11/03/04 (acrolein, acrylonitrile, and Freon 113 only) and 02/01/05 were associated with this SDG. The average RRFs were ≥0.05 for all compounds listed on the sample result summaries except for the RRF for acrolein. Acrolein was rejected, "R," in both of the samples. The %RSDs were ≤35% for the target compounds analyzed by EPA Method 624, and the %RSD for trichlorotrifluoroethane (Freon 113) analyzed by EPA SW-846 Method 8260B was ≤15%. Two continuing calibrations associated with the sample analyses were analyzed 02/17/05 (14:08 and 15:09). The RRFs were ≥0.05 in all of the continuing calibrations, except for the RRF for acrolein. Acrolein was rejected, "R," in both of the samples of this SDG. The %Ds for acrolein and acrylonitrile exceeded 20% in the continuing calibration. Acrolein was already rejected and not further qualified. Acrylonitrile was qualified as an estimated nondetect, "UJ," in the site sample. No qualifications were required for the Trip blank. The %Ds were ≤20% for the remaining target compounds listed on the result summaries. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations

were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Two water method blanks (5B17014-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 (5B17014-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

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

Sample Trip Blank was the trip blank associated with this SDG. No target compounds were reported in the trip blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed the volatile target compounds by EPA Method 624. A TIC search was performed for requested target compounds 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane, 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 the site samples of these SDGs. 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.



Del Mar Analytical

17451 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX 949 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4607 FAX 949 370-1046
 5484 Chesapeake Dr., Suite 803, San Diego, CA 92123 (619) 505-8596 FAX 619 505-9089
 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)
 Ourfall 011
 Report Number: IOB1014

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
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	U
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	↓
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

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



Del Mar Analytical

17461 Dorian Ave., Suite 100, Irvine, CA 92614 (949) 261-7022 FAX (949) 260-3297
 1914 E. Cooley Dr., Suite A, Coon, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 507-0396 FAX (619) 503-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0643 FAX (480) 785-0651
 2520 E. Sunset Rd., #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3021

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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
Sample ID: IOB1014-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	U
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.52	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.53	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)									109 %
Surrogate: Toluene-d8 (80-120%)									101 %
Surrogate: 4-Bromofluorobenzene (80-120%)									97 %

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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: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

DRAFT: FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									RD/QUAL	QUAL CODE
Sample ID: IOB1014-01RE1 (DRAFT: Outfall 011-grab - Water)										
Reporting Units: ug/l										
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B24007	1.2	5.0	ND	1	02/24/05	02/24/05	U	
Surrogate: Dibromofluoromethane (80-120%)					104 %					
Surrogate: Toluene-d8 (80-120%)					99 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %					
Sample ID: IOB1014-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B17014	1.2	5.0	ND	1	02/17/05	02/17/05	U	
Surrogate: Dibromofluoromethane (80-120%)					109 %					
Surrogate: Toluene-d8 (80-120%)					101 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %					

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 503-6396 FAX (619) 505-9039
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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: IOB1014

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
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	UJ
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	U
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
Sample ID: IOB1014-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	R
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	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%)					97 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9689
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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: IOB1014

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	
									REV QUAL	QUAL CODE
Sample ID: IOB1014-01 (DRAFT: Outfall 011-grab - Water)										
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	UJ	*LI
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	UJ	*LI
Sample ID: IOB1014-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	U	
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	U	

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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 T711WC108
 Task Order 313150010
 SDG No. IOB1014

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 03/31/05

Reviewer's Signature

L. Jarusewic

ACTION ITEMS^a

1. **Case Narrative Deficiencies**
2. **Out of Scope Analyses**
3. **Analyses Not Conducted**
4. **Missing Hardcopy Deliverables**
5. **Incorrect Hardcopy Deliverables**
6. **Deviations from Analysis Protocol, e.g.,**
 Holding Times
 GC/MS Tune/Inst. Performance
 Calibrations
 Blanks
 Surrogates
 Matrix Spike/Dup LCS
 Field QC
 Internal Standard Performance
 Compound Identification and Quantitation
 System Performance

Qualifications applied for:

- 1) Detects below the reporting limit
- 2) CCB detects

COMMENTS^b

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOB1014

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 #: IOB1014
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: March 31, 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, 160.2, 120.1, 160.5, 415.1, 413.1, 350.2, 418.1, and 180.1. Standard Methods for the Examination of Water and Wastewater Method SM5540-C and SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011-Grab	Outfall 011-Grab	IOB1014-01	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 the analyses and sample presented in this SDG. 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 28-day analytical holding time for total recoverable hydrocarbons, ammonia, chloride, fluoride, sulfate, oil and grease, total organic carbon, and conductivity, the 14-day analytical holding time for cyanide, the seven-day holding time for total dissolved solids and total suspended solids, the 48-hour holding time for turbidity, nitrate/nitrite, surfactants, total settleable solids, and biological oxygen demand, and the 24-hour residual chlorine holding times were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . The initial and continuing calibration verification information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. The total cyanide reporting limit check standard was recovered above control limits at 137.9%; however, as cyanide was not detected in Outfall 011-Grab, no qualifications were required. Calibration is not applicable to residual chlorine, oil and grease, total dissolved solids, total settleable solids, or total suspended solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5B12055-BLK1 at 0.040 NTU; however, the method blank result was insufficient to qualify the Outfall 011-Grab result. Fluoride was detected in a bracketing CCB at 0.27 mg/L; therefore, fluoride detected in Outfall 011-Grab was qualified as estimated, "UJ." The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No further qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

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

2.11 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8388 FAX (858) 503-9666
 9030 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0040 FAX (480) 785-0885
 2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-302

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5B15110	0.30	0.50	ND	1	02/15/05	02/15/05	U
Biochemical Oxygen Demand	EPA 405.1	5B12037	0.59	2.0	3.6	1	02/12/05	02/17/05	
Chloride	EPA 300.0	5B11120	0.25	0.50	5.4	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	U J B
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	0.47	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B14044	0.94	5.0	ND	1	02/14/05	02/14/05	U
Residual Chlorine	EPA 330.5	5B12035	0.10	0.10	ND	1	02/12/05	02/12/05	↓
Sulfate	EPA 300.0	5B11120	0.18	0.50	14	1	02/11/05	02/12/05	J
Surfactants (MBAS)	SM5540-C	5B12050	0.044	0.10	0.082	1	02/12/05	02/12/05	J J DNG
Total Dissolved Solids	SM2540C	5B16119	10	10	110	1	02/16/05	02/16/05	
Total Organic Carbon	EPA 415.1	5B18126	0.25	1.0	11	1	02/18/05	02/18/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	26	1	02/17/05	02/17/05	

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LEVEL 1

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 503-8196 FAX (619) 501-0000
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 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: ml/hr									
Total Suspended Solids	EPA 160.5	5B12034	0.10	0.10	ND	1	02/12/05	02/12/05	U

REV QUAL
 DUAL CODE

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5B12055	0.040	1.0	38	1	02/12/05	02/12/05	REV QUAL CODE

AMEC VALIDATED

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9100
 9830 South 57th St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0681
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.										
Reporting Units: ug/l										
Total Cyanide	EPA 335.2	5B14107	2.2	5.0	ND	1	02/14/05	02/14/05	U	REV QUAL CODE
Perchlorate	EPA 314.0	5B17053	0.80	4.0	ND	1	02/17/05	02/17/05	*	

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LEVEL 1

Analytic List 1/11/05

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 9650 South 51st St., Suite B-100, Phoenix, AZ 85044 (480) 790-0043 FAX (480) 790-0043
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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: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5B16120	1.0	1.0	130	1	02/16/05	02/16/05	REV QUAL QUAL CODE

AMEC VALIDATED

LEVEL 1

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 595-8596 FAX (619) 595-9999
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 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - 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
 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 T711WC109

Task Order 313150010

SDG No. IOB1014

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate

Date: 03/31/05

Reviewer's Signature



ACTION ITEMS*

1. Case Narrative Deficiencies
2. Out of Scope Analyses
3. Analyses Not Conducted
4. Missing Hardcopy Deliverables
5. Incorrect Hardcopy Deliverables
6. Deviations from Analysis Protocol, e.g.,
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

COMMENTS^b

Acceptable as reviewed.

^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.

^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOB1014

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 #: IOB1014
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: March 31, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0*, and validation guidelines outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011-Grab	Outfall 011-Grab	IOB1014-01	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 ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated 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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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3310
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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: IOB1014

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: IOB1014-01 (DRAFT: Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5B14107	2.2	5.0	ND	1	02/14/05	02/14/05	* u
Perchlorate	EPA 314.0	5B17053	0.80	4.0	ND	1	02/17/05	02/17/05	* u

AMEC VALIDATED

LEVEL IV

Not Validated

DRAFT REPORT
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 DATA SUBJECT TO CHANGE

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: HYDRAZINES

SAMPLE DELIVERY GROUP: IOB1014

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 #: IOB1014
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Hydrazines
QC Level: Level IV
No. of Samples: 1
Reviewer: P. Meeks
Date of Review: April 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	IOB1014-01	939705	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 sample was extraction within the three-day holding time; and was 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 ≥ 0.995 for the hydrazines. The ICV and CCV bracketing the sample analysis 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 RPDs were within the control limit of $\leq 20\%$. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogates were not utilized in this analysis. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MSD/MSD analyses were performed on Outfall 011; therefore, no assessment was made with respect to this criterion. Method accuracy and precision were evaluated based on LCS/LCSD 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 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: IOB1014
P.O. Number: IOB1014
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 939705
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

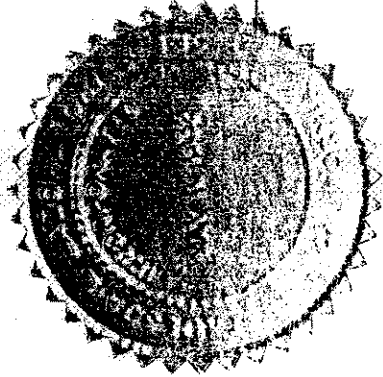
Sample ID	Sample Description	Monomethyl Hydrazine		Unsymmetrical Dimethyl Hydrazine		Hydrazine	
		µg/L	Qual Code	µg/L	Qual Code	µg/L	Qual Code
704765-MB	Method Blank	ND	*	ND	*	ND	*
939705	Outfall 011 IOB1014-01	ND	U	ND	U	ND	U
MDL		1.2					
PQL		5.0		0.27		0.39	

*Analytic Not Validated

MDL: Method Detection Limit, µg/L
PQL: Practical Quantitation Limit, µg/L
ND: Not Detected at or above the MDL value.
N/A: Not Applicable

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

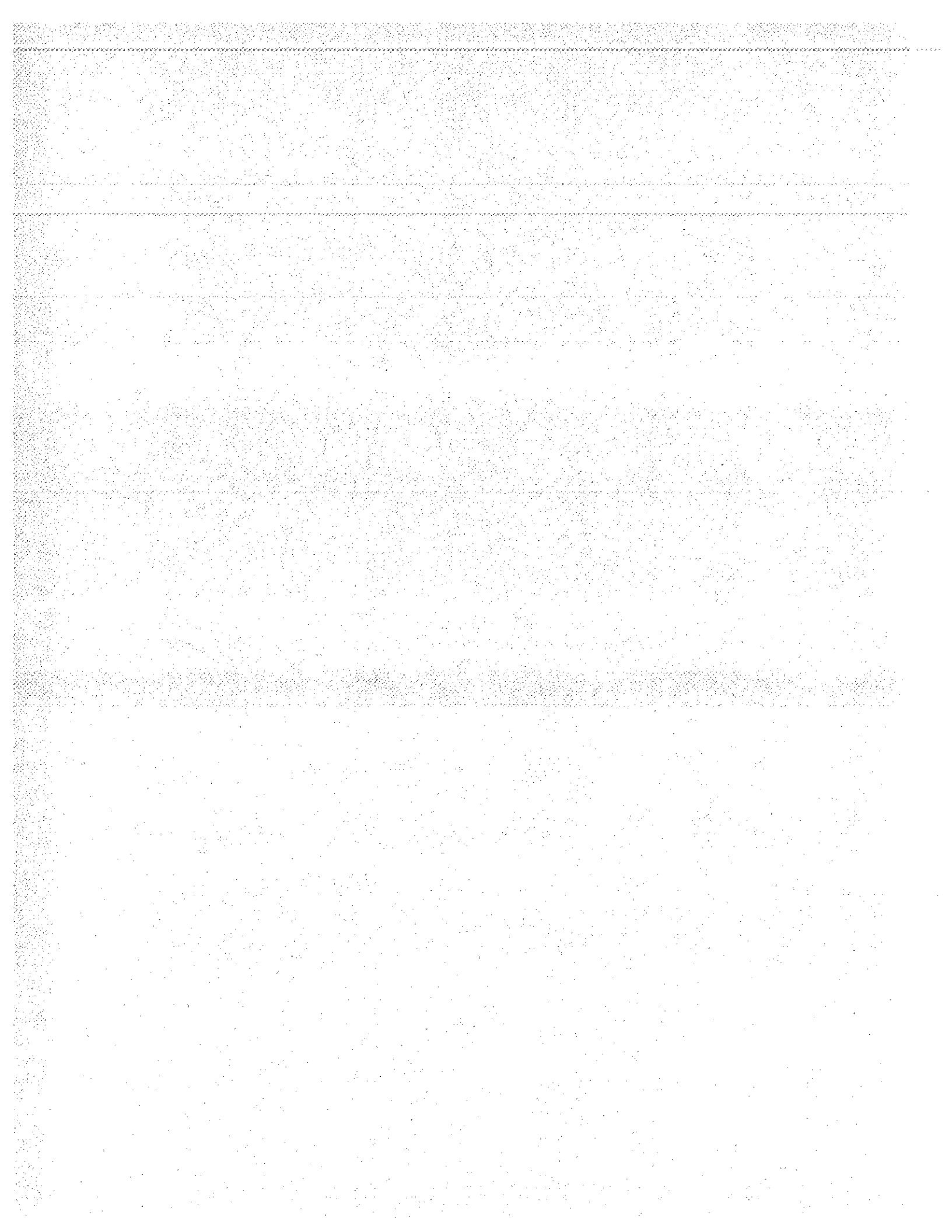
AMEC VALIDATED



Xian Dang, Project Manager
Environmental Services

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.





LABORATORY REPORT

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

Project: 13267 (Study 1)
Outfall 011

Sampled: 02/11/05
Received: 02/11/05
Issued: 04/07/05 18:09

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
IOB1014-01	Outfall 011-grab	Water
IOB1014-02	Trip Blank	Water
IOB1014-03	Outfall 011-grab/filtered	Water
IOB1014-04	Outfall 011-grab/Substrate	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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
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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: IOB1014

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 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



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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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: IOB1014	Sampled: 02/11/05 Received: 02/11/05
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CORRECTIVE ACTION REPORT

Department: Extractions

Method: EPA 625

QC Batch: 5B14010

Date: 02/22/2005

Matrix: Water

Identification and Definition of Problem:

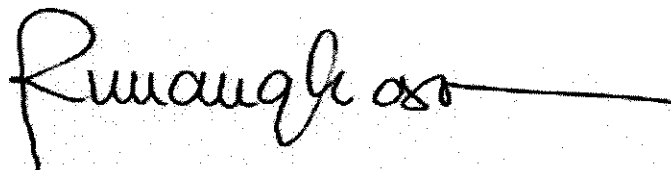
The Method Blank result for 2-Methylnaphthalene was above the reporting limit (8.7ppb).

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



Del Mar Analytical

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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
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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: IOB1014	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: IOB1014-01 (Outfall 011-grab - 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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 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: IOB1014	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
Sample ID: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5B14105	0.082	0.50	ND	0.98	02/14/05	02/15/05	
Surrogate: n-Octacosane (40-125%)					59 %				

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: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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
Sample ID: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12) Surrogate: 4-BFB (FID) (65-140%)	EPA 8015 Mod.	5B22003	0.050	0.10	ND 78 %	1	02/22/05	02/22/05	
Sample ID: IOB1014-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12) Surrogate: 4-BFB (FID) (65-140%)	EPA 8015 Mod.	5B23023	0.050	0.10	ND 93 %	1	02/23/05	02/23/05	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1014-01RE1 (Outfall 011-grab - Water)									
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B24007	1.2	5.0	ND	1	02/24/05	02/24/05	
Surrogate: Dibromofluoromethane (80-120%)					104 %				
Surrogate: Toluene-d8 (80-120%)					99 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOB1014-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5B17014	1.2	5.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					109 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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 Project Manager

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

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1014-01 (Outfall 011-grab - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)									114 %
Surrogate: Toluene-d8 (80-120%)									102 %
Surrogate: 4-Bromofluorobenzene (80-120%)									98 %

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 Project Manager

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

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: IOB1014-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5B17014	0.28	1.0	ND	1	02/17/05	02/17/05	
Bromodichloromethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17014	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17014	0.33	2.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17014	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17014	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17014	0.37	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17014	0.28	0.50	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17014	0.32	5.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17014	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17014	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17014	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17014	0.25	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17014	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17014	0.24	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17014	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17014	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17014	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17014	0.26	2.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17014	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17014	0.26	0.50	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17014	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)									109 %
Surrogate: Toluene-d8 (80-120%)									101 %
Surrogate: 4-Bromofluorobenzene (80-120%)									97 %

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) 785-0851
 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: IOB1014	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
Sample ID: IOB1014-01 (Outfall 011-grab - Water)									
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%)					98 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
Sample ID: IOB1014-02 (Trip Blank - Water)									
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%)					97 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				

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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: IOB1014	Sampled: 02/11/05 Received: 02/11/05
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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
Sample ID: IOB1014-01 (Outfall 011-grab - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	
Sample ID: IOB1014-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	
Cyclohexane	EPA 624 (MOD.)	5B17014	N/A	2.5	ND	1	02/17/05	02/17/05	

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (Outfall 011-grab - 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	

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 Michele Harper
 Project Manager

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

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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
Sample ID: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
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	ND	0.962	02/14/05	02/18/05	
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	
N-Nitroso-di-n-propylamine	EPA 625	5B14010	0.18	2.0	ND	0.962	02/14/05	02/18/05	C
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%)									77 %
Surrogate: Phenol-d6 (45-120%)									72 %
Surrogate: 2,4,6-Tribromophenol (50-125%)									77 %
Surrogate: Nitrobenzene-d5 (45-120%)									74 %
Surrogate: 2-Fluorobiphenyl (45-120%)									76 %
Surrogate: Terphenyl-d14 (45-135%)									75 %

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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: IOB1014	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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B17042	0.030	0.10	ND	0.952	02/17/05	02/17/05	
alpha-BHC	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	
beta-BHC	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	
delta-BHC	EPA 608	5B17042	0.020	0.20	ND	0.952	02/17/05	02/17/05	
gamma-BHC (Lindane)	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	
Chlordane	EPA 608	5B17042	0.20	1.0	ND	0.952	02/17/05	02/17/05	
4,4'-DDD	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	
4,4'-DDE	EPA 608	5B17042	0.020	0.10	ND	0.952	02/17/05	02/17/05	
4,4'-DDT	EPA 608	5B17042	0.030	0.10	ND	0.952	02/17/05	02/17/05	
Dieldrin	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	C5
Endosulfan I	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	
Endosulfan II	EPA 608	5B17042	0.040	0.10	ND	0.952	02/17/05	02/17/05	
Endosulfan sulfate	EPA 608	5B17042	0.015	0.20	ND	0.952	02/17/05	02/17/05	
Endrin	EPA 608	5B17042	0.015	0.10	ND	0.952	02/17/05	02/17/05	
Endrin aldehyde	EPA 608	5B17042	0.045	0.10	ND	0.952	02/17/05	02/17/05	
Endrin ketone	EPA 608	5B17042	0.020	0.10	ND	0.952	02/17/05	02/17/05	
Heptachlor	EPA 608	5B17042	0.030	0.10	ND	0.952	02/17/05	02/17/05	C5
Heptachlor epoxide	EPA 608	5B17042	0.020	0.10	ND	0.952	02/17/05	02/17/05	
Methoxychlor	EPA 608	5B17042	0.035	0.10	ND	0.952	02/17/05	02/17/05	
Toxaphene	EPA 608	5B17042	1.5	5.0	ND	0.952	02/17/05	02/17/05	C5
Surrogate: Tetrachloro-m-xylene (35-120%)									45 %
Surrogate: Decachlorobiphenyl (45-120%)									72 %

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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: IOB1014	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
Sample ID: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5B17042	0.20	1.0	ND	0.952	02/17/05	02/18/05	
Aroclor 1221	EPA 608	5B17042	0.10	1.0	ND	0.952	02/17/05	02/18/05	
Aroclor 1232	EPA 608	5B17042	0.15	1.0	ND	0.952	02/17/05	02/18/05	
Aroclor 1242	EPA 608	5B17042	0.15	1.0	ND	0.952	02/17/05	02/18/05	
Aroclor 1248	EPA 608	5B17042	0.25	1.0	ND	0.952	02/17/05	02/18/05	
Aroclor 1254	EPA 608	5B17042	0.25	1.0	ND	0.952	02/17/05	02/18/05	
Aroclor 1260	EPA 608	5B17042	0.40	1.0	ND	0.952	02/17/05	02/18/05	
Surrogate: Decachlorobiphenyl (45-120%)					70 %				

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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: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5B12041	0.00014	0.0010	0.020	1	02/12/05	02/14/05	
Boron	EPA 200.7	5B12044	0.0074	0.050	0.063	1	02/12/05	02/12/05	
Iron	EPA 200.8	5B12041	0.0032	0.010	1.6	1	02/12/05	02/15/05	B

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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: IOB1014	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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B12041	0.18	2.0	0.44	1	02/12/05	02/14/05	J
Arsenic	EPA 200.8	5B12041	0.49	1.0	1.0	1	02/12/05	02/14/05	
Beryllium	EPA 200.8	5B12041	0.037	0.50	0.052	1	02/12/05	02/14/05	J
Cadmium	EPA 200.8	5B12041	0.015	1.0	0.11	1	02/12/05	02/14/05	J
Chromium	EPA 200.8	5B12041	0.26	1.0	1.8	1	02/12/05	02/14/05	
Cobalt	EPA 200.8	5B12041	0.10	1.0	0.60	1	02/12/05	02/14/05	J
Copper	EPA 200.8	5B12041	0.49	2.0	3.4	1	02/12/05	02/14/05	
Lead	EPA 200.8	5B12041	0.13	1.0	1.3	1	02/12/05	02/14/05	
Manganese	EPA 200.8	5B12041	0.44	1.0	36	1	02/12/05	02/14/05	
Mercury	EPA 245.1	5B12033	0.063	0.20	0.14	1	02/12/05	02/12/05	J
Nickel	EPA 200.8	5B12041	0.15	1.0	1.4	1	02/12/05	02/14/05	
Selenium	EPA 200.8	5B12041	0.36	2.0	ND	1	02/12/05	02/14/05	
Silver	EPA 200.8	5B12041	0.089	1.0	ND	1	02/12/05	02/14/05	
Thallium	EPA 200.8	5B12041	0.075	1.0	ND	1	02/12/05	02/14/05	
Vanadium	EPA 200.8	5B12041	0.86	1.0	3.7	1	02/12/05	02/14/05	
Zinc	EPA 200.8	5B12041	3.1	20	16	1	02/12/05	02/15/05	J

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5B15110	0.30	0.50	ND	1	02/15/05	02/15/05	
Biochemical Oxygen Demand	EPA 405.1	5B12037	0.59	2.0	3.6	1	02/12/05	02/17/05	
Chloride	EPA 300.0	5B11120	0.26	0.50	5.4	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	0.47	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B14044	0.94	5.0	ND	1	02/14/05	02/14/05	
Residual Chlorine	EPA 330.5	5B12035	0.10	0.10	ND	1	02/12/05	02/12/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	14	1	02/11/05	02/12/05	
Surfactants (MBAS)	SM5540-C	5B12050	0.044	0.10	0.082	1	02/12/05	02/12/05	J
Total Dissolved Solids	SM2540C	5B16119	10	10	110	1	02/16/05	02/16/05	
Total Organic Carbon	EPA 415.1	5B18126	0.25	1.0	11	1	02/18/05	02/18/05	
Total Suspended Solids	EPA 160.2	5B17069	10	10	26	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: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5B12034	0.10	0.10	ND	1	02/12/05	02/12/05	

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5B12055	0.040	1.0	38	1	02/12/05	02/12/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5B14107	2.2	5.0	ND	1	02/14/05	02/14/05	
Perchlorate	EPA 314.0	5B17053	0.80	4.0	ND	1	02/17/05	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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5B16120	1.0	1.0	130	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: IOB1014-01 (Outfall 011-grab - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5B1701	0.49	1.0	ND	1	02/17/05	02/17/05	97 %
Surrogate: Dibromofluoromethane (80-125%)									

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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: 13267 (Study 1) Outfall 011 Report Number: IOB1014	Sampled: 02/11/05 Received: 02/11/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011-grab (IOB1014-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	02/11/2005 12:20	02/11/2005 20:30	02/12/2005 10:00	02/12/2005 15:45
EPA 180.1	2	02/11/2005 12:20	02/11/2005 20:30	02/12/2005 12:00	02/12/2005 13:00
EPA 300.0	2	02/11/2005 12:20	02/11/2005 20:30	02/11/2005 23:00	02/12/2005 07:02
EPA 330.5	1	02/11/2005 12:20	02/11/2005 20:30	02/12/2005 12:10	02/12/2005 15:00
EPA 405.1	2	02/11/2005 12:20	02/11/2005 20:30	02/12/2005 12:23	02/17/2005 15:30
EPA 624	3	02/11/2005 12:20	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 19:58
SM5540-C	2	02/11/2005 12:20	02/11/2005 20:30	02/12/2005 13:09	02/12/2005 17:41
Sample ID: Trip Blank (IOB1014-02) - Water					
EPA 624	3	02/11/2005 17:00	02/11/2005 20:30	02/12/2005 00:00	02/12/2005 20:29

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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: IOB1014

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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B15078 Extracted: 02/15/05											
Blank Analyzed: 02/15/2005 (5B15078-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 02/15/2005 (5B15078-BS1)											
Total Recoverable Hydrocarbons	4.46	1.0	0.31	mg/l	5.00		89	65-120			M-NR1
LCS Dup Analyzed: 02/15/2005 (5B15078-BSD1)											
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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14105 Extracted: 02/14/05										
Blank Analyzed: 02/15/2005 (5B14105-BLK1)										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.169			mg/l	0.200		84 40-125			
LCS Analyzed: 02/15/2005 (5B14105-BS1)										
EFH (C13 - C40)	0.654	0.50	0.082	mg/l	0.775		84 40-120			M-NR1
Surrogate: n-Octacosane	0.169			mg/l	0.200		84 40-125			
LCS Dup Analyzed: 02/15/2005 (5B14105-BSD1)										
EFH (C13 - C40)	0.610	0.50	0.082	mg/l	0.775		79 40-120	7	25	
Surrogate: n-Octacosane	0.161			mg/l	0.200		80 40-125			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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 Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B22003 Extracted: 02/22/05										
Blank Analyzed: 02/22/2005 (5B22003-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00839			mg/l	0.0100		84 65-140			
LCS Analyzed: 02/22/2005 (5B22003-BS1)										
GRO (C4 - C12)	0.734	0.10	0.050	mg/l	0.800		92 70-140			
Surrogate: 4-BFB (FID)	0.0278			mg/l	0.0300		93 65-140			
Matrix Spike Analyzed: 02/22/2005 (5B22003-MS1)										
						Source: IOB1065-03				
GRO (C4 - C12)	0.222	0.10	0.050	mg/l	0.220	ND	101 60-140			
Surrogate: 4-BFB (FID)	0.0111			mg/l	0.0100		111 65-140			
Matrix Spike Dup Analyzed: 02/22/2005 (5B22003-MSD1)										
						Source: IOB1065-03				
GRO (C4 - C12)	0.200	0.10	0.050	mg/l	0.220	ND	91 60-140	10	20	
Surrogate: 4-BFB (FID)	0.0103			mg/l	0.0100		103 65-140			
Batch: 5B23023 Extracted: 02/23/05										
Blank Analyzed: 02/23/2005 (5B23023-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00904			mg/l	0.0100		90 65-140			
LCS Analyzed: 02/23/2005 (5B23023-BS1)										
GRO (C4 - C12)	0.781	0.10	0.050	mg/l	0.800		98 70-140			
Surrogate: 4-BFB (FID)	0.0284			mg/l	0.0300		95 65-140			
Matrix Spike Analyzed: 02/23/2005 (5B23023-MS1)										
						Source: IOB1305-06				
GRO (C4 - C12)	0.207	0.10	0.050	mg/l	0.220	ND	94 60-140			
Surrogate: 4-BFB (FID)	0.0110			mg/l	0.0100		110 65-140			

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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
Batch: 5B23023 Extracted: 02/23/05											
Matrix Spike Dup Analyzed: 02/23/2005 (5B23023-MSD1)											
GRO (C4 - C12)	0.213	0.10	0.050	mg/l	0.220	ND	97	60-140	3	20	
Surrogate: 4-BFB (FID)	0.0106			mg/l	0.0100		106	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
Batch: 5B17014 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17014-BLK1)											
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			
Batch: 5B24007 Extracted: 02/24/05											
Blank Analyzed: 02/24/2005 (5B24007-BLK1)											
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Surrogate: Dibromofluoromethane	25.1			ug/l	25.0		100	80-120			
Surrogate: Toluene-d8	23.5			ug/l	25.0		94	80-120			
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0		95	80-120			

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 Pasadena, CA 91101
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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005 (5B17014-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120		

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 Outfall 011
 Report Number: IOB1014

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05										
LCS Analyzed: 02/17/2005 (5B17014-BS1)										
Benzene	24.9	1.0	0.28	ug/l	25.0	100	70-120			
Bromodichloromethane	25.7	2.0	0.30	ug/l	25.0	103	70-140			
Bromoform	24.2	5.0	0.32	ug/l	25.0	97	55-135			
Bromomethane	29.1	5.0	0.34	ug/l	25.0	116	60-140			
Carbon tetrachloride	26.2	0.50	0.28	ug/l	25.0	105	70-140			
Chlorobenzene	23.4	2.0	0.36	ug/l	25.0	94	80-125			
Chloroethane	27.4	5.0	0.33	ug/l	25.0	110	60-145			
Chloroform	26.2	2.0	0.33	ug/l	25.0	105	75-130			
Chloromethane	25.8	5.0	0.30	ug/l	25.0	103	40-145			
Dibromochloromethane	24.7	2.0	0.28	ug/l	25.0	99	65-145			
1,2-Dichlorobenzene	23.3	2.0	0.32	ug/l	25.0	93	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0	94	80-120			
1,4-Dichlorobenzene	23.0	2.0	0.37	ug/l	25.0	92	80-120			
1,1-Dichloroethane	25.5	2.0	0.27	ug/l	25.0	102	70-135			
1,2-Dichloroethane	25.9	0.50	0.28	ug/l	25.0	104	60-150			
1,1-Dichloroethene	24.6	5.0	0.32	ug/l	25.0	98	75-135			
trans-1,2-Dichloroethene	25.4	2.0	0.27	ug/l	25.0	102	70-130			
1,2-Dichloropropane	24.8	2.0	0.35	ug/l	25.0	99	70-120			
cis-1,3-Dichloropropene	25.6	2.0	0.22	ug/l	25.0	102	75-130			
trans-1,3-Dichloropropene	25.7	2.0	0.24	ug/l	25.0	103	75-135			
Ethylbenzene	26.4	2.0	0.25	ug/l	25.0	106	80-120			
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	102	60-135			
1,1,2,2-Tetrachloroethane	23.2	2.0	0.24	ug/l	25.0	93	60-135			
Tetrachloroethene	23.2	2.0	0.32	ug/l	25.0	93	75-125			
Toluene	24.6	2.0	0.36	ug/l	25.0	98	75-120			
1,1,1-Trichloroethane	27.1	2.0	0.30	ug/l	25.0	108	75-140			
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0	100	70-125			
Trichloroethene	23.4	2.0	0.26	ug/l	25.0	94	80-120			
Trichlorofluoromethane	28.0	5.0	0.34	ug/l	25.0	112	65-145			
Vinyl chloride	27.7	0.50	0.26	ug/l	25.0	111	50-130			
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0	106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0	101	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0	108	80-120			

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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

Batch: 5B17014 Extracted: 02/17/05

Matrix Spike Dup Analyzed: 02/17/2005 (5B17014-MSD1)

Source: IOB1001-01

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Benzene	25.1	1.0	0.28	ug/l	25.0	ND	100	70-120	0	20	
Bromodichloromethane	25.4	2.0	0.30	ug/l	25.0	ND	102	70-140	3	20	
Bromoform	21.6	5.0	0.32	ug/l	25.0	ND	86	55-140	9	25	
Bromomethane	31.0	5.0	0.34	ug/l	25.0	ND	124	50-145	8	25	
Carbon tetrachloride	26.5	0.50	0.28	ug/l	25.0	ND	106	70-145	1	25	
Chlorobenzene	23.9	2.0	0.36	ug/l	25.0	ND	96	80-125	4	20	
Chloroethane	29.6	5.0	0.33	ug/l	25.0	ND	118	50-145	11	25	
Chloroform	26.4	2.0	0.33	ug/l	25.0	ND	106	70-135	2	20	
Chloromethane	28.0	5.0	0.30	ug/l	25.0	ND	112	35-145	13	25	
Dibromochloromethane	23.4	2.0	0.28	ug/l	25.0	ND	94	65-145	6	25	
1,2-Dichlorobenzene	23.4	2.0	0.32	ug/l	25.0	ND	94	75-130	0	20	
1,3-Dichlorobenzene	24.0	2.0	0.35	ug/l	25.0	ND	96	75-130	3	20	
1,4-Dichlorobenzene	23.6	2.0	0.37	ug/l	25.0	ND	94	80-120	3	20	
1,1-Dichloroethane	26.1	2.0	0.27	ug/l	25.0	ND	104	65-135	1	20	
1,2-Dichloroethane	24.5	0.50	0.28	ug/l	25.0	ND	98	60-150	10	20	
1,1-Dichloroethene	24.9	5.0	0.32	ug/l	25.0	ND	100	65-140	1	20	
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135	0	20	
1,2-Dichloropropane	24.3	2.0	0.35	ug/l	25.0	ND	97	65-130	2	20	
cis-1,3-Dichloropropene	25.2	2.0	0.22	ug/l	25.0	ND	101	70-140	3	20	
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140	7	25	
Ethylbenzene	27.0	2.0	0.25	ug/l	25.0	ND	108	70-130	3	20	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	ND	102	60-135	2	20	
1,1,2,2-Tetrachloroethane	20.8	2.0	0.24	ug/l	25.0	ND	83	60-145	10	30	
Tetrachloroethene	23.9	2.0	0.32	ug/l	25.0	ND	96	70-130	5	20	
Toluene	24.9	2.0	0.36	ug/l	25.0	ND	100	70-120	1	20	
1,1,1-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	75-140	1	20	
1,1,2-Trichloroethane	22.8	2.0	0.30	ug/l	25.0	ND	91	60-135	10	25	
Trichloroethene	23.5	2.0	0.26	ug/l	25.0	ND	94	70-125	0	20	
Trichlorofluoromethane	28.5	5.0	0.34	ug/l	25.0	ND	114	55-145	1	25	
Vinyl chloride	30.0	0.50	0.26	ug/l	25.0	ND	120	40-135	13	30	
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0	106	80-120				
Surrogate: Toluene-d8	25.2			ug/l	25.0	101	80-120				
Surrogate: 4-Bromofluorobenzene	26.4			ug/l	25.0	106	80-120				

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B12011 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12011-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	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			
LCS Analyzed: 02/12/2005 (5B12011-BS1)											
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			
Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1)											
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			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1)											
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: 13267 (Study 1) Outfall 011 Report Number: IOB1014	Sampled: 02/11/05 Received: 02/11/05
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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 %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B17014 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17014-BLK1)											
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l							
Cyclohexane	ND	2.5	N/A	ug/l							

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
Blank Analyzed: 02/18/2005 (5B14010-BLK1)										
Acenaphthene	ND	0.50	0.10	ug/l						
Acenaphthylene	ND	0.50	0.10	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	0.50	0.083	ug/l						
Benzidine	ND	5.0	2.4	ug/l						
Benzoic acid	ND	20	3.7	ug/l						
Benzo(a)anthracene	ND	5.0	0.038	ug/l						
Benzo(a)pyrene	ND	2.0	0.14	ug/l						
Benzo(b)fluoranthene	ND	2.0	0.050	ug/l						
Benzo(g,h,i)perylene	ND	5.0	0.059	ug/l						
Benzo(k)fluoranthene	ND	0.50	0.053	ug/l						
Benzyl alcohol	ND	5.0	0.21	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	0.072	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	0.084	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	0.11	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	0.12	ug/l						
Butyl benzyl phthalate	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						
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						J
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
Blank Analyzed: 02/18/2005 (5B14010-BLK1)										
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						
Hexachlorobenzene	ND	1.0	0.13	ug/l						J
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						
2-Methylphenol	ND	2.0	0.28	ug/l						B
4-Methylphenol	ND	5.0	0.20	ug/l						
Naphthalene	0.300	1.0	0.13	ug/l						
2-Nitroaniline	ND	5.0	0.18	ug/l						J
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			

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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
Batch: 5B14010 Extracted: 02/14/05										
Blank Analyzed: 02/18/2005 (5B14010-BLK1)										
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			
LCS Analyzed: 02/18/2005 (5B14010-BS1)										
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			J
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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 Report Number: IOB1014

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05										
LCS Analyzed: 02/18/2005 (5B14010-BS1)										
1,4-Dichlorobenzene	6.22	0.50	0.050	ug/l	10.0	62	40-120			M-NRI
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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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting		Spike	Source	%REC		RPD	RPD	Limit	Data
		Limit	MDL			Units	Level				
Batch: 5B14010 Extracted: 02/14/05											
LCS Analyzed: 02/18/2005 (5B14010-BS1)											
Phenol	7.54	1.0	0.14	ug/l	10.0	75	45-120				M-NRI
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				
LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)											
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		
Benzidine	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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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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		RPD	RPD Limit	Data Qualifiers
		Limit	MDL					%REC	Limits			
Batch: 5B14010 Extracted: 02/14/05												
LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)												
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		

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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: IOB1014

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	RPD Limit	Data Qualifiers
Batch: 5B14010 Extracted: 02/14/05											
LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)											
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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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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	RPD Limits	RPD RPD	Data Qualifiers
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Batch: 5B17042 Extracted: 02/17/05

Blank Analyzed: 02/17/2005-02/18/2005 (5B17042-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.015	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	0.264			ug/l	0.500	53	35-120			
Surrogate: Decachlorobiphenyl	0.339			ug/l	0.500	68	45-120			

LCS Analyzed: 02/18/2005 (5B17042-BS1)

Aldrin	0.364	0.10	0.030	ug/l	0.500					M-NR1
alpha-BHC	0.374	0.10	0.015	ug/l	0.500	73	45-115			
beta-BHC	0.373	0.10	0.015	ug/l	0.500	75	45-115			
delta-BHC	0.391	0.20	0.020	ug/l	0.500	75	50-115			
gamma-BHC (Lindane)	0.385	0.10	0.015	ug/l	0.500	78	55-120			
4,4'-DDD	0.415	0.10	0.015	ug/l	0.500	77	45-115			
4,4'-DDE	0.412	0.10	0.020	ug/l	0.500	83	60-120			
4,4'-DDT	0.424	0.10	0.030	ug/l	0.500	82	55-120			
Dieldrin	0.403	0.10	0.015	ug/l	0.500	85	60-130			
Endosulfan I	0.384	0.10	0.015	ug/l	0.500	81	55-120			
Endosulfan II	0.397	0.10	0.040	ug/l	0.500	77	50-115			
Endosulfan sulfate	0.425	0.20	0.015	ug/l	0.500	79	60-125			
						85	60-120			

M-NR1

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 Outfall 011
 Report Number: IOB1014

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17042 Extracted: 02/17/05										
LCS Analyzed: 02/18/2005 (5B17042-BS1)										
Endrin	0.446	0.10	0.015	ug/l	0.500		89 55-125			M-NRI
Endrin aldehyde	0.374	0.10	0.045	ug/l	0.500		75 55-115			
Endrin ketone	0.423	0.10	0.020	ug/l	0.500		85 60-120			
Heptachlor	0.404	0.10	0.030	ug/l	0.500		81 45-115			
Heptachlor epoxide	0.383	0.10	0.020	ug/l	0.500		77 50-120			
Methoxychlor	0.486	0.10	0.035	ug/l	0.500		97 60-135			
Surrogate: Tetrachloro-m-xylene	0.304			ug/l	0.500		61 35-120			
Surrogate: Decachlorobiphenyl	0.398			ug/l	0.500		80 45-120			
LCS Dup Analyzed: 02/18/2005 (5B17042-BSD1)										
Aldrin	0.354	0.10	0.030	ug/l	0.500		71 45-115	3	30	
alpha-BHC	0.353	0.10	0.015	ug/l	0.500		71 45-115	6	30	
beta-BHC	0.372	0.10	0.015	ug/l	0.500		74 50-115	0	30	
delta-BHC	0.380	0.20	0.020	ug/l	0.500		76 55-120	3	30	
gamma-BHC (Lindane)	0.371	0.10	0.015	ug/l	0.500		74 45-115	4	30	
4,4'-DDD	0.402	0.10	0.015	ug/l	0.500		80 60-120	3	30	
4,4'-DDE	0.407	0.10	0.020	ug/l	0.500		81 55-120	1	30	
4,4'-DDT	0.409	0.10	0.030	ug/l	0.500		82 60-130	4	30	
Dieldrin	0.396	0.10	0.015	ug/l	0.500		79 55-120	2	30	
Endosulfan I	0.379	0.10	0.015	ug/l	0.500		76 50-115	1	30	
Endosulfan II	0.386	0.10	0.040	ug/l	0.500		77 60-125	3	30	
Endosulfan sulfate	0.398	0.20	0.015	ug/l	0.500		80 60-120	7	30	
Endrin	0.433	0.10	0.015	ug/l	0.500		87 55-125	3	30	
Endrin aldehyde	0.366	0.10	0.045	ug/l	0.500		73 55-115	2	30	
Endrin ketone	0.392	0.10	0.020	ug/l	0.500		78 60-120	8	30	
Heptachlor	0.382	0.10	0.030	ug/l	0.500		76 45-115	6	30	
Heptachlor epoxide	0.378	0.10	0.020	ug/l	0.500		76 50-120	1	30	
Methoxychlor	0.446	0.10	0.035	ug/l	0.500		89 60-135	9	30	
Surrogate: Tetrachloro-m-xylene	0.277			ug/l	0.500		55 35-120			
Surrogate: Decachlorobiphenyl	0.364			ug/l	0.500		73 45-120			

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 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
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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: IOB1014	Sampled: 02/11/05 Received: 02/11/05
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METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B17042 Extracted: 02/17/05										
Blank Analyzed: 02/17/2005-02/18/2005 (5B17042-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.451			ug/l	0.500		90 45-120			
LCS Analyzed: 02/18/2005 (5B17042-BS2)										
Aroclor 1016	2.54	1.0	0.20	ug/l	4.00		64 50-115			M-NR1
Aroclor 1260	2.69	1.0	0.40	ug/l	4.00		67 60-115			
Surrogate: Decachlorobiphenyl	0.378			ug/l	0.500		76 45-120			
LCS Dup Analyzed: 02/18/2005 (5B17042-BSD2)										
Aroclor 1016	3.09	1.0	0.20	ug/l	4.00		77 50-115	20	30	
Aroclor 1260	2.98	1.0	0.40	ug/l	4.00		74 60-115	10	25	
Surrogate: Decachlorobiphenyl	0.404			ug/l	0.500		81 45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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 Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5B12033 Extracted: 02/12/05										
Blank Analyzed: 02/12/2005 (5B12033-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 02/12/2005 (5B12033-BS1)										
Mercury	7.92	0.20	0.063	ug/l	8.00		99 85-115			
Matrix Spike Analyzed: 02/12/2005 (5B12033-MS1)										
Mercury	8.00	0.20	0.063	ug/l	8.00	ND	100 70-130			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12033-MSD1)										
Mercury	7.77	0.20	0.063	ug/l	8.00	ND	97 70-130	3	20	
Batch: 5B12041 Extracted: 02/12/05										
Blank Analyzed: 02/14/2005-02/15/2005 (5B12041-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Arsenic	ND	1.0	0.49	ug/l						
Barium	ND	0.0010	0.00014	mg/l						
Beryllium	ND	0.50	0.037	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Chromium	ND	1.0	0.26	ug/l						
Cobalt	ND	1.0	0.10	ug/l						
Copper	ND	2.0	0.49	ug/l						
Iron	ND	0.010	0.0032	mg/l						
Lead	ND	1.0	0.13	ug/l						
Manganese	0.444	1.0	0.44	ug/l						
Nickel	ND	1.0	0.15	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						
Zinc	ND	20	3.1	ug/l						

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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 Limits RPD RPD Limit Data Qualifiers

Batch: 5B12041 Extracted: 02/12/05

LCS Analyzed: 02/14/2005-02/15/2005 (5B12041-BS1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Antimony	87.7	2.0	0.18	ug/l	80.0		110	85-115			
Arsenic	87.1	1.0	0.49	ug/l	80.0		109	85-115			
Barium	0.0817	0.0010	0.00014	mg/l	0.0800		102	85-115			
Beryllium	80.1	0.50	0.037	ug/l	80.0		100	85-115			
Cadmium	79.7	1.0	0.015	ug/l	80.0		100	85-115			
Chromium	82.5	1.0	0.26	ug/l	80.0		103	85-115			
Cobalt	82.1	1.0	0.10	ug/l	80.0		103	85-115			
Copper	81.5	2.0	0.49	ug/l	80.0		102	85-115			
Iron	0.811	0.010	0.0032	mg/l	0.800		101	85-115			
Lead	83.2	1.0	0.13	ug/l	80.0		104	85-115			
Manganese	83.6	1.0	0.44	ug/l	80.0		104	85-115			
Nickel	82.7	1.0	0.15	ug/l	80.0		103	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			
Vanadium	82.2	1.0	0.86	ug/l	80.0		103	85-115			
Zinc	81.8	20	3.1	ug/l	80.0		102	85-115			

Matrix Spike Analyzed: 02/14/2005-02/15/2005 (5B12041-MS1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Antimony	93.0	2.0	0.18	ug/l	80.0	ND	116	70-130			
Arsenic	88.0	1.0	0.49	ug/l	80.0	ND	110	70-130			
Barium	0.250	0.0010	0.00014	mg/l	0.0800	0.17	100	70-130			
Beryllium	90.3	0.50	0.037	ug/l	80.0	ND	113	70-130			
Cadmium	82.9	1.0	0.015	ug/l	80.0	ND	104	70-130			
Chromium	83.6	1.0	0.26	ug/l	80.0	ND	102	70-130			
Cobalt	84.1	1.0	0.10	ug/l	80.0	ND	105	70-130			
Copper	81.6	2.0	0.49	ug/l	80.0	ND	102	70-130			
Iron	0.804	0.010	0.0032	mg/l	0.800	0.096	88	70-130			
Lead	85.4	1.0	0.13	ug/l	80.0	ND	107	70-130			
Manganese	88.1	1.0	0.44	ug/l	80.0	1.3	108	70-130			
Nickel	82.1	1.0	0.15	ug/l	80.0	ND	103	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			
Vanadium	89.2	1.0	0.86	ug/l	80.0	4.9	105	70-130			
Zinc	79.9	20	3.1	ug/l	80.0	ND	100	70-130			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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 Limits RPD RPD Limit Data Qualifiers

Batch: 5B12041 Extracted: 02/12/05

Matrix Spike Analyzed: 02/14/2005-02/15/2005 (5B12041-MS2)

Source: IOB0573-02

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Antimony	88.7	2.0	0.18	ug/l	80.0	ND	111	70-130			
Arsenic	94.7	1.0	0.49	ug/l	80.0	9.2	107	70-130			
Barium	0.246	0.0010	0.00014	mg/l	0.0800	0.17	95	70-130			
Beryllium	75.9	0.50	0.037	ug/l	80.0	ND	95	70-130			
Cadmium	75.6	1.0	0.015	ug/l	80.0	0.065	94	70-130			
Chromium	80.0	1.0	0.26	ug/l	80.0	1.0	99	70-130			
Cobalt	80.5	1.0	0.10	ug/l	80.0	0.18	100	70-130			
Copper	90.6	2.0	0.49	ug/l	80.0	14	96	70-130			
Iron	0.685	0.010	0.0032	mg/l	0.800	ND	86	70-130			
Lead	81.3	1.0	0.13	ug/l	80.0	0.28	101	70-130			
Manganese	83.7	1.0	0.44	ug/l	80.0	ND	105	70-130			
Nickel	78.5	1.0	0.15	ug/l	80.0	ND	98	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			
Vanadium	87.6	1.0	0.86	ug/l	80.0	4.9	103	70-130			
Zinc	80.7	20	3.1	ug/l	80.0	10	88	70-130			

Matrix Spike Dup Analyzed: 02/14/2005-02/15/2005 (5B12041-MSD1)

Source: IOB0878-01

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Antimony	93.1	2.0	0.18	ug/l	80.0	ND	116	70-130	0	20	
Arsenic	86.2	1.0	0.49	ug/l	80.0	ND	108	70-130	2	20	
Barium	0.258	0.0010	0.00014	mg/l	0.0800	0.17	110	70-130	3	20	
Beryllium	90.6	0.50	0.037	ug/l	80.0	ND	113	70-130	0	20	
Cadmium	82.9	1.0	0.015	ug/l	80.0	ND	104	70-130	0	20	
Chromium	83.1	1.0	0.26	ug/l	80.0	2.2	101	70-130	1	20	
Cobalt	83.7	1.0	0.10	ug/l	80.0	ND	105	70-130	1	20	
Copper	79.9	2.0	0.49	ug/l	80.0	ND	100	70-130	2	20	
Iron	0.781	0.010	0.0032	mg/l	0.800	0.096	86	70-130	3	20	
Lead	83.8	1.0	0.13	ug/l	80.0	ND	105	70-130	2	20	
Manganese	87.4	1.0	0.44	ug/l	80.0	1.3	108	70-130	1	20	
Nickel	81.1	1.0	0.15	ug/l	80.0	ND	101	70-130	1	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	
Vanadium	88.4	1.0	0.86	ug/l	80.0	4.9	104	70-130	1	20	
Zinc	77.2	20	3.1	ug/l	80.0	ND	96	70-130	3	20	

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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 Limit	Data Qualifiers
Batch: 5B12044 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12044-BLK1)											
Boron	0.00980	0.050	0.0074	mg/l							J
LCS Analyzed: 02/12/2005 (5B12044-BS1)											
Boron	0.496	0.050	0.0074	mg/l	0.500		99	85-115			
Matrix Spike Analyzed: 02/12/2005 (5B12044-MS1)											
Boron	0.502	0.050	0.0074	mg/l	0.500	0.012	98	70-130			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12044-MSD1)											
Boron	0.503	0.050	0.0074	mg/l	0.500	0.012	98	70-130	0	20	

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Project ID: 13267 (Study 1)
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 Report Number: IOB1014

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 Received: 02/11/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 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)											
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)											
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: 5B12035 Extracted: 02/12/05											
Duplicate Analyzed: 02/12/2005 (5B12035-DUP1)											
Residual Chlorine	ND	0.10	0.10	mg/l							20
Batch: 5B12037 Extracted: 02/12/05											
Blank Analyzed: 02/17/2005 (5B12037-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B12037 Extracted: 02/12/05											
LCS Analyzed: 02/17/2005 (5B12037-BS1)											
Biochemical Oxygen Demand	211	100	30	mg/l	198		107	85-115			
LCS Dup Analyzed: 02/17/2005 (5B12037-BSD1)											
Biochemical Oxygen Demand	212	100	30	mg/l	198		107	85-115	1	20	
Batch: 5B12050 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12050-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 02/12/2005 (5B12050-BS1)											
Surfactants (MBAS)	0.247	0.10	0.044	mg/l	0.250		99	90-110			
Matrix Spike Analyzed: 02/12/2005 (5B12050-MS1)											
Surfactants (MBAS)	0.315	0.10	0.044	mg/l	0.250	0.084	92	50-125			
Matrix Spike Dup Analyzed: 02/12/2005 (5B12050-MSD1)											
Surfactants (MBAS)	0.284	0.10	0.044	mg/l	0.250	0.084	80	50-125	10	20	
Batch: 5B12055 Extracted: 02/12/05											
Blank Analyzed: 02/12/2005 (5B12055-BLK1)											
Turbidity	0.0400	1.0	0.040	NTU							J
Duplicate Analyzed: 02/12/2005 (5B12055-DUP1)											
Turbidity	48.8	2.0	0.080	NTU					2	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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
Batch: 5B14044 Extracted: 02/14/05											
Blank Analyzed: 02/14/2005 (5B14044-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 02/14/2005 (5B14044-BS1)											
Oil & Grease	19.8	5.0	0.94	mg/l	20.0		99	65-120			M-NR1
LCS Dup Analyzed: 02/14/2005 (5B14044-BSD1)											
Oil & Grease	19.3	5.0	0.94	mg/l	20.0		96	65-120	3	20	
Batch: 5B14107 Extracted: 02/14/05											
Blank Analyzed: 02/14/2005 (5B14107-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							
LCS Analyzed: 02/14/2005 (5B14107-BS1)											
Total Cyanide	200	5.0	2.2	ug/l	200		100	90-110			
Matrix Spike Analyzed: 02/14/2005 (5B14107-MS1)											
Total Cyanide	167	5.0	2.2	ug/l	200	ND	84	70-115			Source: IOB0888-01
Matrix Spike Dup Analyzed: 02/14/2005 (5B14107-MSD1)											
Total Cyanide	190	5.0	2.2	ug/l	200	ND	95	70-115	13	15	Source: IOB0888-01
Batch: 5B15110 Extracted: 02/15/05											
Blank Analyzed: 02/15/2005 (5B15110-BLK1)											
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: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B15110 Extracted: 02/15/05											
LCS Analyzed: 02/15/2005 (5B15110-BS1)											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
Matrix Spike Analyzed: 02/15/2005 (5B15110-MS1)											
						Source: IOB1000-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	ND	101	70-120			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15110-MSD1)											
						Source: IOB1000-01					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	6	15	
Batch: 5B16119 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16119-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 02/16/2005 (5B16119-BS1)											
Total Dissolved Solids	988	10	10	mg/l	1000		99	90-110			
Duplicate Analyzed: 02/16/2005 (5B16119-DUP1)											
						Source: IOB1106-12					
Total Dissolved Solids	1280	10	10	mg/l		1300			2	10	
Batch: 5B16120 Extracted: 02/16/05											
Duplicate Analyzed: 02/16/2005 (5B16120-DUP1)											
						Source: IOB0937-02					
Specific Conductance	95.3	1.0	1.0	umhos/cm		95			0	5	
Batch: 5B17053 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17053-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

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	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5B17053 Extracted: 02/17/05											
LCS Analyzed: 02/17/2005 (5B17053-BS1)											
Perchlorate	52.2	4.0	0.80	ug/l	50.0		104	85-115			
Matrix Spike Analyzed: 02/17/2005 (5B17053-MS1)											
Perchlorate	49.3	4.0	0.80	ug/l	50.0	ND	99	80-120			
Matrix Spike Dup Analyzed: 02/17/2005 (5B17053-MSD1)											
Perchlorate	49.7	4.0	0.80	ug/l	50.0	ND	99	80-120	1	20	
Batch: 5B17069 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (5B17069-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/17/2005 (5B17069-BS1)											
Total Suspended Solids	977	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 02/17/2005 (5B17069-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5B18126 Extracted: 02/18/05											
Blank Analyzed: 02/18/2005 (5B18126-BLK1)											
Total Organic Carbon	ND	1.0	0.25	mg/l							
LCS Analyzed: 02/18/2005 (5B18126-BS1)											
Total Organic Carbon	10.6	1.0	0.25	mg/l	10.0		106	90-110			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOB1014	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
Batch: 5B18126 Extracted: 02/18/05											
Matrix Spike Analyzed: 02/18/2005 (5B18126-MS1)						Source: IOB1090-02					
Total Organic Carbon	10.9	1.0	0.25	mg/l	5.00	5.8	102	80-120			
Matrix Spike Dup Analyzed: 02/18/2005 (5B18126-MSD1)						Source: IOB1090-02					
Total Organic Carbon	10.8	1.0	0.25	mg/l	5.00	5.8	100	80-120	1	20	

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 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

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	RPD Limit	Data Qualifiers
Batch: P5B1701 Extracted: 02/17/05											
Blank Analyzed: 02/17/2005 (P5B1701-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	0.930			ug/l	1.00		93	80-125			
LCS Analyzed: 02/17/2005 (P5B1701-BS1)											
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			
LCS Dup Analyzed: 02/17/2005 (P5B1701-BSD1)											
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			
Matrix Spike Analyzed: 02/17/2005 (P5B1701-MS1)											
						Source: IOB1014-01					
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			
Matrix Spike Dup Analyzed: 02/17/2005 (P5B1701-MSD1)											
						Source: IOB1014-01					
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			

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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: IOB1014

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.
- 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.
- 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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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

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 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.

Subcontracted Laboratories

Alta Analytical Perspectives

2714 Exchange Drive - Wilmington, NC 28405

Analysis Performed: 1613-Dioxin-HR

Samples: IOB1014-01

Analysis Performed: EDD + Level 4

Samples: IOB1014-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnrc

Samples: IOB1014-01

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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: IOB1014

Sampled: 02/11/05
 Received: 02/11/05

Aquatic Testing Laboratories-SUB *California Cert #1775*
 4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr
 Samples: IOB1014-01

Del Mar Analytical - Phoenix *NELAC Cert #01109CA, California Cert #2446*
 9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B
 Samples: IOB1014-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gross Alpha
 Samples: IOB1014-01

Analysis Performed: Gross Beta
 Samples: IOB1014-01

Analysis Performed: Level 3 Data Package
 Samples: IOB1014-01

Analysis Performed: Radium, Combined
 Samples: IOB1014-01

Analysis Performed: Strontium 90
 Samples: IOB1014-01

Analysis Performed: Tritium
 Samples: IOB1014-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4
 Samples: IOB1014-03

Analysis Performed: Gamma Scan
 Samples: IOB1014-04

Analysis Performed: Gross Alpha
 Samples: IOB1014-03

Analysis Performed: Gross Beta
 Samples: IOB1014-03

Analysis Performed: Radium, Combined
 Samples: IOB1014-03

Analysis Performed: Strontium 90
 Samples: IOB1014-03

Analysis Performed: Tritium
 Samples: IOB1014-03

Truesdail Laboratories-SUB *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine
 Samples: IOB1014-01

Analysis Performed: Level 4 Data Package
 Samples: IOB1014-01

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IOB1014 <Page 60 of 60>

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/2004

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Annual Outfall 011 + 13267		Phone Number: (626) 568-8691		Fax Number: (626) 568-6515		Field readings: Temp = 58.3 pH = 6.8			
Project Manager: Bronwyn Kelly		SAMPLER: LINDA HAYS		Total Recoverable Metals: Cu, Pb, Hg, B, Ba, Fe, Mn, Sb, As, Be, Cd, Cr, Ni, Se, Ag, Tl, Zn, Co, V		Settleable Solids		Comments			
Sample Description		Sample Matrix		Container Type		# of Cont.		Preservative		Bottle #	
Outfall 011		W		Poly-1L		1		HNO3		1A	
Outfall 0011-Dup		W		Poly-1L		1		HNO3		1B	
Outfall 011		W		Poly-1L		1		None		2	
Outfall 011		W		VOAs		5		HCl		3A, 3B, 3C, 3D, 3E	
Outfall 011		W		1L Amber		2		None		4A, 4B	
Outfall 011		W		1L Amber		2		HCl		5A, 5B	
Outfall 011		W		Poly-500 ml		1		NaOH		6	
Outfall 011		W		Poly-1L		1		None		7	
Outfall 011		W		Poly-500 ml		2		None		8A, 8B	
Outfall 011		W		Poly-500 ml		2		None		9A, 9B	
Outfall 011		W		Poly-500 ml		2		None		10A, 10B	
Outfall 011		W		Poly-500 ml		1		H2SO4		11	
Outfall 011		W		1L Amber		2		None		12A, 12B	
Outfall 011		W		1L Amber		2		None		13A, 13B	
Trip Blank		W		VOAs		3		HCl		14A, 14B, 14C	
Relinquished By Linda Hays		Date/Time: 2/11/05 1700		Received By [Signature]		Date/Time: 2/11/05 1700		Turn around Time: (check) 24 Hours _____ 5 Days _____		48 Hours _____ 10 Days _____	
Relinquished By [Signature]		Date/Time: 2/10/2030		Received By [Signature]		Date/Time: 2/10/2030		72 Hours _____ Normal _____		Perchlorate Only 72 Hours _____	
Relinquished By [Signature]		Date/Time: 2/10/2030		Received By [Signature]		Date/Time: 2/10/2030		Metals Only 72 Hours _____		Sample Integrity: (Check) _____ On Ice: _____	

ANALYSIS REQUIRED

Alpha BHC (608) + PP
Ammonia-N
Conductivity
Turbidity, TDS, TSS, Perchlorate
Cl-, SO4, NO3+NO2-N, F-, Surfactants (MBAS)
BOD5(20 degrees C)
Cyanide (total recoverable)
Oil & Grease (EPA 413.1)
TCDD (and all congeners)
Freon 113, Freon 123A, Cyclohexane
VOCs 624 + xylenes +

Settleable Solids
Ag, Tl, Zn, Co, V
Cu, Pb, Hg, B, Ba, Fe, Mn, Sb, As, Be, Cd, Cr, Ni, Se

2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625) + PP

24 TAT
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Temp = 58.3
pH = 6.8

Comments

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Field readings:

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pH = 6.8

Comments

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/2004

Client Name/Address:		Project:		ANALYSIS REQUIRED		Comments	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSEL NPDES Annual Outfall 011 +13267		Total Organic Carbon		Total Residual Chlorine	
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691		1,4 Dioxane		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228	
Sampler:		Fax Number: (626) 568-6515		PCBs		TPH = all fuels, gas, diesel, and jet fuel; modified 80156 and 418.1	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Monomethylhydrazine
Outfall 011	W	VOAs	3	2/11/05 12:20	HCl	15A, 15B, 15C	
Outfall 011	W	VOAs	2		HCl	16A, 16B	
Outfall 011	W	Poly-150 ml	1		None	17	
Outfall 011	W	Poly-1Gal VOAs	1 2		None None	18A 18B, 18C	
Outfall 011	W	1L Amber	2		None	19A, 19B	
Outfall 011	W	VOAs	3		HCl	20A, 20B, 20C, 20D, 20E	
Outfall 011	W	1L Amber	2		None	20F, 20G	
Outfall 011	W	1L Amber	2		None	21A, 21B	
Outfall 011	W	1 Gal	2		None	22A, 22B	
Outfall 011	W	VOAs	3		None	23A, 23B, 23C	
Trip Blank	W	VOAs	3	2/11/05	None	24A, 24B, 24C	
Outfall 011	W	1L Amber	4	2/11/05 12:20	None	13267	
Outfall 011	W	VOAs	2	2/11/05 12:20	None	13267	
Relinquished By				Date/Time:	Received By		Date/Time:
Relinquished By				2/11/05 17:00	2/11/05		17:00
Relinquished By				2/11/05 20:30			
Relinquished By							

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 _____

* ANALYZE FOR RA226-228 ONLY IF GROSS ALPHA > 15pCi/L
 ANALYZE SUBSTRATE BY RADIOSPECTROSCOPY FOR CESIUM 137



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
 Patz 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) New 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





2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

April 6, 2005

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

Attention: Bronwyn Kelly
 Project: 13267 (Study1)/Outfall 011
 Sampled: 02/11/05
 Del Mar Analytical Number: IOB1014

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), Eberline Services tested gross alpha/gross beta (EPA 900.0), tritium (H-3, EPA 906.0), and strontium-90 (Sr-90, EPA 905.0) and Alta Analytical Perspectives performed Method 1613 Dioxin, and Truesdail Laboratories performed the Hydrazines by EPA 8315 analysis 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	ALTA ID	TRUESDAIL ID
Outfall 011-grab	IOB1014-01	A-05021210-001/002	R502135-8264	P5072 2989 005	939705-1

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

LABORATORY REPORT

**Aquatic
Testing
Laboratories**



"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: February 19, 2005
Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05021210-001/002
Sample I.D.: IOB1014-01

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

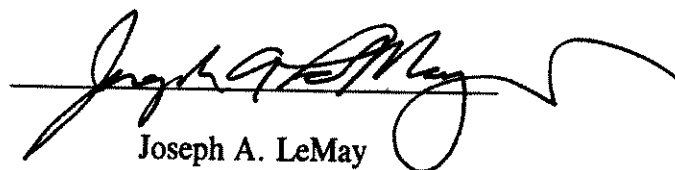
Sample Analysis: The following analyses were performed on your sample:
Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0),
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Acute:	Survival	TU_a
Fathead Minnow:	100%	0.0
Chronic:	NOEC	TU_c
<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-05021210-001
 Client/ID: Del Mar IOB1014-01

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	LW 1200
	100%	20.7	9.3	6.7	0	0	
24 Hr	Control	20.3	6.9	7.7	0	0	LW 1100
	100%	20.3	6.4	7.0	0	0	
48 Hr	Control	20.4	7.4	7.5	0	0	LW 1200
	100%	20.5	7.2	7.0	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	LW 1200
	100%	20.3	8.8	6.9	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	LW 1100
	100%	19.6	7.8	7.0	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	LW 1100
	100%	20.6	7.7	6.9	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.7; Conductivity: 113 umho; Temp: 4°C;
 DO: 9.3 mg/l; Alkalinity: 31 mg/l; Hardness: 46 mg/l; NH₃-N: 0.3 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-05021210
Client/ID: Del Mar IOB1014-01

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%	27.6
6.25%	100%	27.3
12.5%	100%	26.2
25%	100%	27.7
50%	100%	28.9
100%	100%	24.6

* Statistically significantly less than control at P = 0.05 level.
** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Parameter	Survival	Growth
NOEC	100%	100%
TUc	1.0	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥ 15 young per surviving control female	Pass (27.6 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 = 13.6%)
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
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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) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOB1014

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: IOB1014-01 Water Sampled: 02/11/05 12:20		
Bioassay-7 dy Chrmic	02/13/05 00:20	ceriodaphnia, 13267
Bioassay-Acute 96hr	02/13/05 00:20	fathead minnow, 13267
Containers Supplied:		
1 gal Poly (IOB1014-01AT)		
1 gal Poly (IOB1014-01AU)		

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	Samples Received On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Samples Preserved Property: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>4°C</u>

Released By: [Signature] Date: 2/12/05 Time: 0900 Received By: [Signature] Date: 2/12/05 Time: 0900

Released By: [Signature] Date: 2/12/05 Time: 0900 Received By: [Signature] Date: 2/12/05 Time: 0900



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. IOB1014
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)
Eberline Services Report R502135-8264

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

Eberline Services

ANALYSIS RESULTS

SDG <u>8264</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502135-01</u>	Contract <u>PROJECT# IOB1014</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>
IOB1014-01	8264-001	02/11/05	03/01/05	GrossAlpha	0.895 ± 0.76	pCi/L	1.05
			03/01/05	Gross Beta	2.50 ± 1.3	pCi/L	1.90
			03/02/05	H3	97.4 ± 140	pCi/L	237
			02/25/05	Sr90	-0.216 ± 0.23	pCi/L	0.519

Certified by *[Signature]*
Report Date 03/08/05
Page 1

Eberline Services

QC RESULTS

SDG <u>8264</u> Work Order <u>R502135-01</u> Received Date <u>02/15/05</u>	Client <u>DEL MAR ANAL</u> Contract <u>PROJECT# IOB1014</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

DUPLICATES

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

ORIGINALS

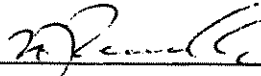
Sample ID	Results ± 2σ	MDA	3σ	
			RPD (Tot)	Eval
8261-001	1.64 ± 1.0	0.936	70	112 satis.
	5.18 ± 1.3	1.80	15	60 satis.
	71.9 ± 150	246	138	144 satis.
	-0.077 ± 0.25	0.499	-	0 satis.

SPIKED SAMPLE

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

ORIGINAL SAMPLE

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></u> Report Date <u>03/08/05</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) 505-9596 Fax (619) 505-9589

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) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOB1014

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: IOB1014-01 Water Sampled: 02/11/05 12:20		
Gross Alpha-O	02/11/06 12:20	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 12:20	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Level 3 Data Package - Out	03/11/05 12:20	**LEVEL IV QC, ACCESS 7 EDD**
Radium, Combined-O	02/11/06 12:20	HOLD for Gross Alpha/Beta result; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 12:20	905.0
Tritium-O	02/11/06 12:20	906

Containers Supplied:

1 gal Poly (IOB1014-01AF) *W/ HNO₃*
 40 ml Voa Vial (IOB1014-01AG)
 40 ml Voa Vial (IOB1014-01AH)

Labels on bottles switched.

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>	2-14-05	1700	Z/LP	2/15/05	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 2/15/05 10:00 CoC No. I081014

Sample I081014-01AF

Container I.D. No. Blue Cooly AP-5100 Requested TAT (Days) 2 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: Labels on samples I081014-01AF and I081014-01AH are switched & gallon poly bottle shows I081014-01AH and 40ml vial shows I081014-01AF
- 14. Was P.M. notified of any anomalies? Yes No Date 2/15/05
- 15. Inspected by Z/hg 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 _____


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

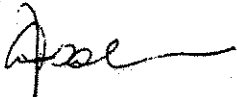
2714 EXCHANGE DRIVE
 WILMINGTON
 NORTH CAROLINA 28405
 TEL: 910-794-1613 FAX 910-794-3919

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: IOB1014-01

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:	1.02 L	Sample ID:	P5072_2989_005	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	1.71			72.2	83.4	
1,2,3,7,8-PeCDD	ND	1.73			71.9	88.3	
1,2,3,4,7,8-HxCDD	ND	3.89			72.2	87.2	
1,2,3,6,7,8-HxCDD	ND	3.8			81.1	87.2	
1,2,3,7,8,9-HxCDD	ND	4.66			73.6	87.2	
1,2,3,4,6,7,8-HpCDD	12.2	10.1		J	59	71	
OCDD	157	9.39			44.9	71	
2,3,7,8-TCDF	ND	2.08			74.1	83.4	
1,2,3,7,8-PeCDF	ND	1.84			76.1	85.5	
2,3,4,7,8-PeCDF	ND	1.89			69.3	85.5	
1,2,3,4,7,8-HxCDF	ND	1.36			63.6	87.2	
1,2,3,6,7,8-HxCDF	ND	1.31			70.6	87.2	
2,3,4,6,7,8-HxCDF	ND	1.65			67.1	87.2	
1,2,3,7,8,9-HxCDF	ND	2.41			62.6	87.2	
1,2,3,4,6,7,8-HpCDF	4.04	1.47		J	52.8	71	
1,2,3,4,7,8,9-HpCDF	ND	2.53			49.4	71	
OCDF	ND	9.53			43.5	71	
Totals & TEQs							
TCDDs	ND	1.71					
PeCDDs	ND	1.73					
HxCDDs	ND	4.12					
HpCDDs	29.6	10.1					
TCDFs	ND	2.08					
PeCDFs	0.76	1.86					
HxCDFs	ND	1.64					
HpCDFs	10.2	1.94					
Total PCDD/Fs	197		197				

ALTA ANALYTICAL PERSPECTIVES
 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


Checkcode: 5527

AAP 2005 Rev. B

Reviewer: *[Signature]*
 Date: *[Date]*

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					
1,2,3,7,8-PeCDD	ND	1.55			75.2	80.6	
1,2,3,4,7,8-HxCDD	ND	2.57			70.5	83.7	
1,2,3,6,7,8-HxCDD	ND	2.4			80	86.4	
1,2,3,7,8,9-HxCDD	ND	2.8			91.5	86.4	
1,2,3,4,6,7,8-HpCDD	ND	1.98			86	86.4	
OCDD	ND	4.78			74.9	69.8	
2,3,7,8-TCDF	ND	1.04			67.4	69.8	
1,2,3,7,8-PeCDF	ND	1.91			81.1	80.6	
2,3,4,7,8-PeCDF	ND	1.98			85.1	82.9	
1,2,3,4,7,8-HxCDF	ND	0.812			76.6	82.9	
1,2,3,6,7,8-HxCDF	ND	0.764			79.4	86.4	
2,3,4,6,7,8-HxCDF	ND	1.01			86.7	86.4	
1,2,3,7,8,9-HxCDF	ND	1.42			77.8	86.4	
1,2,3,4,6,7,8-HpCDF	ND	1.78			75.6	86.4	
1,2,3,4,7,8,9-HpCDF	ND	2.67			64.7	69.8	
OCDF	ND	11.1			65.1	69.8	
Totals & TEQs					67.2	69.8	
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					
Total PCDD/Fs	0		0				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer
Date

[Signature]
02 Mar 05

Sample Summary
 Part 1

ALTA ANALYTICAL PERSPECTIVES

Method 1613

Analyte	0_2868_MB 001	IOB1001-01	IOB0983-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1008-01	IOB1002-01	IOB0982-01	IOB1004-01	IOB0988-01	IOB0981-01
	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L	pp/L
2,3,7,8-TCDD	(1.85)	(2.29)	(2.08)	(2.02)	(1.34)	(1.71)	(2.29)	(2.55)	(1.81)	(1.44)	(2.87)	(1.79)	(3.24)	(3.01)
1,2,3,7,8-PeCDD	(1.55)	(1.85)	(1.79)	(2.09)	(2.11)	(1.73)	(3.2)	(1.89)	(1.52)	(2.04)	(3.14)	(2.92)	(2.18)	(5.38)
1,2,3,4,7,8-HxCDD	(2.57)	(3.45)	(2.56)	(2.71)	(2.48)	(3.59)	(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)	(2.97)	(2.7)	(2.34)	(3.8)	(4.11)	(2.41)	8.47	(2.88)	(5.98)	(12)	(4.84)	(4.7)
1,2,3,4,6,7,8-HpCDD	(2.8)	(3.83)	(3.13)	(3.33)	(2.82)	(4.66)	(4.95)	(2.88)	5.27	(3.13)	(7.12)	(13.8)	(5.54)	(5.81)
OCDD	(1.98)	75.4	31.5	10	(9.38)	12.2	(8.34)	49.8	207	12.1	(10.8)	20.8	(3.19)	(9.5)
	(4.78)	883	287	134	70.4	157	88.1	471	2120	183	70.2	213	30.3	50
2,3,7,8-TCDF	(1.04)	(1.24)	(1.64)	(1.85)	(0.895)	(2.08)	(1.37)	(1.64)	(1.48)	(1.03)	(2.58)	(2.71)	(2.39)	(2.81)
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)	(2.98)	(2.46)
1,2,3,4,7,8-HxCDF	(1.98)	(1.86)	(2.8)	(1.48)	(2.42)	(1.89)	(3.89)	(2.03)	(2.31)	(1.99)	(3.97)	(2.53)	(3)	(2.49)
1,2,3,6,7,8-HxCDF	(0.812)	(0.867)	(0.9)	(0.785)	(0.943)	(1.38)	(1.39)	(1.47)	(0.97)	(0.815)	(1.55)	(5.68)	(1.62)	(1.13)
2,3,4,6,7,8-HpCDF	(0.784)	(0.843)	(0.827)	(0.708)	(0.871)	(1.31)	(1.3)	(1.51)	0.898	(0.78)	(1.42)	(8.24)	(1.53)	(1.18)
1,2,3,7,8-PeCDF	(1.01)	(1.12)	(1.04)	(0.833)	(1.12)	(1.65)	(1.73)	(1.8)	(1.1)	(0.96)	(1.91)	(8.23)	(2.03)	(1.48)
1,2,3,4,6,7,8-HpCDF	(1.42)	(1.67)	(1.58)	(1.47)	(1.79)	(2.41)	(2.98)	(2.88)	(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)	(4.57)	(1.9)	4.04	(3.26)	10.8	27.2	(1.69)	(4.35)	(3.42)	(2.05)	(3.28)
OCDF	(2.67)	(3.45)	(2.95)	(7.47)	(3.25)	(2.53)	(4.59)	(2.58)	(4.43)	(2.59)	(7.3)	(5.49)	(3.04)	(4.88)
	(11.1)	165	(11)	(22.4)	(12.4)	(8.53)	(14.9)	34.9	67.1	(10.1)	(7.88)	(20.8)	(13.1)	(8.89)
Checkcode	3385	4361	4661	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900

() = DL
 [] = EMPC

Reviewer: *[Signature]*
 Date: 02.15.05

P5072 - Totals
Project ID: General Analytical HRMS

Analyte	Method 1613													
	6_2000_MB001	IOB1001-01	IOB0983-01	IOB0995-01	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
Totals														
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	7.38	4.44	0	0	0	0	0	38.8	0	0	0	0	0
HpCDDs	0	153	85.1	25.2	9.46	29.8	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	0	4.13	0	0	0	0	0
HpCDFs	0	92.9	0	0	0	0	0	4.13	32.8	0	0	0	0	0
OCDF	0	155	0	0	0	10.2	0	36.5	98.7	5.96	0	0	0	0
								34.9	87.1	0	0	0	0	0
Total PCDD/Fs (ND=0; EMPC=0)	0.00	1,290	338	159	79.9	197	56.4	648	2,800	182	70.7	256	62.6	50
Total PCDD/Fs (ND=0; EMPC=EMPC)	0.00	1,300	342	160	79.9	197	56.4	663	2,830	193	70.7	256	62.6	50
Total PCDD/Fs (2378-X ND=DL; BMPC=EMPC)	42.2	1,330	381	215	128	238	119	691	2,840	229	144	370	121	114
Total 2378s (ND=0; EMPC=0)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=0)	21.1	1,140	319	172	94.6	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=0)	42.2	1,160	338	200	118	214	119	595	2,450	211	144	348	109	114
Total 2378s (ND=0; EMPC=1)	0.00	1,130	299	144	70.4	173	56.1	587	2,440	176	70.2	234	50.3	50
Total 2378s (ND=0.5; EMPC=1)	21.1	1,140	319	172	94.6	193	87.5	581	2,450	193	107	291	79.5	82
Total 2378s (ND=1; EMPC=1)	42.2	1,160	338	200	119	214	119	595	2,450	211	144	348	109	114
Checkcode	3385	4361	4681	4965	5239	5527	5797	0067	0335	0612	3926	4355	4622	4900

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL
 [] = EMPC

Reviewer: ASMAKOS
 Date: _____

P5072 - Others
Project ID: General Analytical HRMS

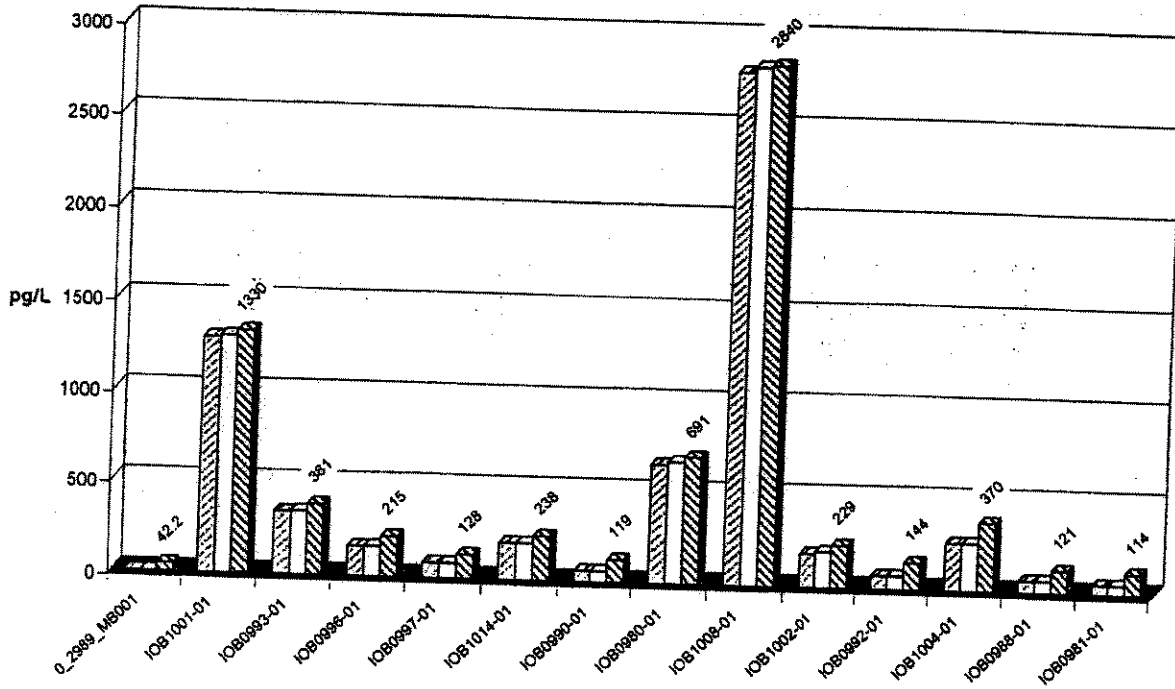
Sample Summary Part 3		Method 1613												
Analyte	0_2985_MB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0990-01	IOB1006-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0998-01	IOB0991-01
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
Other PCDD/Fs (ND=0, EMPC=0)														
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	33.6	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	6.53	0	0	0	0	0
Other PeCDF	0	0	0.858	0	0	0.76	0.256	0	2.57	0	0.456	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
Other PCDD/Fs (ND=0, EMPC=EMPC)														
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	8.88	47.7	0	0	0	0	0
Other HpCDD	0	77.2	33.6	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	0.456	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
Checkcode	3385	4381	4881	4985	5239	5527	5797	0087	0335	0612	3929	4356	4622	4900

() = DL
 [] = EMPC

Reviewer: *to*
 Date: *03/02/03*

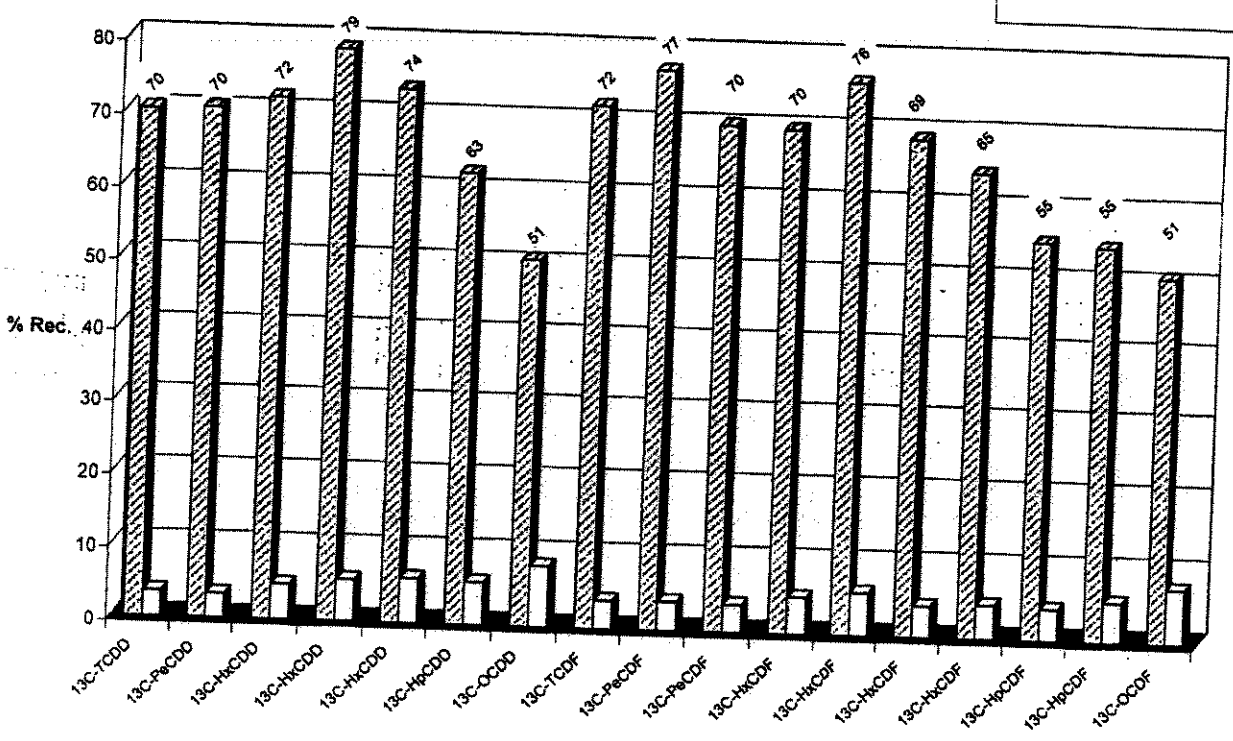
Totals
Project ID: General Analytical HRMS
P5072

▨ Total PCDD/Fs (ND=0; EMPC=0)
 □ Total PCDD/Fs (ND=0; EMPC=EMPC)
 ▩ Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



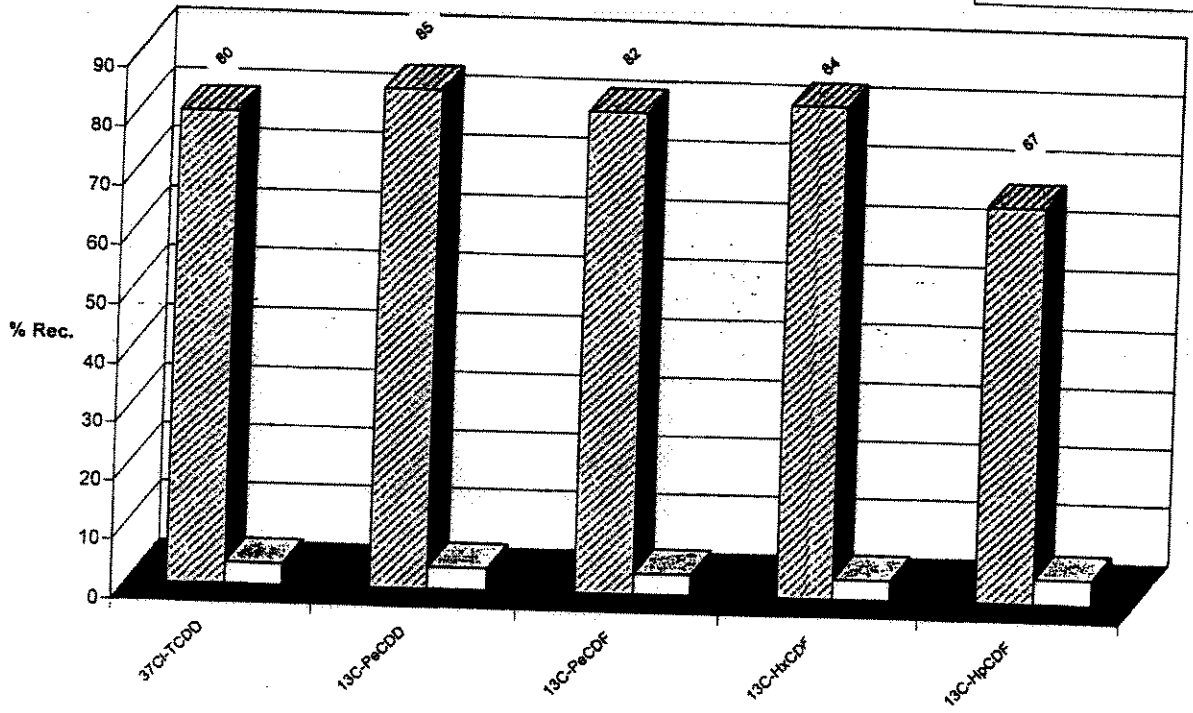
Mean Recoveries of Extraction Standards (N=14)
Project ID: General Analytical HRMS
P5072

▨ 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
 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) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOB1014

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	Pace Analytical, MN- SUB 1700 Elm Street, Ste 200 Minneapolis, MN 55414 Phone: (612) 607-1700 Fax: (612) 607-6444 <div style="text-align: right; font-size: 1.5em; font-family: cursive;">107694</div>

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

Analysis	Expiration	Comments
Sample ID: IOB1014-01 Water	Sampled: 02/11/05 12:20	
1613-Dioxin-HR	02/18/05 12:20	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 12:20	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		001
1 L Amber (IOB1014-01I)		
1 L Amber (IOB1014-01J)		

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

	2-14-05	1700	Brian Flynn	2-15-05	9:00
Released By	Date	Time	Received By	Date	Time
Released By	Date	Time	Received By	Date	Time



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information: **Section B**

Report To: **SCOTT UNZE**

Copy To: **SCOTT UNZE**

Invoice To: **↓**

PO: **↓**

Project Name: **MALE, MN 55414**

Project Number: **55414**

Required Client Information: **Section A**

Company: **PACE**

Address: **1700 Elm St.**

Suite: **200**

Phone: **MALE, MN 55414**

Fax: **55414**

To Be Completed by Pace Analytical and Client

Quote Reference: **814593**

Section C

Project Manager: **SCOTT UNZE**

Project #:

Profile #:

Client Information (Check quote/contract):

Requested Due Date: **3 Day**

* Turn around time less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.

Turn Around Time (TAT) in calendar days.

Requested Analytical: **1/3: PDD/DF**

Remarks / Lab ID: **1/3: PDD/DF**

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED	TIME COLLECTED	# Containers	Preservatives										Remarks / Lab ID	
						H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ SO ₄	Methanol	Other					
1	I0B1001-01	WT	5/2/05	15:30	1	X											
2	I0B0993-01			10:50													
3	I0B0996-01			12:15													
4	I0B0997-01			15:16													
5	I0B1014-01			12:20													
6	I0B0990-01			08:55													
7	I0B0980-01			10:56													
8	I0B1008-01			13:32													
9	I0B1002-01			14:25													
10	I0B0992-01			10:15													
11	I0B1004-01			16:00													
12	I0B0988-01			11:44													

REGULATORY AGENCY: **PA**

REGULATORY AGENCY: NC SC GA NPDES GROUND WATER DRINKING WATER

Other UST RCRA

SAMPLE NOTES: **Email to: Scott.Unze @ pace labs. com**

Temp in °C: **3, 1**

Received on Ice: **Y/N**

Sealed Cooler: **Y/N**

Samples Intact: **Y/N**

Additional Comments: **Sample 10B1002-01 & 10B0988-01 are both dated 02/10/05**

RELEASING BY / AFFILIATION: **Scott Unze / Pace Labs**

DATE: **8-1-05**

TIME: **11:44**

SAMPLER NAME AND SIGNATURE: **Scott Unze**

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed: **(MM/DD/YY)**

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

February 22, 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: IOB1014
Date Received: 02/14/05

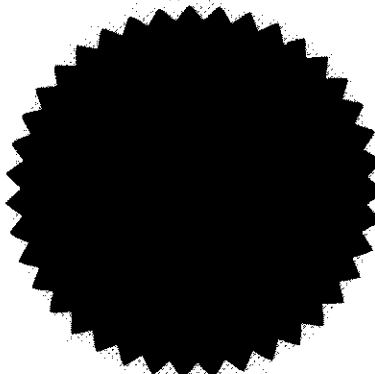
Truesdail Project: 939705

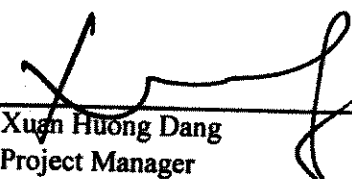
Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
939705-1	IOB1014-01	Water	02/11/05	12:20	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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Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Attention: Michele Harper

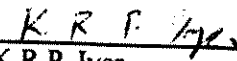
Project Name: IOB1014
Date Received: 02/14/05

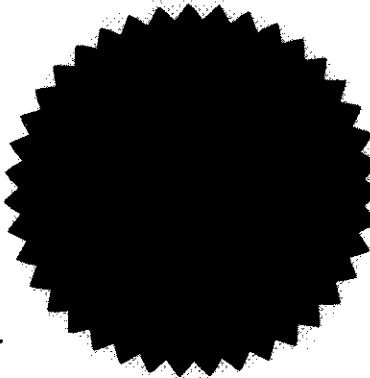
Truesdail Project: 939705

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



REPORT

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

Attention: Michele Harper

Sample: Liquid / 1 Sample

Project Name: IOB1014

P.O. Number: IOB1014

Method Number: 8315 (Modified)

Investigation: Hydrazines in Liquid

Laboratory No: 939705

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

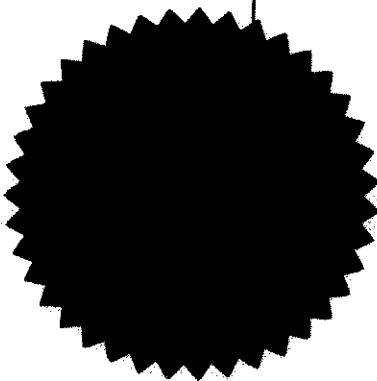
Units: µg/L

Dilution Factor: 1

Reported By: JS

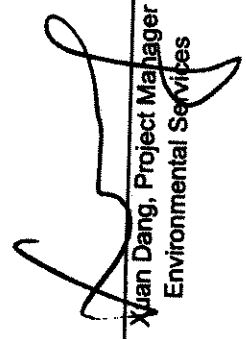
Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl	
		Hydrazine	ND	Hydrazine	ND
704765-MB	Method Blank	ND	ND	ND	ND
939705	IOB1014-01	ND	ND	ND	ND
MDL		1.2		0.27	
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.


 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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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Client Contact: Michele Harper
Sample: Liquid / 1 Sample
Sample ID: IOB1014
P.O. Number: IOB1014
Method Number: 8315 (Modified)
Run Batch No.: Extraction: 2968; Analysis: 365
Investigation: Hydrazines in Liquid

REPORT

QC Lab. No.: 704765
Project Lab. No.: 939705
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: 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	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
Monomethyl Hydrazine	50.0	49.9	100	85-115	PASS
u-Dimethyl Hydrazine	50.0	46.8	93.5	85-115	PASS
Hydrazine	10.0	10.9	109	85-115	PASS

Quality Control/Quality Assurance Spikes Report

LCS/LCSD

Parameter	Spiked Conc. ug/L	Recovered LCS	Concentration LCSD	Percent Recovery (%)	LCS	LCSD	Flag	Control Limits
Monomethyl Hydrazine	50.0	51.2	50.8	0.0	102	102	0.88%	PASS 20 70-130
u-Dimethyl Hydrazine	50.0	47.3	47.3	0.0	94.6	94.6	0.01%	PASS 20 70-130
Hydrazine	10.0	11.5	11.6	0.0	115	116	1.07%	PASS 20 70-130

MS/MSD

Parameter	Spiked Conc. ug/L	Recovered MS	Concentration MSD	Percent Recovery (%)	MSD	% D	Accuracy
Monomethyl Hydrazine	50.0	37.4	35.3	0.0	74.8	70.6	5.67%
u-Dimethyl Hydrazine	50.0	44.3	44.7	0.0	88.6	89.3	0.82%
Hydrazine	10.0	7.61	7.27	0.0	76.1	72.7	4.52%

ICV: Initial Calibration Verification

QCS: Quality Control Standard

LCS: Laboratory Control Spike

MS: Matrix Spike

%D: Percent Difference

Flag: "Pass" if within Control Limits; otherwise "Fail"

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

Kuan Dang, Project Manager
Environmental Services

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939705

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) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOB1014

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

14
 Rec'd 02/11/05
 s23c 939705

LS 2

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

Analysis	Expiration	Comments
Sample ID: IOB1014-01 Water	Sampled: 02/11/05 12:20	
Hydrazine-OUT	02/14/05 12:20	Sub Truesdail for Monomethylhydrazine, 13267
Level 4 Data Package	03/11/05 12:20	
Containers Supplied:		
1 L Amber (IOB1014-01AR)		
1 L Amber (IOB1014-01AS)		

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	<i>Michele Harper</i>	Date	Time	Received By	Date	Time
		2/14/05	7:20	<i>A. Nayberry</i>	2/14/05	7:21



Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 939705

Date Delivered: 02/14/05 Time: 08:21 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition? Yes No N/A
Temperature (if yes)? 4°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc...)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation? Yes No N/A
Preserved (if yes) by: Truesdail Client
12. Were samples pH checked? pH = _____ Yes No N/A
13. Were all analyses within holding time at time of receipt? Yes No N/A
If not, notify the Project Manager.
14. Have Project due dates been checked and accepted? Yes No N/A
Turn Around Time (TAT): RUSH Std
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other _____

ALERT!!
Level II QC

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Strabur

Internal Chain of Custody Logbook

Number: 939705
 Name: Del Mar

Storage Temperature: 4°C

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				2/14/05	9:45		L. Haberman	<i>[Signature]</i>
	Hydrolysis	2/14/05	10:30 AM	2/14/05	11 AM	100ml	J. Hoffman	<i>[Signature]</i>

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials