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APPENDIX G

Section 38

March Outfall 012

AMEC Data Validation Reports

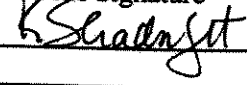
Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

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

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 21, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 2005

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

Table 1. Sample Identification

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

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

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

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

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

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J," however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.

Sample ID: IOC0195-01 Alpha Outfall 012 EPA Method 1613

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC0195
 Date Collected: 2-Mar-05
 Time Collected: 1443

Sample Data
 Matrix: Aquocous
 Sample Size: 0.987 L

Laboratory Data
 Lab Sample: 25837-001
 QC Batch No.: 6593
 Date Analyzed DB-5: 15-Mar-05
 Date Analyzed DB-225: NA

Date Received: 4-Mar-05
 Date Extracted: 11-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.22			IS 13C-2,3,7,8-TCDD	44.2	25 - 164	
1,2,3,7,8-PeCDD	ND	1.06			13C-1,2,3,7,8-PeCDD	45.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.07			13C-1,2,3,4,7,8-HxCDD	53.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.20			13C-1,2,3,6,7,8-HxCDD	55.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.13			13C-1,2,3,4,6,7,8-HpCDD	52.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	14.8			J	13C-OCDD	36.5	17 - 157	
OCDD	168				13C-2,3,7,8-TCDF	45.3	24 - 169	
2,3,7,8-TCDF	ND	1.20			13C-1,2,3,7,8-PeCDF	42.0	24 - 185	
1,2,3,7,8-PeCDF	ND	1.79			13C-2,3,4,7,8-PeCDF	43.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.53			13C-1,2,3,4,7,8-HxCDF	42.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.976			13C-1,2,3,6,7,8-HxCDF	48.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.916			13C-2,3,4,6,7,8-HxCDF	47.9	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.06			13C-1,2,3,7,8,9-HxCDF	48.3	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.52			13C-1,2,3,4,6,7,8-HpCDF	46.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	4.82			J	13C-1,2,3,4,7,8,9-HpCDF	53.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.47			13C-OCDF	41.6	17 - 157	
OCDF	ND				CRS 37Cl-2,3,7,8-TCDD	68.3	35 - 197	

Totals

Total TCDD	ND	1.22						
Total PeCDD	ND	1.06						
Total HxCDD	2.69							
Total HpCDD	38.8							
Total TCDF	ND	1.20						
Total PeCDF	ND	1.66						
Total HxCDF	3.45							
Total HpCDF	11.2							

Footnotes

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

Analyst: JMH
 Approved By: Martha M. Maier
 Date: 16-Mar-2005 08:56

AMEC VALIDATED LEVEL IV



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOC0195

Prepared by

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Lakewood, Colorado 80226

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOC0195
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 01, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 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.: IOC0195
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 012	Outfall 012	IOC0195-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

AS ICP/MS was not used in the analysis of this sample, ICP/MS tuning is not applicable.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP metals and 80-120% for mercury. The silver and selenium reporting limit check standards were recovered below the control limit at 59% and 52%, respectively; therefore, nondetected silver and selenium in Outfall 012 were qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

There were no reported detects in the CCBs or method blanks associated with the site sample. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP analyses. The ICSA and ICSAB analyses were performed on the same day all of the analytes, except thallium, were analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

AS ICP/MS was not used in the analysis of this sample, ICP/MS internal standard recoveries are not applicable.

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05						
Reporting Units: mg/l											
Antimony	EPA 200.7	5C05038	0.0042	0.010	ND	1	03/05/05	03/07/05		U	
Arsenic	EPA 200.7	5C05038	0.0038	0.0050	ND	1	03/05/05	03/07/05		↓	
Beryllium	EPA 200.7	5C05038	0.00062	0.0020	ND	1	03/05/05	03/07/05		↓	
Cadmium	EPA 200.7	5C05038	0.00034	0.0050	0.0014	1	03/05/05	03/07/05		J J	DNQ
Chromium	EPA 200.7	5C05038	0.00068	0.0050	0.0052	1	03/05/05	03/07/05			
Copper	EPA 200.7	5C05038	0.0017	0.010	0.012	1	03/05/05	03/07/05			
Lead	EPA 200.7	5C05038	0.0021	0.0050	0.0060	1	03/05/05	03/07/05			
Mercury	EPA 245.1	5C03115	0.000063	0.00020	0.00012	1	03/03/05	03/03/05		J J	DNQ
Nickel	EPA 200.7	5C05038	0.0020	0.010	0.0045	1	03/05/05	03/07/05		↓ J	↓
Selenium	EPA 200.7	5C05038	0.0046	0.010	ND	1	03/05/05	03/07/05		↓ J	*3
Silver	EPA 200.7	5C05038	0.0013	0.010	ND	1	03/05/05	03/07/05		↓	↓
Thallium	EPA 200.7	5C05038	0.0031	0.010	ND	1	03/05/05	03/08/05		U	
Zinc	EPA 200.7	5C05038	0.0037	0.020	0.092	1	03/05/05	03/07/05			

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.



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOC0195

Prepared by

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Lakewood, Colorado 80226

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOC0195
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 7, 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 012	Outfall 012	IOC0195-01	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 03/02/05 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 and methoxychlor in one calibration. Nondetect results for both compounds were qualified as estimated, "UJ," in sample Outfall 012. 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 (5C04051-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 (5C04051-BS1 for pesticides and -BS2 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 performed on the sample in this SDG. Method accuracy was assessed based on the blank spike results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction 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 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 by recalculating any sample detects, and a representative number of blank spike and surrogate recoveries. Reporting limits were supported by the low level standards of the initial calibrations and the laboratory MDL studies. The water reporting limits were not adjusted for sample amount on the result summaries; however, the

DATA VALIDATION REPORT

Project: NPDES
SDG: IOC0195
Analysis: Pest/PCB

dilution factor listed on the summaries reflected the sample volume extracted. No qualifications were required.



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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05					
Reporting Units: ug/l										
Aldrin	EPA 608	5C04051	0.030	0.10	ND	0.952	03/04/05	03/09/05	u	
alpha-BHC	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	u	
beta-BHC	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	u	
delta-BHC	EPA 608	5C04051	0.020	0.20	ND	0.952	03/04/05	03/09/05	u	
gamma-BHC (Lindane)	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	u	
Chlordane	EPA 608	5C04051	0.20	1.0	ND	0.952	03/04/05	03/09/05	u	
4,4'-DDD	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	u	
4,4'-DDE	EPA 608	5C04051	0.025	0.10	ND	0.952	03/04/05	03/09/05	u	
4,4'-DDT	EPA 608	5C04051	0.030	0.10	ND	0.952	03/04/05	03/09/05	u	
Dieldrin	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	u	
Endosulfan I	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	u	
Endosulfan II	EPA 608	5C04051	0.040	0.10	ND	0.952	03/04/05	03/09/05	u	
Endosulfan sulfate	EPA 608	5C04051	0.015	0.20	ND	0.952	03/04/05	03/09/05	u	
Endrin	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	u	
Endrin aldehyde	EPA 608	5C04051	0.045	0.10	ND	0.952	03/04/05	03/09/05	u	
Endrin ketone	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	u	
Heptachlor	EPA 608	5C04051	0.030	0.10	ND	0.952	03/04/05	03/09/05	u	
Heptachlor epoxide	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	u	
Methoxychlor	EPA 608	5C04051	0.035	0.10	ND	0.952	03/04/05	03/09/05	u	
Toxaphene	EPA 608	5C04051	1.5	5.0	ND	0.952	03/04/05	03/09/05	u	
Surrogate: Tetrachloro-m-xylene (35-120%)					67 %					
Surrogate: Decachlorobiphenyl (45-120%)					79 %					

Handwritten notes:
 Data Qualifiers: u, c
 Vertical arrows pointing down from the 'u' and 'c' labels.

AMEC VALIDATED LEVEL IV

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C04051	0.20	1.0	ND	0.952	03/04/05	03/04/05	u
Aroclor 1221	EPA 608	5C04051	0.10	1.0	ND	0.952	03/04/05	03/04/05	↓ v al qua l O c a d e
Aroclor 1232	EPA 608	5C04051	0.15	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1242	EPA 608	5C04051	0.15	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1248	EPA 608	5C04051	0.25	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1254	EPA 608	5C04051	0.25	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1260	EPA 608	5C04051	0.40	1.0	ND	0.952	03/04/05	03/04/05	
Surrogate: Decachlorobiphenyl (45-120%)					80 %				

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 T711SV49
 Task Order 313150010
 SDG No. IOC0195

No. of Analyses 1

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Semivolatiles

Date: April 5, 2005
 Reviewer's Signature 

ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications were required for calibration and LCS outliers.
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: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC0195

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#: IOC0195
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 5, 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 012	Outfall 012	IOC0195-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/07/05. 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 and benzidine. 2,4-Dinitrophenol and benzidine 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 03/07/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were ≤ 20 . A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No further qualifications were required.

2.4 BLANKS

One method blank (5C03014-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5C03014-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary, to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ," for nondetects, and "J," for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits, except for the RPD for benzidine which exceeded the control limit. The sample of this SDG had benzidine qualified as an estimated nondetect, "UJ." A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No further qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for 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 limits were qualified as estimated, "J," by the laboratory. No further qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/02/05				
Reporting Units: ug/l					REV	QUAL			
Acenaphthene	EPA 625	5C03014	4.3	10	ND	0.962	03/03/05	03/08/05	U
Acenaphthylene	EPA 625	5C03014	3.2	10	12	0.962	03/03/05	03/08/05	U
Aniline	EPA 625	5C03014	2.9	10	ND	0.962	03/03/05	03/08/05	U
Anthracene	EPA 625	5C03014	3.2	10	ND	0.962	03/03/05	03/08/05	U
Benzidine	EPA 625	5C03014	5.2	20	ND	0.962	03/03/05	03/08/05	U, J, C
Benzoic acid	EPA 625	5C03014	2.6	20	ND	0.962	03/03/05	03/08/05	U
Benzo(a)anthracene	EPA 625	5C03014	3.7	10	ND	0.962	03/03/05	03/08/05	U
Benzo(b)fluoranthene	EPA 625	5C03014	2.7	10	ND	0.962	03/03/05	03/08/05	U
Benzo(k)fluoranthene	EPA 625	5C03014	3.4	10	ND	0.962	03/03/05	03/08/05	U
Benzo(g,h,i)perylene	EPA 625	5C03014	5.3	10	ND	0.962	03/03/05	03/08/05	U
Benzo(a)pyrene	EPA 625	5C03014	3.5	10	ND	0.962	03/03/05	03/08/05	U
Benzyl alcohol	EPA 625	5C03014	2.5	20	ND	0.962	03/03/05	03/08/05	U
Bis(2-chloroethoxy)methane	EPA 625	5C03014	3.9	10	ND	0.962	03/03/05	03/08/05	U
Bis(2-chloroethyl)ether	EPA 625	5C03014	4.4	10	ND	0.962	03/03/05	03/08/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5C03014	4.6	10	ND	0.962	03/03/05	03/08/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5C03014	5.2	50	ND	0.962	03/03/05	03/08/05	U
4-Bromophenyl phenyl ether	EPA 625	5C03014	4.6	10	ND	0.962	03/03/05	03/08/05	U
Butyl benzyl phthalate	EPA 625	5C03014	3.5	20	ND	0.962	03/03/05	03/08/05	U
4-Chloroaniline	EPA 625	5C03014	6.0	10	ND	0.962	03/03/05	03/08/05	U
2-Chloronaphthalene	EPA 625	5C03014	4.0	10	ND	0.962	03/03/05	03/08/05	U
4-Chloro-3-methylphenol	EPA 625	5C03014	3.5	20	ND	0.962	03/03/05	03/08/05	U
2-Chlorophenol	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	U
4-Chlorophenyl phenyl ether	EPA 625	5C03014	3.0	10	ND	0.962	03/03/05	03/08/05	U
Chrysene	EPA 625	5C03014	2.8	10	ND	0.962	03/03/05	03/08/05	U
Dibenz(a,h)anthracene	EPA 625	5C03014	4.7	20	ND	0.962	03/03/05	03/08/05	U
Dibenzofuran	EPA 625	5C03014	2.6	10	ND	0.962	03/03/05	03/08/05	U
Di-n-butyl phthalate	EPA 625	5C03014	2.8	20	ND	0.962	03/03/05	03/08/05	U
1,3-Dichlorobenzene	EPA 625	5C03014	4.1	10	ND	0.962	03/03/05	03/08/05	U
1,4-Dichlorobenzene	EPA 625	5C03014	3.9	10	ND	0.962	03/03/05	03/08/05	U
1,2-Dichlorobenzene	EPA 625	5C03014	4.5	10	ND	0.962	03/03/05	03/08/05	U
3,3-Dichlorobenzidine	EPA 625	5C03014	11	20	ND	0.962	03/03/05	03/08/05	U
2,4-Dichlorophenol	EPA 625	5C03014	4.1	10	ND	0.962	03/03/05	03/08/05	U
Diethyl phthalate	EPA 625	5C03014	3.1	10	ND	0.962	03/03/05	03/08/05	U
2,4-Dimethylphenol	EPA 625	5C03014	4.4	20	ND	0.962	03/03/05	03/08/05	U
Dimethyl phthalate	EPA 625	5C03014	3.6	10	ND	0.962	03/03/05	03/08/05	U
4,6-Dinitro-2-methylphenol	EPA 625	5C03014	5.1	20	ND	0.962	03/03/05	03/08/05	U
2,4-Dinitrophenol	EPA 625	5C03014	5.3	20	ND	0.962	03/03/05	03/08/05	U, J, C
2,4-Dinitrotoluene	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	U
2,6-Dinitrotoluene	EPA 625	5C03014	3.2	10	ND	0.962	03/03/05	03/08/05	U
Di-n-octyl phthalate	EPA 625	5C03014	4.7	20	ND	0.962	03/03/05	03/08/05	U
Fluoranthene	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	U

DRAFT REPORT
 DRAFT REPORT

DATA SUBJECT TO CHANGE

LEVEL IV

AMEC VALIDATED

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont. Sampled: 03/02/05									
Reporting Units: ug/l									
Fluorene	EPA 625	5C03014	3.9	10	ND	0.962	03/03/05	03/08/05	U
Hexachlorobenzene	EPA 625	5C03014	4.8	10	ND	0.962	03/03/05	03/08/05	U
Hexachlorobutadiene	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	U
Hexachlorocyclopentadiene	EPA 625	5C03014	3.4	20	ND	0.962	03/03/05	03/08/05	U
Hexachloroethane	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	U
Indeno(1,2,3-cd)pyrene	EPA 625	5C03014	5.4	20	ND	0.962	03/03/05	03/08/05	U
Isophorone	EPA 625	5C03014	3.7	10	ND	0.962	03/03/05	03/08/05	U
2-Methylnaphthalene	EPA 625	5C03014	3.0	10	41	0.962	03/03/05	03/08/05	U
2-Methylphenol	EPA 625	5C03014	3.7	10	ND	0.962	03/03/05	03/08/05	U
4-Methylphenol	EPA 625	5C03014	3.8	10	ND	0.962	03/03/05	03/08/05	U
Naphthalene	EPA 625	5C03014	4.5	10	52	0.962	03/03/05	03/08/05	U
2-Nitroaniline	EPA 625	5C03014	3.9	20	ND	0.962	03/03/05	03/08/05	U
3-Nitroaniline	EPA 625	5C03014	4.5	20	ND	0.962	03/03/05	03/08/05	U
4-Nitroaniline	EPA 625	5C03014	4.9	20	ND	0.962	03/03/05	03/08/05	U
Nitrobenzene	EPA 625	5C03014	4.2	20	ND	0.962	03/03/05	03/08/05	U
2-Nitrophenol	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	U
4-Nitrophenol	EPA 625	5C03014	6.6	20	ND	0.962	03/03/05	03/08/05	U
N-Nitrosodiphenylamine	EPA 625	5C03014	4.0	10	ND	0.962	03/03/05	03/08/05	U
N-Nitroso-di-n-propylamine	EPA 625	5C03014	3.6	10	ND	0.962	03/03/05	03/08/05	U
Pentachlorophenol	EPA 625	5C03014	4.0	20	ND	0.962	03/03/05	03/08/05	U
Phenanthrene	EPA 625	5C03014	3.3	10	4.9	0.962	03/03/05	03/08/05	J J DNQ
Phenol	EPA 625	5C03014	4.0	10	7.2	0.962	03/03/05	03/08/05	J J DNQ
Pyrene	EPA 625	5C03014	3.9	10	ND	0.962	03/03/05	03/08/05	U
1,2,4-Trichlorobenzene	EPA 625	5C03014	4.4	10	ND	0.962	03/03/05	03/08/05	U
2,4,5-Trichlorophenol	EPA 625	5C03014	3.6	20	ND	0.962	03/03/05	03/08/05	U
2,4,6-Trichlorophenol	EPA 625	5C03014	4.1	20	ND	0.962	03/03/05	03/08/05	U
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C03014	5.0	20	ND	0.962	03/03/05	03/08/05	U
N-Nitrosodimethylamine	EPA 625	5C03014	3.7	20	ND	0.962	03/03/05	03/08/05	U
Surrogate: 2-Fluorophenol (30-120%)					69 %				
Surrogate: Phenol-d6 (35-120%)					70 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					88 %				
Surrogate: Nitrobenzene-d5 (45-120%)					90 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					82 %				
Surrogate: Terphenyl-d14 (45-120%)					86 %				

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE LEVEL IV

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 T711TF54
 Task Order 313150010
 SDG No. IOC0195

No. of Analyses 2

Laboratory Del Mar Analytical

Date: April 7, 2005

Reviewer L. Calvin

Reviewer's Signature

Analysis/Method GRO by Method 8015M

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: Total Petroleum Hydrocarbons: Purgeable

SAMPLE DELIVERY GROUP: IOC0195

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#: IOC0195
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 7, 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 012	Outfall 012	IOC0195-01	water	8015M/GRO
Trip Blank	Trip Blank	IOC0195-02	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 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

Two water method blanks (5C07100-BLK1 and 5C10003-BLK1) were associated with the retained sample analyses. GRO (C4-C12) was not detected above the MDL in the method blanks. Review of the raw data indicated no false negative results. No qualifications were necessary.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two water method blank spikes (5C07100-BS1 and 5C10003-BS1) were associated with the retained sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC

limits of 70-140% in both blank spikes. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140%. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were 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 012. 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 calibration and by the laboratory MDL. Sample Outfall 012 was analyzed at a 10× dilution for a high concentration of GRO (C4-C12). The reporting limit was adjusted accordingly. 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: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont. Reporting Units: mg/l					Sampled: 03/02/05					<i>see qual table</i> <hr/>
GRO (C4 - C12) Surrogate: 4-BFB (FID) (65-140%)	EPA 8015 Mod.	5C07100	0.50	1.0	6.6 76 %	10	03/07/05	03/08/05		
Sample ID: IOC0195-02 (DRAFT: Trip Blank - Water) Reporting Units: mg/l					Sampled: 03/02/05					P1
GRO (C4 - C12) Surrogate: 4-BFB (FID) (65-140%)	EPA 8015 Mod.	5C10003	0.050	0.10	ND 83 %	1	03/10/05	03/10/05	U	

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF56
 Task Order 313150010
 SDG No. IOC0195

Laboratory Del Mar Analytical

No. of Analyses 1

Reviewer L. Calvin

Date: April 7, 2005

Analysis/Method EFH by Method 8015B

Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOC0195

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#: IOC0195
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 7, 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 012	Outfall 012	IOC0195-01	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. The EFH analysis (rather than the GRO analysis) was requested in error on the COC for the Trip Blank sample. 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 01/07/05. 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 (5C04002-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 (5C04002-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%, and the RPD was within the QC limit of $\leq 25\%$. The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The 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 sample. 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 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. Results were reported in mg/L. 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: Alfa Outfall 012 - Annual
 Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05					Raw Qual
Reporting Units: mg/l										Code
EFH (C13 - C22)	EPA 8015B	5C04002	0.082	0.50	2.2	1	03/04/05	03/05/05		
Surrogate: n-Octacosane (40-125%)										
					79 %					

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 T711VO84
 Task Order 313150010
 SDG No. IOC0195

No. of Analyses 2

Laboratory Del Mar

Date: April 5, 2005

Reviewer M. Pokorny

Reviewer's Signature

Analysis/Method Volatiles



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 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: IOC0195

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#: IOC0195
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 5, 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 012	Outfall 012	IOC0195-01	water	624
Trip Blank	Trip Blank	IOC0195-02	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 COC was signed and dated by both field and laboratory personnel. The COC accounted for the analyses presented in this SDG. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation reports were consistent with those specified in 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 02/17/04 (acrolein and acrylonitrile only) and 02/18/05 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. Two continuing calibrations associated with the sample analyses were analyzed 03/03/05 (08:03 and 08:32). The RRFs were ≥0.05 in all of the continuing calibrations. The %Ds for the continuing calibrations associated with the samples were all ≤20%. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blanks (5C03015-BLK1) was associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summaries. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5B03015-BS1) was associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

An MS/MSD analyses was not associated with this SDG. Method accuracy was based on blank spike recoveries. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.8.1 Trip Blanks

Samples Trip Blank was the trip blank associated with this SDG. Methylene chloride was reported in the trip blank at 0.95ug/L. The methylene chloride detect for sample Outfall 012 was qualified as a nondetect, "U." No further 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. 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 a representative number of sample detects, 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. Detects below the reporting limits were qualified as estimated, "J," by the laboratory. No further qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/02/05			REV	QUAL
Reporting Units: ug/l								QUAL	CODE
Benzene	EPA 624	5C03015	0.28	1.0	7.1	1	03/03/05	03/03/05	
Bromodichloromethane	EPA 624	5C03015	0.30	2.0	1.1	1	03/03/05	03/03/05	J J DNG
Bromoform	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	U
Bromomethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05	
Carbon tetrachloride	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05	
Chlorobenzene	EPA 624	5C03015	0.36	2.0	ND	1	03/03/05	03/03/05	
Chloroethane	EPA 624	5C03015	0.33	5.0	ND	1	03/03/05	03/03/05	
Chloroform	EPA 624	5C03015	0.33	2.0	0.98	1	03/03/05	03/03/05	J J DNG
Chloromethane	EPA 624	5C03015	0.30	5.0	ND	1	03/03/05	03/03/05	U
Dibromochloromethane	EPA 624	5C03015	0.28	2.0	0.71	1	03/03/05	03/03/05	J J DNG
1,2-Dichlorobenzene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	U
1,3-Dichlorobenzene	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05	
1,4-Dichlorobenzene	EPA 624	5C03015	0.37	2.0	ND	1	03/03/05	03/03/05	
1,1-Dichloroethane	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichloroethane	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05	
1,1-Dichloroethene	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
trans-1,2-Dichloroethene	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichloropropane	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05	
cis-1,3-Dichloropropene	EPA 624	5C03015	0.22	2.0	ND	1	03/03/05	03/03/05	
trans-1,3-Dichloropropene	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05	
Ethylbenzene	EPA 624	5C03015	0.25	2.0	0.89	1	03/03/05	03/03/05	J J DNG
Methylene chloride	EPA 624	5C03015	0.48	5.0	ND	1	03/03/05	03/03/05	J J
1,1,2,2-Tetrachloroethane	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05	U
Tetrachloroethene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	U
Toluene	EPA 624	5C03015	0.36	2.0	3.0	1	03/03/05	03/03/05	U
1,1,1-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	U
1,1,2-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	U
Trichloroethene	EPA 624	5C03015	0.26	2.0	0.57	1	03/03/05	03/03/05	J J DNG
Trichlorofluoromethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05	U
Vinyl chloride	EPA 624	5C03015	0.26	0.50	ND	1	03/03/05	03/03/05	U
Xylenes, Total	EPA 624	5C03015	0.52	4.0	3.2	1	03/03/05	03/03/05	J J DNG
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C03015	1.2	5.0	ND	1	03/03/05	03/03/05	U
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				

AMEC VALIDATED

DRAFT REPORT
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LEVEL IV

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WV 4.5.05

IOC0195 <Page 1 of 51>



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	RW QUAL	QUAL CODE		
Sample ID: IOC0195-02 (DRAFT: Trip Blank - Water)					Sampled: 03/02/05								
Reporting Units: ug/l													
Benzene	EPA 624	5C03015	0.28	1.0	ND	1	03/03/05	03/03/05		U			
Bromodichloromethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05					
Bromoform	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05					
Bromomethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05					
Carbon tetrachloride	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05					
Chlorobenzene	EPA 624	5C03015	0.36	2.0	ND	1	03/03/05	03/03/05					
Chloroethane	EPA 624	5C03015	0.33	5.0	ND	1	03/03/05	03/03/05					
Chloroform	EPA 624	5C03015	0.33	2.0	ND	1	03/03/05	03/03/05					
Chloromethane	EPA 624	5C03015	0.30	5.0	ND	1	03/03/05	03/03/05					
Dibromochloromethane	EPA 624	5C03015	0.28	2.0	ND	1	03/03/05	03/03/05					
1,2-Dichlorobenzene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05					
1,3-Dichlorobenzene	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05					
1,4-Dichlorobenzene	EPA 624	5C03015	0.37	2.0	ND	1	03/03/05	03/03/05					
1,1-Dichloroethane	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05					
1,2-Dichloroethane	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05					
1,1-Dichloroethene	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05					
trans-1,2-Dichloroethene	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05					
1,2-Dichloropropane	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05					
cis-1,3-Dichloropropene	EPA 624	5C03015	0.22	2.0	ND	1	03/03/05	03/03/05					
trans-1,3-Dichloropropene	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05					
Ethylbenzene	EPA 624	5C03015	0.25	2.0	ND	1	03/03/05	03/03/05					
Methylene chloride	EPA 624	5C03015	0.48	5.0	0.95	1	03/03/05	03/03/05		Y	DNQ		
1,1,2,2-Tetrachloroethane	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05		U			
Tetrachloroethene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05					
Toluene	EPA 624	5C03015	0.36	2.0	ND	1	03/03/05	03/03/05					
1,1,1-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05					
1,1,2-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05					
Trichloroethene	EPA 624	5C03015	0.26	2.0	ND	1	03/03/05	03/03/05					
Trichlorofluoromethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05					
Vinyl chloride	EPA 624	5C03015	0.26	0.50	ND	1	03/03/05	03/03/05					
Xylenes, Total	EPA 624	5C03015	0.52	4.0	ND	1	03/03/05	03/03/05					
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C03015	1.2	5.0	ND	1	03/03/05	03/03/05					
Surrogate: Dibromofluoromethane (80-120%)					113 %								
Surrogate: Toluene-d8 (80-120%)					98 %								
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %								

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 DATA SUBJECT TO CHANGE

LEVEL IV

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

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									REF QUAL
Acrolein	EPA 624	5C03015	4.6	50	ND	1	03/03/05	03/03/05	U
Acrylonitrile	EPA 624	5C03015	5.1	50	ND	1	03/03/05	03/03/05	U
2-Chloroethyl vinyl ether	EPA 624	5C03015	1.3	5.0	ND	1	03/03/05	03/03/05	U
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				
Sample ID: IOC0195-02 (DRAFT: Trip Blank - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									QUAL CODE
Acrolein	EPA 624	5C03015	4.6	50	ND	1	03/03/05	03/03/05	U
Acrylonitrile	EPA 624	5C03015	5.1	50	ND	1	03/03/05	03/03/05	U
2-Chloroethyl vinyl ether	EPA 624	5C03015	1.3	5.0	ND	1	03/03/05	03/03/05	U
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %				

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/02/05					REV QUAL
Reporting Units: ug/l										QUAL
1,2-Dibromoethane (EDB)	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	↓	
1,2,3-Trichloropropane	EPA 624	5C03015	0.85	10	ND	1	03/03/05	03/03/05		
Di-isopropyl Ether (DIPE)	EPA 624	5C03015	0.25	5.0	ND	1	03/03/05	03/03/05	↓	
tert-Butanol (TBA)	EPA 624	5C03015	3.1	25	ND	1	03/03/05	03/03/05		
Surrogate: Dibromofluoromethane (80-120%)					114 %					↓
Surrogate: Toluene-d8 (80-120%)					101 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %					
Sample ID: IOC0195-02 (DRAFT: Trip Blank - Water)					Sampled: 03/02/05					
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	↓	
1,2,3-Trichloropropane	EPA 624	5C03015	0.85	10	ND	1	03/03/05	03/03/05		
Di-isopropyl Ether (DIPE)	EPA 624	5C03015	0.25	5.0	ND	1	03/03/05	03/03/05	↓	
tert-Butanol (TBA)	EPA 624	5C03015	3.1	25	ND	1	03/03/05	03/03/05		
Surrogate: Dibromofluoromethane (80-120%)					113 %					↓
Surrogate: Toluene-d8 (80-120%)					98 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %					

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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 T711VO87
Task Order 313150010
SDG No. IOC0195

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: April 5, 2005

Reviewer's Signature



ACTION ITEMS*

- 1. **Case Narrative**
Deficiencies _____

- 2. **Out of Scope**
Analyses _____

- 3. **Analyses Not Conducted**

- 4. **Missing Hardcopy**
Deliverables _____

- 5. **Incorrect Hardcopy**
Deliverables _____

- 6. **Deviations from Analysis**
Protocol, e.g., _____
Holding Times _____
GC/MS Tune/Inst. Perform _____
Calibrations _____
Blanks _____
Surrogates _____
Matrix Spike/Dup LCS _____
Field QC _____
Internal Standard Performance _____
Compound Identification and _____
Quantitation _____
System Performance _____

COMMENTS^b | Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOC0195

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 #: IOC0195
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles (1,4-dioxane)
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 5, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method SW-846 8260B* and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC0195-01	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel. The COC accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. The sample summary form did not have the Oufall 012 ID printed on it; the ID was added by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows were consistent with those specified in EPA Method 8260B. All ion abundances were within the established windows, and the sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

2.3 CALIBRATION

One initial calibration, dated 02/16/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥ 0.05 and the r^2 value was ≤ 0.995 . One continuing calibration, dated 03/05/05 was associated with this SDG. The RRF for 1,4-dioxane was ≥ 0.05 and the %D was $\leq 20\%$. The r^2 value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (P5C0504-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5C0504-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision were based on blank spike and 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 Trip Blanks

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 1,4-dioxane by Method 8260B/SIM. Chromatograms, retention times, and spectra for the sample and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limit was supported by the lowest concentration of the initial calibration standards and by the undated MDL supplied by the laboratory. Compound quantitation was verified by recalculating blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

2.13 SYSTEM PERFORMANCE

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



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 9830 South 5th 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

Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC0195

Report Number: POC0114

Sampled: 03/02/05

Received: 03/04/05

OUTFALL 01Z

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	REV	QUAL
Sample ID: POC0114-01 (IOC0195-01 - Water)											
Reporting Units: ug/l											
1,4-Dioxane	EPA 8260B	PSC0504	4.9	10	ND	10	03/05/05	03/05/05			
Surrogate: Dibromofluoromethane (80-125%)					101%						
									RL-2	QUAL	CODE
										U	

AMEC VALIDATED

LEVEL IV

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

MP
 4.5.05

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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 T711WC119

Task Order 313150010

SDG No. IOC0195

No. of Analyses 1

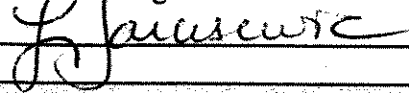
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 04/04/05

Reviewer's Signature



ACTION ITEMS*

1. Case Narrative
Deficiencies

2. Out of Scope
Analyses

3. Analyses Not
Conducted

4. Missing Hardcopy
Deliverables

5. Incorrect Hardcopy
Deliverables

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

Qualifications applied for detects below the reporting limit.

Holding Times

GC/MS Tune/Inst.

Performance

Calibrations

Blanks

Surrogates

Matrix Spike/Dup LCS

Field QC

Internal Standard

Performance

Compound Identification
and Quantitation

System Performance

COMMENTS*

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC0195

Prepared by

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

I. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC0195
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 4, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 405.1, 335.2, 413.1, 418.1, 160.2, 160.5, and 180.1, 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 012	Outfall 012	IOC0195-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 CALIBRATION

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

2.3 BLANKS

Turbidity was detected in method blank 5C04085-BLK1 at 0.060 NTU; however, the method blank result was insufficient to qualify the Outfall 012 result. Cyanide was reported in method blank 5C03114-BLK1 at 0.0030 mg/L; however, as cyanide was not detected in Outfall 012, 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, oil and grease, and total recoverable hydrocarbons only) recoveries and RPDs were within the laboratory-established control limits. The LCS is not applicable to turbidity or settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

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

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers	
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/02/05					EPA QUAL CODE
Reporting Units: mg/l										
Total Recoverable Hydrocarbons	EPA 418.1	SC08073	0.31	1.0	12	1	03/08/05	03/08/05		

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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05					REV QUAL QUAL CODE
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C03081	0.10	0.10	ND	1	03/03/05	03/04/05	U	

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers	
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05					REV QUAL CODE
Reporting Units: NTU										
Turbidity	EPA 180.1	5C04085	0.040	1.0	34	1	03/04/05	03/04/05		

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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C07070	0.30	0.50	ND	1	03/07/05	03/07/05	U
Biochemical Oxygen Demand	EPA 405.1	5C03078	0.59	2.0	3.4	1	03/03/05	03/08/05	
Total Cyanide	EPA 335.2	5C03114	0.0022	0.0050	ND	1	03/03/05	03/07/05	U
Oil & Grease	EPA 413.1	5C07071	0.94	5.0	4.1	1	03/07/05	03/07/05	J
Total Dissolved Solids	SM2540C	5C04089	10	10	230	1	03/04/05	03/04/05	
Total Suspended Solids	EPA 160.2	5C04101	10	10	25	1	03/04/05	03/04/05	

REJ QUAL
 QUAL CODE
 DNQ

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

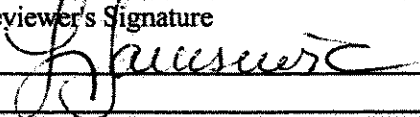
CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC122
 Task Order 313150010
 SDG No. IOC0195

No. of Analyses 1

Laboratory Del Mar Analytical
 Reviewer L. Jarusewic
 Analysis/Method Perchlorate

Date: 04/04/05
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	
Holding Times	
GC/MS Tune/Inst. Performance	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS^b	Acceptable as reviewed.
<small>^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.</small>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOC0195

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 #: IOC0195
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 4, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0, and 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC0195
Analysis: Perchlorate

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 012	Outfall 012	IOC0195-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual
 Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

DRAFT: INORGANICS

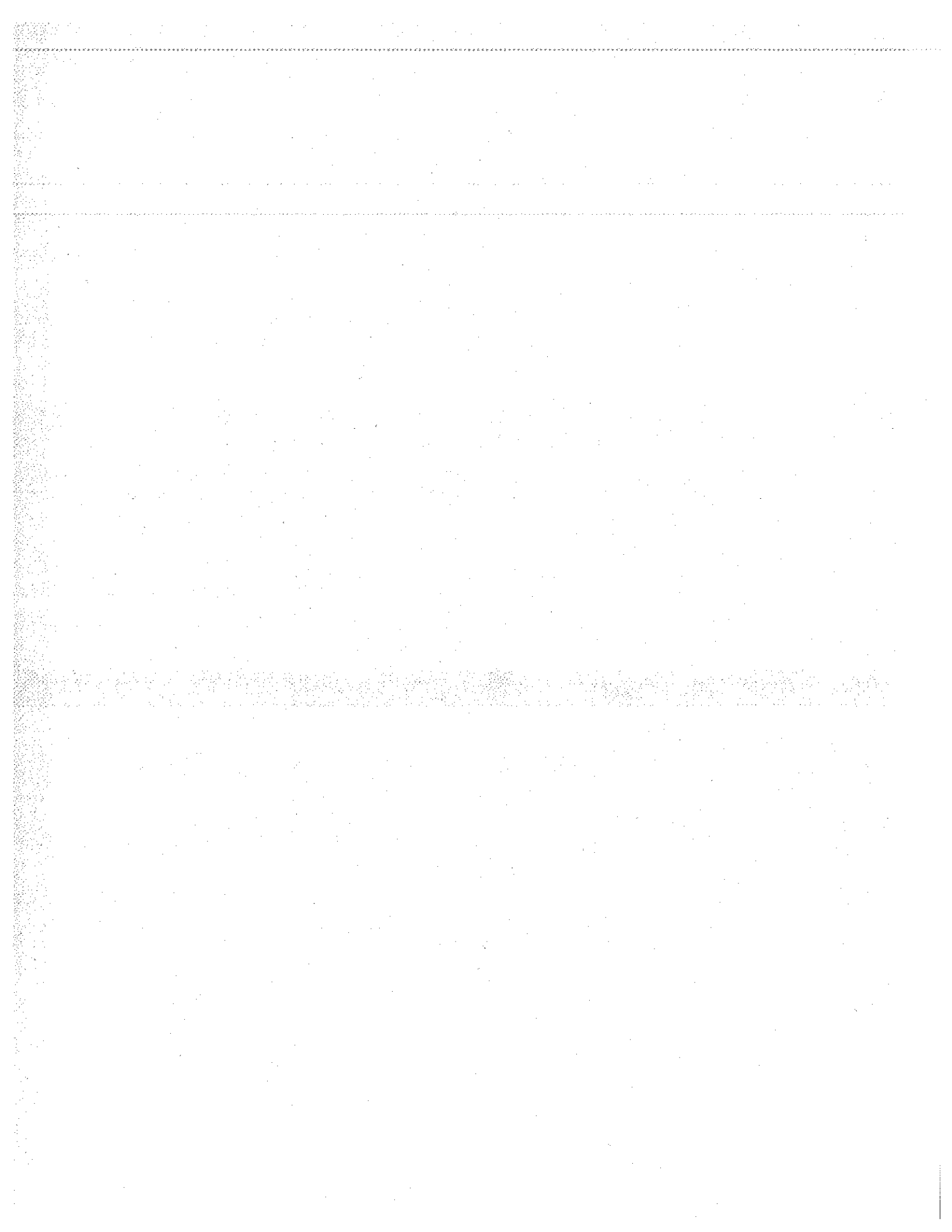
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C08052	0.80	4.0	ND	1	03/08/05	03/08/05	U

REV OUTL
 QUAL CODE

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





LABORATORY REPORT

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

Project: Alfa Outfall 012 - Annual

Sampled: 03/02/05
Received: 03/02/05
Issued: 04/08/05 16:54

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOC0195-01	Outfall 012	Water
IOC0195-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

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: IOC0195-01 (Outfall 012 - Water)					Sampled: 03/02/05				
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C08073	0.31	1.0	12	1	03/08/05	03/08/05	

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
Received: 03/02/05

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: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C04002	0.082	0.50	2.2	1	03/04/05	03/05/05	
Surrogate: n-Octacosane (40-125%)					79 %				

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: Alfa Outfall 012 - Annual Report Number: IOC0195	Sampled: 03/02/05 Received: 03/02/05
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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: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C07100	0.50	1.0	6.6	10	03/07/05	03/08/05	
Surrogate: 4-BFB (FID) (65-140%)					76 %				
Sample ID: IOC0195-02 (Trip Blank - Water)					Sampled: 03/02/05				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C10003	0.050	0.10	ND	1	03/10/05	03/10/05	P1
Surrogate: 4-BFB (FID) (65-140%)					83 %				

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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

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: IOC0195-01 (Outfall 012 - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
1,2,3-Trichloropropane	EPA 624	5C03015	0.85	10	ND	1	03/03/05	03/03/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C03015	0.25	5.0	ND	1	03/03/05	03/03/05	
tert-Butanol (TBA)	EPA 624	5C03015	3.1	25	ND	1	03/03/05	03/03/05	
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				
Sample ID: IOC0195-02 (Trip Blank - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
1,2,3-Trichloropropane	EPA 624	5C03015	0.85	10	ND	1	03/03/05	03/03/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C03015	0.25	5.0	ND	1	03/03/05	03/03/05	
tert-Butanol (TBA)	EPA 624	5C03015	3.1	25	ND	1	03/03/05	03/03/05	
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %				

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

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: IOC0195-01 (Outfall 012 - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									
Benzene	EPA 624	5C03015	0.28	1.0	7.1	1	03/03/05	03/03/05	
Bromodichloromethane	EPA 624	5C03015	0.30	2.0	1.1	1	03/03/05	03/03/05	J
Bromoform	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
Bromomethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05	
Carbon tetrachloride	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05	
Chlorobenzene	EPA 624	5C03015	0.36	2.0	ND	1	03/03/05	03/03/05	
Chloroethane	EPA 624	5C03015	0.33	5.0	ND	1	03/03/05	03/03/05	
Chloroform	EPA 624	5C03015	0.33	2.0	0.98	1	03/03/05	03/03/05	J
Chloromethane	EPA 624	5C03015	0.30	5.0	ND	1	03/03/05	03/03/05	
Dibromochloromethane	EPA 624	5C03015	0.28	2.0	0.71	1	03/03/05	03/03/05	J
1,2-Dichlorobenzene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	
1,3-Dichlorobenzene	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05	
1,4-Dichlorobenzene	EPA 624	5C03015	0.37	2.0	ND	1	03/03/05	03/03/05	
1,1-Dichloroethane	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichloroethane	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05	
1,1-Dichloroethene	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
trans-1,2-Dichloroethene	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichloropropane	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05	
cis-1,3-Dichloropropene	EPA 624	5C03015	0.22	2.0	ND	1	03/03/05	03/03/05	
trans-1,3-Dichloropropene	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05	
Ethylbenzene	EPA 624	5C03015	0.25	2.0	0.89	1	03/03/05	03/03/05	J
Methylene chloride	EPA 624	5C03015	0.48	5.0	1.1	1	03/03/05	03/03/05	J
1,1,2,2-Tetrachloroethane	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05	
Tetrachloroethene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	
Toluene	EPA 624	5C03015	0.36	2.0	3.0	1	03/03/05	03/03/05	
1,1,1-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	
1,1,2-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	
Trichloroethene	EPA 624	5C03015	0.26	2.0	0.57	1	03/03/05	03/03/05	J
Trichlorofluoromethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05	
Vinyl chloride	EPA 624	5C03015	0.26	0.50	ND	1	03/03/05	03/03/05	
Xylenes, Total	EPA 624	5C03015	0.52	4.0	3.2	1	03/03/05	03/03/05	J
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C03015	1.2	5.0	ND	1	03/03/05	03/03/05	
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				

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 Michele Harper
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - Annual Report Number: IOC0195	Sampled: 03/02/05 Received: 03/02/05
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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: IOC0195-02 (Trip Blank - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									
Benzene	EPA 624	5C03015	0.28	1.0	ND	1	03/03/05	03/03/05	
Bromodichloromethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	
Bromoform	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
Bromomethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05	
Carbon tetrachloride	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05	
Chlorobenzene	EPA 624	5C03015	0.36	2.0	ND	1	03/03/05	03/03/05	
Chloroethane	EPA 624	5C03015	0.33	5.0	ND	1	03/03/05	03/03/05	
Chloroform	EPA 624	5C03015	0.33	2.0	ND	1	03/03/05	03/03/05	
Chloromethane	EPA 624	5C03015	0.30	5.0	ND	1	03/03/05	03/03/05	
Dibromochloromethane	EPA 624	5C03015	0.28	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichlorobenzene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	
1,3-Dichlorobenzene	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05	
1,4-Dichlorobenzene	EPA 624	5C03015	0.37	2.0	ND	1	03/03/05	03/03/05	
1,1-Dichloroethane	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichloroethane	EPA 624	5C03015	0.28	0.50	ND	1	03/03/05	03/03/05	
1,1-Dichloroethene	EPA 624	5C03015	0.32	5.0	ND	1	03/03/05	03/03/05	
trans-1,2-Dichloroethene	EPA 624	5C03015	0.27	2.0	ND	1	03/03/05	03/03/05	
1,2-Dichloropropane	EPA 624	5C03015	0.35	2.0	ND	1	03/03/05	03/03/05	
cis-1,3-Dichloropropene	EPA 624	5C03015	0.22	2.0	ND	1	03/03/05	03/03/05	
trans-1,3-Dichloropropene	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05	
Ethylbenzene	EPA 624	5C03015	0.25	2.0	ND	1	03/03/05	03/03/05	
Methylene chloride	EPA 624	5C03015	0.48	5.0	0.95	1	03/03/05	03/03/05	J
1,1,2,2-Tetrachloroethane	EPA 624	5C03015	0.24	2.0	ND	1	03/03/05	03/03/05	
Tetrachloroethene	EPA 624	5C03015	0.32	2.0	ND	1	03/03/05	03/03/05	
Toluene	EPA 624	5C03015	0.36	2.0	ND	1	03/03/05	03/03/05	
1,1,1-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	
1,1,2-Trichloroethane	EPA 624	5C03015	0.30	2.0	ND	1	03/03/05	03/03/05	
Trichloroethene	EPA 624	5C03015	0.26	2.0	ND	1	03/03/05	03/03/05	
Trichlorofluoromethane	EPA 624	5C03015	0.34	5.0	ND	1	03/03/05	03/03/05	
Vinyl chloride	EPA 624	5C03015	0.26	0.50	ND	1	03/03/05	03/03/05	
Xylenes, Total	EPA 624	5C03015	0.52	4.0	ND	1	03/03/05	03/03/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C03015	1.2	5.0	ND	1	03/03/05	03/03/05	
Surrogate: Dibromofluoromethane (80-120%)									113 %
Surrogate: Toluene-d8 (80-120%)									98 %
Surrogate: 4-Bromofluorobenzene (80-120%)									99 %

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: IOC0195-01 (Outfall 012 - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									
Acrolein	EPA 624	5C03015	4.6	50	ND	1	03/03/05	03/03/05	
Acrylonitrile	EPA 624	5C03015	5.1	50	ND	1	03/03/05	03/03/05	
2-Chloroethyl vinyl ether	EPA 624	5C03015	1.3	5.0	ND	1	03/03/05	03/03/05	
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				
Sample ID: IOC0195-02 (Trip Blank - Water)					Sampled: 03/02/05				
Reporting Units: ug/l									
Acrolein	EPA 624	5C03015	4.6	50	ND	1	03/03/05	03/03/05	
Acrylonitrile	EPA 624	5C03015	5.1	50	ND	1	03/03/05	03/03/05	
2-Chloroethyl vinyl ether	EPA 624	5C03015	1.3	5.0	ND	1	03/03/05	03/03/05	
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %				

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



MWH-Pasadena/Boeing Project ID: Alfa Outfall 012 - Annual
300 North Lake Avenue, Suite 1200 Report Number: IOC0195
Pasadena, CA 91101 Attention: Bronwyn Kelly
Sampled: 03/02/05
Received: 03/02/05

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

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes sample ID IOC0195-01 and various chemical analytes.

Del Mar Analytical, Irvine
Michele Harper
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

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: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ug/l									
Fluorene	EPA 625	5C03014	3.9	10	ND	0.962	03/03/05	03/08/05	
Hexachlorobenzene	EPA 625	5C03014	4.8	10	ND	0.962	03/03/05	03/08/05	
Hexachlorobutadiene	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	
Hexachlorocyclopentadiene	EPA 625	5C03014	3.4	20	ND	0.962	03/03/05	03/08/05	
Hexachloroethane	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5C03014	5.4	20	ND	0.962	03/03/05	03/08/05	
Isophorone	EPA 625	5C03014	3.7	10	ND	0.962	03/03/05	03/08/05	
2-Methylnaphthalene	EPA 625	5C03014	3.0	10	41	0.962	03/03/05	03/08/05	
2-Methylphenol	EPA 625	5C03014	3.7	10	ND	0.962	03/03/05	03/08/05	
4-Methylphenol	EPA 625	5C03014	3.8	10	ND	0.962	03/03/05	03/08/05	
Naphthalene	EPA 625	5C03014	4.5	10	52	0.962	03/03/05	03/08/05	
2-Nitroaniline	EPA 625	5C03014	3.9	20	ND	0.962	03/03/05	03/08/05	
3-Nitroaniline	EPA 625	5C03014	4.5	20	ND	0.962	03/03/05	03/08/05	
4-Nitroaniline	EPA 625	5C03014	4.9	20	ND	0.962	03/03/05	03/08/05	
Nitrobenzene	EPA 625	5C03014	4.2	20	ND	0.962	03/03/05	03/08/05	
2-Nitrophenol	EPA 625	5C03014	4.2	10	ND	0.962	03/03/05	03/08/05	
4-Nitrophenol	EPA 625	5C03014	6.6	20	ND	0.962	03/03/05	03/08/05	
N-Nitrosodiphenylamine	EPA 625	5C03014	4.0	10	ND	0.962	03/03/05	03/08/05	
N-Nitroso-di-n-propylamine	EPA 625	5C03014	3.6	10	ND	0.962	03/03/05	03/08/05	
Pentachlorophenol	EPA 625	5C03014	4.0	20	ND	0.962	03/03/05	03/08/05	
Phenanthrene	EPA 625	5C03014	3.3	10	4.9	0.962	03/03/05	03/08/05	J
Phenol	EPA 625	5C03014	4.0	10	7.2	0.962	03/03/05	03/08/05	J
Pyrene	EPA 625	5C03014	3.9	10	ND	0.962	03/03/05	03/08/05	
1,2,4-Trichlorobenzene	EPA 625	5C03014	4.4	10	ND	0.962	03/03/05	03/08/05	
2,4,5-Trichlorophenol	EPA 625	5C03014	3.6	20	ND	0.962	03/03/05	03/08/05	
2,4,6-Trichlorophenol	EPA 625	5C03014	4.1	20	ND	0.962	03/03/05	03/08/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C03014	5.0	20	ND	0.962	03/03/05	03/08/05	
N-Nitrosodimethylamine	EPA 625	5C03014	3.7	20	ND	0.962	03/03/05	03/08/05	
<i>Surrogate: 2-Fluorophenol (30-120%)</i>					69 %				
<i>Surrogate: Phenol-d6 (35-120%)</i>					70 %				
<i>Surrogate: 2,4,6-Tribromophenol (45-120%)</i>					88 %				
<i>Surrogate: Nitrobenzene-d5 (45-120%)</i>					90 %				
<i>Surrogate: 2-Fluorobiphenyl (45-120%)</i>					82 %				
<i>Surrogate: Terphenyl-d14 (45-120%)</i>					86 %				

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5C04051	0.030	0.10	ND	0.952	03/04/05	03/09/05	
alpha-BHC	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	
beta-BHC	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	
delta-BHC	EPA 608	5C04051	0.020	0.20	ND	0.952	03/04/05	03/09/05	
gamma-BHC (Lindane)	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	
Chlordane	EPA 608	5C04051	0.20	1.0	ND	0.952	03/04/05	03/09/05	
4,4'-DDD	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	
4,4'-DDE	EPA 608	5C04051	0.025	0.10	ND	0.952	03/04/05	03/09/05	
4,4'-DDT	EPA 608	5C04051	0.030	0.10	ND	0.952	03/04/05	03/09/05	
Dieldrin	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	
Endosulfan I	EPA 608	5C04051	0.015	0.10	ND	0.952	03/04/05	03/09/05	
Endosulfan II	EPA 608	5C04051	0.040	0.10	ND	0.952	03/04/05	03/09/05	
Endosulfan sulfate	EPA 608	5C04051	0.015	0.20	ND	0.952	03/04/05	03/09/05	
Endrin	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	
Endrin aldehyde	EPA 608	5C04051	0.045	0.10	ND	0.952	03/04/05	03/09/05	
Endrin ketone	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	
Heptachlor	EPA 608	5C04051	0.030	0.10	ND	0.952	03/04/05	03/09/05	
Heptachlor epoxide	EPA 608	5C04051	0.020	0.10	ND	0.952	03/04/05	03/09/05	
Methoxychlor	EPA 608	5C04051	0.035	0.10	ND	0.952	03/04/05	03/09/05	
Toxaphene	EPA 608	5C04051	1.5	5.0	ND	0.952	03/04/05	03/09/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					67 %				
Surrogate: Decachlorobiphenyl (45-120%)					79 %				

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 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C04051	0.20	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1221	EPA 608	5C04051	0.10	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1232	EPA 608	5C04051	0.15	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1242	EPA 608	5C04051	0.15	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1248	EPA 608	5C04051	0.25	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1254	EPA 608	5C04051	0.25	1.0	ND	0.952	03/04/05	03/04/05	
Aroclor 1260	EPA 608	5C04051	0.40	1.0	ND	0.952	03/04/05	03/04/05	
Surrogate: Decachlorobiphenyl (45-120%)					80 %				

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: mg/l									
Antimony	EPA 200.7	5C05038	0.0042	0.010	ND	1	03/05/05	03/07/05	
Arsenic	EPA 200.7	5C05038	0.0038	0.0050	ND	1	03/05/05	03/07/05	
Beryllium	EPA 200.7	5C05038	0.00062	0.0020	ND	1	03/05/05	03/07/05	
Cadmium	EPA 200.7	5C05038	0.00034	0.0050	0.0014	1	03/05/05	03/07/05	J
Chromium	EPA 200.7	5C05038	0.00068	0.0050	0.0052	1	03/05/05	03/07/05	
Copper	EPA 200.7	5C05038	0.0017	0.010	0.012	1	03/05/05	03/07/05	
Lead	EPA 200.7	5C05038	0.0021	0.0050	0.0060	1	03/05/05	03/07/05	
Mercury	EPA 245.1	5C03115	0.000063	0.00020	0.00012	1	03/03/05	03/03/05	J
Nickel	EPA 200.7	5C05038	0.0020	0.010	0.0045	1	03/05/05	03/07/05	J
Selenium	EPA 200.7	5C05038	0.0046	0.010	ND	1	03/05/05	03/07/05	
Silver	EPA 200.7	5C05038	0.0013	0.010	ND	1	03/05/05	03/07/05	
Thallium	EPA 200.7	5C05038	0.0031	0.010	ND	1	03/05/05	03/08/05	
Zinc	EPA 200.7	5C05038	0.0037	0.020	0.092	1	03/05/05	03/07/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C07070	0.30	0.50	ND	1	03/07/05	03/07/05	
Biochemical Oxygen Demand	EPA 405.1	5C03078	0.59	2.0	3.4	1	03/03/05	03/08/05	
Total Cyanide	EPA 335.2	5C03114	0.0022	0.0050	ND	1	03/03/05	03/07/05	
Oil & Grease	EPA 413.1	5C07071	0.94	5.0	4.1	1	03/07/05	03/07/05	J
Total Dissolved Solids	SM2540C	5C04089	10	10	230	1	03/04/05	03/04/05	
Total Suspended Solids	EPA 160.2	5C04101	10	10	25	1	03/04/05	03/04/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C03081	0.10	0.10	ND	1	03/03/05	03/04/05	

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: NTU									
Turbidity	EPA 180.1	5C04085	0.040	1.0	34	1	03/04/05	03/04/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C08052	0.80	4.0	ND	1	03/08/05	03/08/05	

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Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05

Received: 03/02/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0195-01 (Outfall 012 - Water) - cont.					Sampled: 03/02/05				RL-2
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C0504	4.9	10	ND	10	03/05/05	03/05/05	
Surrogate: Dibromofluoromethane (80-125%)					101%				

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Project ID: Alfa Outfall 012 - Annual
Report Number: IOC0195

Sampled: 03/02/05
Received: 03/02/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 012 (IOC0195-01) - Water					
EPA 160.5	2	03/02/2005 14:43	03/02/2005 18:30	03/03/2005 11:13	03/04/2005 11:30
EPA 180.1	2	03/02/2005 14:43	03/02/2005 18:30	03/04/2005 07:30	03/04/2005 08:30
EPA 405.1	2	03/02/2005 14:43	03/02/2005 18:30	03/03/2005 11:07	03/08/2005 12:10
EPA 624	3	03/02/2005 14:43	03/02/2005 18:30	03/03/2005 00:00	03/03/2005 15:04
Sample ID: Trip Blank (IOC0195-02) - Water					
EPA 624	3	03/02/2005 15:30	03/02/2005 18:30	03/03/2005 00:00	03/03/2005 14:35

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METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08073 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08073-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 03/08/2005 (5C08073-BS1)											
Total Recoverable Hydrocarbons	4.70	1.0	0.31	mg/l	5.00		94	65-120			M-NR1
LCS Dup Analyzed: 03/08/2005 (5C08073-BSD1)											
Total Recoverable Hydrocarbons	4.70	1.0	0.31	mg/l	5.00		94	65-120	0	20	

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Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: 5C04002 Extracted: 03/04/05											
Blank Analyzed: 03/04/2005 (5C04002-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	0.0896			mg/l	0.200		45	40-125			
LCS Analyzed: 03/04/2005 (5C04002-BS1)											
EFH (C13 - C40)	0.430	0.50	0.082	mg/l	0.775		55	40-120			M-NRI J
Surrogate: n-Octacosane	0.100			mg/l	0.200		50	40-125			
LCS Dup Analyzed: 03/04/2005 (5C04002-BSD1)											
EFH (C13 - C40)	0.479	0.50	0.082	mg/l	0.775		62	40-120	11	25	J
Surrogate: n-Octacosane	0.130			mg/l	0.200		65	40-125			

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C07100 Extracted: 03/07/05										
Blank Analyzed: 03/07/2005 (5C07100-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00813			mg/l	0.0100		81 65-140			
LCS Analyzed: 03/07/2005 (5C07100-BS1)										
GRO (C4 - C12)	0.774	0.10	0.050	mg/l	0.800		97 70-140			
Surrogate: 4-BFB (FID)	0.0274			mg/l	0.0300		91 65-140			
Matrix Spike Analyzed: 03/07/2005 (5C07100-MS1) Source: IOC0216-04										
GRO (C4 - C12)	0.224	0.10	0.050	mg/l	0.220	ND	102 60-140			
Surrogate: 4-BFB (FID)	0.0118			mg/l	0.0100		118 65-140			
Matrix Spike Dup Analyzed: 03/07/2005 (5C07100-MSD1) Source: IOC0216-04										
GRO (C4 - C12)	0.210	0.10	0.050	mg/l	0.220	ND	95 60-140	6	20	
Surrogate: 4-BFB (FID)	0.0110			mg/l	0.0100		110 65-140			
Batch: 5C10003 Extracted: 03/10/05										
Blank Analyzed: 03/10/2005 (5C10003-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00852			mg/l	0.0100		85 65-140			
LCS Analyzed: 03/10/2005 (5C10003-BS1)										
GRO (C4 - C12)	0.746	0.10	0.050	mg/l	0.800		93 70-140			
Surrogate: 4-BFB (FID)	0.0270			mg/l	0.0300		90 65-140			
Matrix Spike Analyzed: 03/10/2005 (5C10003-MS1) Source: IOC0270-01										
GRO (C4 - C12)	0.208	0.10	0.050	mg/l	0.220	ND	95 60-140			
Surrogate: 4-BFB (FID)	0.0120			mg/l	0.0100		120 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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C10003 Extracted: 03/10/05											
Matrix Spike Dup Analyzed: 03/10/2005 (5C10003-MSD1)						Source: IOC0270-01					
GRO (C4 - C12)	0.227	0.10	0.050	mg/l	0.220	ND	103	60-140	9	20	
Surrogate: 4-BFB (FID)	0.0128			mg/l	0.0100		128	65-140			

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Sampled: 03/02/05
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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	RPD Limit	Data Qualifiers
Batch: 5C03015 Extracted: 03/03/05											
Blank Analyzed: 03/03/2005 (5C03015-BLK1)											
1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l							
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l							
1,2,3-Trichloropropane	ND	10	0.85	ug/l							
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l							
tert-Butanol (TBA)	ND	25	3.1	ug/l							
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	24.4			ug/l	25.0		98	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			
LCS Analyzed: 03/03/2005 (5C03015-BS1)											
1,2-Dibromoethane (EDB)	27.9	2.0	0.32	ug/l	25.0		112	75-125			
Methyl-tert-butyl Ether (MTBE)	29.5	5.0	0.32	ug/l	25.0		118	55-145			
1,2,3-Trichloropropane	26.5	10	0.85	ug/l	25.0		106	60-130			
Di-isopropyl Ether (DIPE)	31.3	5.0	0.25	ug/l	25.0		125	65-135			
tert-Butanol (TBA)	140	25	3.1	ug/l	125		112	70-140			
Surrogate: Dibromofluoromethane	27.4			ug/l	25.0		110	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			
Matrix Spike Analyzed: 03/03/2005 (5C03015-MS1)											
						Source: IOB1943-03					
1,2-Dibromoethane (EDB)	26.4	2.0	0.32	ug/l	25.0	ND	106	70-130			
Methyl-tert-butyl Ether (MTBE)	27.5	5.0	0.32	ug/l	25.0	ND	110	50-155			
1,2,3-Trichloropropane	24.4	10	0.85	ug/l	25.0	ND	98	55-140			
Di-isopropyl Ether (DIPE)	29.2	5.0	0.25	ug/l	25.0	ND	117	65-140			
tert-Butanol (TBA)	139	25	3.1	ug/l	125	ND	111	65-145			
Surrogate: Dibromofluoromethane	26.9			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			



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Received: 03/02/05

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: 5C03015 Extracted: 03/03/05											
Matrix Spike Dup Analyzed: 03/03/2005 (5C03015-MSD1)						Source: IOB1943-03					
1,2-Dibromoethane (EDB)	25.5	2.0	0.32	ug/l	25.0	ND	102	70-130	3	25	
Methyl-tert-butyl Ether (MTBE)	26.8	5.0	0.32	ug/l	25.0	ND	107	50-155	3	25	
1,2,3-Trichloropropane	23.8	10	0.85	ug/l	25.0	ND	95	55-140	2	30	
Di-isopropyl Ether (DIPE)	28.2	5.0	0.25	ug/l	25.0	ND	113	65-140	3	25	
tert-Butanol (TBA)	139	25	3.1	ug/l	125	ND	111	65-145	0	25	
Surrogate: Dibromofluoromethane	27.0			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120			

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: 5C03015 Extracted: 03/03/05										
Blank Analyzed: 03/03/2005 (5C03015-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120		
Surrogate: Toluene-d8	24.4			ug/l	25.0		98	80-120		
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120		

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - Annual
Report Number: IOC0195

Sampled: 03/02/05
Received: 03/02/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit	Data Qualifiers
Batch: 5C03015 Extracted: 03/03/05										
LCS Analyzed: 03/03/2005 (5C03015-BS1)										
Benzene	27.9	1.0	0.28	ug/l	25.0		112		70-120	
Bromodichloromethane	27.5	2.0	0.30	ug/l	25.0		110		70-140	
Bromoform	22.2	5.0	0.32	ug/l	25.0		89		55-135	
Bromomethane	28.3	5.0	0.34	ug/l	25.0		113		60-140	
Carbon tetrachloride	26.0	0.50	0.28	ug/l	25.0		104		70-140	
Chlorobenzene	27.3	2.0	0.36	ug/l	25.0		109		80-125	
Chloroethane	28.0	5.0	0.33	ug/l	25.0		112		60-145	
Chloroform	30.4	2.0	0.33	ug/l	25.0		122		75-130	
Chloromethane	26.7	5.0	0.30	ug/l	25.0		107		40-145	
Dibromochloromethane	27.7	2.0	0.28	ug/l	25.0		111		65-145	
1,2-Dichlorobenzene	27.4	2.0	0.32	ug/l	25.0		110		80-120	
1,3-Dichlorobenzene	26.5	2.0	0.35	ug/l	25.0		106		80-120	
1,4-Dichlorobenzene	26.3	2.0	0.37	ug/l	25.0		105		80-120	
1,1-Dichloroethane	29.1	2.0	0.27	ug/l	25.0		116		70-135	
1,2-Dichloroethane	28.8	0.50	0.28	ug/l	25.0		115		60-150	
1,1-Dichloroethene	27.6	5.0	0.32	ug/l	25.0		110		75-135	
trans-1,2-Dichloroethene	29.0	2.0	0.27	ug/l	25.0		116		70-130	
1,2-Dichloropropane	28.3	2.0	0.35	ug/l	25.0		113		70-120	
cis-1,3-Dichloropropene	28.9	2.0	0.22	ug/l	25.0		116		75-130	
trans-1,3-Dichloropropene	29.0	2.0	0.24	ug/l	25.0		116		75-135	
Ethylbenzene	28.2	2.0	0.25	ug/l	25.0		113		80-120	
Methylene chloride	30.0	5.0	0.48	ug/l	25.0		120		60-135	
1,1,2,2-Tetrachloroethane	28.2	2.0	0.24	ug/l	25.0		113		60-135	
Tetrachloroethene	24.3	2.0	0.32	ug/l	25.0		97		75-125	
Toluene	27.4	2.0	0.36	ug/l	25.0		110		75-120	
1,1,1-Trichloroethane	28.6	2.0	0.30	ug/l	25.0		114		75-140	
1,1,2-Trichloroethane	28.2	2.0	0.30	ug/l	25.0		113		70-125	
Trichloroethene	25.5	2.0	0.26	ug/l	25.0		102		80-120	
Trichlorofluoromethane	28.7	5.0	0.34	ug/l	25.0		115		65-145	
Vinyl chloride	25.7	0.50	0.26	ug/l	25.0		103		50-130	
Surrogate: Dibromofluoromethane	27.4			ug/l	25.0		110		80-120	
Surrogate: Toluene-d8	25.0			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101		80-120	

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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: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C03015 Extracted: 03/03/05											
Matrix Spike Analyzed: 03/03/2005 (5C03015-MS1)						Source: IOB1943-03					
Benzene	26.9	1.0	0.28	ug/l	25.0	ND	108	70-120			
Bromodichloromethane	26.2	2.0	0.30	ug/l	25.0	ND	105	70-140			
Bromoform	20.9	5.0	0.32	ug/l	25.0	ND	84	55-140			
Bromomethane	25.5	5.0	0.34	ug/l	25.0	ND	102	50-145			
Carbon tetrachloride	25.3	0.50	0.28	ug/l	25.0	ND	101	70-145			
Chlorobenzene	26.2	2.0	0.36	ug/l	25.0	ND	105	80-125			
Chloroethane	26.3	5.0	0.33	ug/l	25.0	ND	105	50-145			
Chloroform	29.4	2.0	0.33	ug/l	25.0	0.66	115	70-135			
Chloromethane	25.2	5.0	0.30	ug/l	25.0	ND	101	35-145			
Dibromochloromethane	26.1	2.0	0.28	ug/l	25.0	ND	104	65-145			
1,2-Dichlorobenzene	26.2	2.0	0.32	ug/l	25.0	ND	105	75-130			
1,3-Dichlorobenzene	25.9	2.0	0.35	ug/l	25.0	ND	104	75-130			
1,4-Dichlorobenzene	25.7	2.0	0.37	ug/l	25.0	ND	103	80-120			
1,1-Dichloroethane	27.7	2.0	0.27	ug/l	25.0	ND	111	65-135			
1,2-Dichloroethane	27.3	0.50	0.28	ug/l	25.0	ND	109	60-150			
1,1-Dichloroethene	26.6	5.0	0.32	ug/l	25.0	ND	106	65-140			
trans-1,2-Dichloroethene	27.7	2.0	0.27	ug/l	25.0	ND	111	65-135			
1,2-Dichloropropane	26.8	2.0	0.35	ug/l	25.0	ND	107	65-130			
cis-1,3-Dichloropropene	27.6	2.0	0.22	ug/l	25.0	ND	110	70-140			
trans-1,3-Dichloropropene	27.4	2.0	0.24	ug/l	25.0	ND	110	70-140			
Ethylbenzene	27.4	2.0	0.25	ug/l	25.0	ND	110	70-130			
Methylene chloride	28.8	5.0	0.48	ug/l	25.0	ND	115	60-135			
1,1,2,2-Tetrachloroethane	25.7	2.0	0.24	ug/l	25.0	ND	103	60-145			
Tetrachloroethene	24.1	2.0	0.32	ug/l	25.0	ND	96	70-130			
Toluene	27.3	2.0	0.36	ug/l	25.0	0.81	106	70-120			
1,1,1-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	75-140			
1,1,2-Trichloroethane	26.7	2.0	0.30	ug/l	25.0	ND	107	60-135			
Trichloroethene	27.3	2.0	0.26	ug/l	25.0	3.2	96	70-125			
Trichlorofluoromethane	27.5	5.0	0.34	ug/l	25.0	ND	110	55-145			
Vinyl chloride	25.2	0.50	0.26	ug/l	25.0	ND	101	40-135			
Surrogate: Dibromofluoromethane	26.9			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
Received: 03/02/05

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: 5C03015 Extracted: 03/03/05											
Matrix Spike Dup Analyzed: 03/03/2005 (5C03015-MSD1)						Source: IOB1943-03					
Benzene	25.2	1.0	0.28	ug/l	25.0	ND	101	70-120	7	20	
Bromodichloromethane	24.8	2.0	0.30	ug/l	25.0	ND	99	70-140	5	20	
Bromoform	20.5	5.0	0.32	ug/l	25.0	ND	82	55-140	2	25	
Bromomethane	24.2	5.0	0.34	ug/l	25.0	ND	97	50-145	5	25	
Carbon tetrachloride	23.8	0.50	0.28	ug/l	25.0	ND	95	70-145	6	25	
Chlorobenzene	24.7	2.0	0.36	ug/l	25.0	ND	99	80-125	6	20	
Chloroethane	24.5	5.0	0.33	ug/l	25.0	ND	98	50-145	7	25	
Chloroform	27.8	2.0	0.33	ug/l	25.0	0.66	109	70-135	6	20	
Chloromethane	23.3	5.0	0.30	ug/l	25.0	ND	93	35-145	8	25	
Dibromochloromethane	25.0	2.0	0.28	ug/l	25.0	ND	100	65-145	4	25	
1,2-Dichlorobenzene	25.2	2.0	0.32	ug/l	25.0	ND	101	75-130	4	20	
1,3-Dichlorobenzene	24.6	2.0	0.35	ug/l	25.0	ND	98	75-130	5	20	
1,4-Dichlorobenzene	24.4	2.0	0.37	ug/l	25.0	ND	98	80-120	5	20	
1,1-Dichloroethane	26.3	2.0	0.27	ug/l	25.0	ND	105	65-135	5	20	
1,2-Dichloroethane	25.9	0.50	0.28	ug/l	25.0	ND	104	60-150	5	20	
1,1-Dichloroethene	24.6	5.0	0.32	ug/l	25.0	ND	98	65-140	8	20	
trans-1,2-Dichloroethene	26.2	2.0	0.27	ug/l	25.0	ND	105	65-135	6	20	
1,2-Dichloropropane	25.6	2.0	0.35	ug/l	25.0	ND	102	65-130	5	20	
cis-1,3-Dichloropropene	26.4	2.0	0.22	ug/l	25.0	ND	106	70-140	4	20	
trans-1,3-Dichloropropene	26.7	2.0	0.24	ug/l	25.0	ND	107	70-140	3	25	
Ethylbenzene	25.5	2.0	0.25	ug/l	25.0	ND	102	70-130	7	20	
Methylene chloride	27.1	5.0	0.48	ug/l	25.0	ND	108	60-135	6	20	
1,1,2,2-Tetrachloroethane	25.6	2.0	0.24	ug/l	25.0	ND	102	60-145	0	30	
Tetrachloroethene	22.5	2.0	0.32	ug/l	25.0	ND	90	70-130	7	20	
Toluene	25.7	2.0	0.36	ug/l	25.0	0.81	100	70-120	6	20	
1,1,1-Trichloroethane	26.0	2.0	0.30	ug/l	25.0	ND	104	75-140	7	20	
1,1,2-Trichloroethane	25.6	2.0	0.30	ug/l	25.0	ND	102	60-135	4	25	
Trichloroethene	26.2	2.0	0.26	ug/l	25.0	3.2	92	70-125	4	20	
Trichlorofluoromethane	25.5	5.0	0.34	ug/l	25.0	ND	102	55-145	8	25	
Vinyl chloride	23.4	0.50	0.26	ug/l	25.0	ND	94	40-135	7	30	
Surrogate: Dibromofluoromethane	27.0			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120			



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Report Number: IOC0195

Sampled: 03/02/05
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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: 5C03015 Extracted: 03/03/05											
Blank Analyzed: 03/03/2005 (5C03015-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	24.4			ug/l	25.0		98	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			
LCS Analyzed: 03/03/2005 (5C03015-BS1)											
2-Chloroethyl vinyl ether	25.5	5.0	1.3	ug/l	25.0		102	20-175			
Surrogate: Dibromofluoromethane	27.4			ug/l	25.0		110	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			

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Sampled: 03/02/05
Received: 03/02/05

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: 5C03014 Extracted: 03/03/05											
Blank Analyzed: 03/07/2005 (5C03014-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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Sampled: 03/02/05
 Received: 03/02/05

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: 5C03014 Extracted: 03/03/05										
Blank Analyzed: 03/07/2005 (5C03014-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	120			ug/l	200	60	30-120			

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit Limits	RPD	Limit	Data Qualifiers
Batch: 5C03014 Extracted: 03/03/05												
Blank Analyzed: 03/07/2005 (5C03014-BLK1)												
Surrogate: Phenol-d6	126			ug/l	200		63		35-120			
Surrogate: 2,4,6-Tribromophenol	156			ug/l	200		78		45-120			
Surrogate: Nitrobenzene-d5	67.3			ug/l	100		67		45-120			
Surrogate: 2-Fluorobiphenyl	73.3			ug/l	100		73		45-120			
Surrogate: Terphenyl-d14	77.7			ug/l	100		78		45-120			
LCS Analyzed: 03/07/2005 (5C03014-BS1)												
Acenaphthene	74.5	10	4.3	ug/l	100		74		55-120			M-NRI
Acenaphthylene	78.6	10	3.2	ug/l	100		79		55-120			
Aniline	74.7	10	2.9	ug/l	100		75		35-120			
Anthracene	77.1	10	3.2	ug/l	100		77		55-120			
Benimidine	144	20	5.2	ug/l	100		144		20-160			
Benzoic acid	60.5	20	2.6	ug/l	100		60		35-120			
Benzo(a)anthracene	82.4	10	3.7	ug/l	100		82		60-120			
Benzo(b)fluoranthene	82.6	10	2.7	ug/l	100		83		50-120			
Benzo(k)fluoranthene	75.6	10	3.4	ug/l	100		76		50-120			
Benzo(g,h,i)perylene	86.8	10	5.3	ug/l	100		87		40-125			
Benzo(a)pyrene	81.5	10	3.5	ug/l	100		82		55-120			
Benzyl alcohol	75.2	20	2.5	ug/l	100		75		45-120			
Bis(2-chloroethoxy)methane	75.5	10	3.9	ug/l	100		76		55-120			
Bis(2-chloroethyl)ether	63.7	10	4.4	ug/l	100		64		50-120			
Bis(2-chloroisopropyl)ether	70.8	10	4.6	ug/l	100		71		45-120			
Bis(2-ethylhexyl)phthalate	75.1	50	5.2	ug/l	100		75		60-130			
4-Bromophenyl phenyl ether	73.2	10	4.6	ug/l	100		73		50-120			
Butyl benzyl phthalate	72.1	20	3.5	ug/l	100		72		55-125			
4-Chloroaniline	76.4	10	6.0	ug/l	100		76		50-120			
2-Chloronaphthalene	74.1	10	4.0	ug/l	100		74		55-120			
4-Chloro-3-methylphenol	78.6	20	3.5	ug/l	100		79		60-120			
2-Chlorophenol	64.9	10	4.2	ug/l	100		65		45-120			
4-Chlorophenyl phenyl ether	78.1	10	3.0	ug/l	100		78		55-120			
Chrysene	77.6	10	2.8	ug/l	100		78		60-120			
Dibenz(a,h)anthracene	87.6	20	4.7	ug/l	100		88		45-130			
Dibenzofuran	75.4	10	2.6	ug/l	100		75		60-120			
Di-n-butyl phthalate	74.2	20	2.8	ug/l	100		74		55-125			
1,3-Dichlorobenzene	58.5	10	4.1	ug/l	100		58		35-120			
1,4-Dichlorobenzene	60.7	10	3.9	ug/l	100		61		35-120			

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: 5C03014 Extracted: 03/03/05											
LCS Analyzed: 03/07/2005 (5C03014-BS1)											
1,2-Dichlorobenzene	61.2	10	4.5	ug/l	100	61	35-120				M-NRI
3,3-Dichlorobenzidine	95.4	20	11	ug/l	100	95	45-130				
2,4-Dichlorophenol	74.6	10	4.1	ug/l	100	75	55-120				
Diethyl phthalate	69.0	10	3.1	ug/l	100	69	55-120				
2,4-Dimethylphenol	57.8	20	4.4	ug/l	100	58	30-120				
Dimethyl phthalate	71.7	10	3.6	ug/l	100	72	60-120				
4,6-Dinitro-2-methylphenol	75.5	20	5.1	ug/l	100	76	50-120				
2,4-Dinitrophenol	69.9	20	5.3	ug/l	100	70	40-120				
2,4-Dinitrotoluene	71.3	10	4.2	ug/l	100	71	60-120				
2,6-Dinitrotoluene	72.6	10	3.2	ug/l	100	73	60-120				
Di-n-octyl phthalate	76.5	20	4.7	ug/l	100	76	60-130				
Fluoranthene	85.3	10	4.2	ug/l	100	85	55-120				
Fluorene	77.8	10	3.9	ug/l	100	78	60-120				
Hexachlorobenzene	76.9	10	4.8	ug/l	100	77	50-120				
Hexachlorobutadiene	66.4	10	4.2	ug/l	100	66	40-120				
Hexachlorocyclopentadiene	57.9	20	3.4	ug/l	100	58	15-120				
Hexachloroethane	58.8	10	4.2	ug/l	100	59	35-120				
Indeno(1,2,3-cd)pyrene	83.6	20	5.4	ug/l	100	84	40-130				
Isophorone	69.8	10	3.7	ug/l	100	70	50-120				
2-Methylnaphthalene	74.1	10	3.0	ug/l	100	74	50-120				
2-Methylphenol	68.1	10	3.7	ug/l	100	68	45-120				
4-Methylphenol	72.6	10	3.8	ug/l	100	73	45-120				
Naphthalene	72.5	10	4.5	ug/l	100	72	50-120				
2-Nitroaniline	82.3	20	3.9	ug/l	100	82	60-120				
3-Nitroaniline	80.5	20	4.5	ug/l	100	80	55-120				
4-Nitroaniline	83.4	20	4.9	ug/l	100	83	50-125				
Nitrobenzene	66.9	20	4.2	ug/l	100	67	50-120				
2-Nitrophenol	73.5	10	4.2	ug/l	100	74	55-120				
4-Nitrophenol	73.1	20	6.6	ug/l	100	73	45-120				
N-Nitrosodiphenylamine	70.9	10	4.0	ug/l	100	71	55-120				
N-Nitroso-di-n-propylamine	69.7	10	3.6	ug/l	100	70	45-120				
Pentachlorophenol	78.6	20	4.0	ug/l	100	79	50-120				
Phenanthrene	76.4	10	3.3	ug/l	100	76	55-120				
Phenol	69.3	10	4.0	ug/l	100	69	45-120				
Pyrene	76.9	10	3.9	ug/l	100	77	50-120				

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
Received: 03/02/05

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: 5C03014 Extracted: 03/03/05											
LCS Analyzed: 03/07/2005 (5C03014-BS1)											
1,2,4-Trichlorobenzene	65.2	10	4.4	ug/l	100	65	45-120				M-NR1
2,4,5-Trichlorophenol	80.7	20	3.6	ug/l	100	81	60-120				
2,4,6-Trichlorophenol	79.9	20	4.1	ug/l	100	80	60-120				
1,2-Diphenylhydrazine/Azobenzene	76.2	20	5.0	ug/l	100	76	60-120				
N-Nitrosodimethylamine	67.3	20	3.7	ug/l	100	67	40-120				
Surrogate: 2-Fluorophenol	121			ug/l	200	60	30-120				
Surrogate: Phenol-d6	132			ug/l	200	66	35-120				
Surrogate: 2,4,6-Tribromophenol	171			ug/l	200	86	45-120				
Surrogate: Nitrobenzene-d5	69.9			ug/l	100	70	45-120				
Surrogate: 2-Fluorobiphenyl	74.1			ug/l	100	74	45-120				
Surrogate: Terphenyl-d14	76.2			ug/l	100	76	45-120				
LCS Dup Analyzed: 03/07/2005 (5C03014-BSD1)											
Acenaphthene	83.1	10	4.3	ug/l	100	83	55-120	11	20		
Acenaphthylene	86.5	10	3.2	ug/l	100	86	55-120	10	20		
Aniline	70.6	10	2.9	ug/l	100	71	35-120	6	25		
Anthracene	84.6	10	3.2	ug/l	100	85	55-120	9	20		
Benzidine	26.4	20	5.2	ug/l	100	26	20-160	138	35		R-7
Benzoic acid	62.9	20	2.6	ug/l	100	63	35-120	4	30		
Benzo(a)anthracene	86.6	10	3.7	ug/l	100	87	60-120	5	20		
Benzo(b)fluoranthene	84.0	10	2.7	ug/l	100	84	50-120	2	25		
Benzo(k)fluoranthene	82.8	10	3.4	ug/l	100	83	50-120	9	20		
Benzo(g,h,i)perylene	90.3	10	5.3	ug/l	100	90	40-125	4	25		
Benzo(a)pyrene	87.0	10	3.5	ug/l	100	87	55-120	7	25		
Benzyl alcohol	80.5	20	2.5	ug/l	100	80	45-120	7	20		
Bis(2-chloroethoxy)methane	81.9	10	3.9	ug/l	100	82	55-120	8	20		
Bis(2-chloroethyl)ether	70.2	10	4.4	ug/l	100	70	50-120	10	20		
Bis(2-chloroisopropyl)ether	78.0	10	4.6	ug/l	100	78	45-120	10	20		
Bis(2-ethylhexyl)phthalate	82.1	50	5.2	ug/l	100	82	60-130	9	20		
4-Bromophenyl phenyl ether	78.6	10	4.6	ug/l	100	79	50-120	7	25		
Butyl benzyl phthalate	79.1	20	3.5	ug/l	100	79	55-125	9	20		
4-Chloroaniline	80.0	10	6.0	ug/l	100	80	50-120	5	25		
2-Chloronaphthalene	81.2	10	4.0	ug/l	100	81	55-120	9	20		
4-Chloro-3-methylphenol	83.0	20	3.5	ug/l	100	83	60-120	5	25		
2-Chlorophenol	72.1	10	4.2	ug/l	100	72	45-120	11	25		
4-Chlorophenyl phenyl ether	87.6	10	3.0	ug/l	100	88	55-120	11	20		

Del Mar Analytical, Irvine
Michele Harper
Project Manager

MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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: 5C03014 Extracted: 03/03/05											
LCS Dup Analyzed: 03/07/2005 (5C03014-BSD1)											
Chrysene	83.9	10	2.8	ug/l	100	84	60-120	8	20		
Dibenz(a,h)anthracene	91.2	20	4.7	ug/l	100	91	45-130	4	25		
Dibenzofuran	83.6	10	2.6	ug/l	100	84	60-120	10	20		
Di-n-butyl phthalate	82.7	20	2.8	ug/l	100	83	55-125	11	20		
1,3-Dichlorobenzene	66.4	10	4.1	ug/l	100	66	35-120	13	25		
1,4-Dichlorobenzene	69.6	10	3.9	ug/l	100	70	35-120	14	25		
1,2-Dichlorobenzene	68.0	10	4.5	ug/l	100	68	35-120	11	25		
3,3-Dichlorobenzidine	95.8	20	11	ug/l	100	96	45-130	0	25		
2,4-Dichlorophenol	80.8	10	4.1	ug/l	100	81	55-120	8	20		
Diethyl phthalate	79.0	10	3.1	ug/l	100	79	55-120	14	20		
2,4-Dimethylphenol	68.3	20	4.4	ug/l	100	68	30-120	17	25		
Dimethyl phthalate	79.3	10	3.6	ug/l	100	79	60-120	10	20		
4,6-Dinitro-2-methylphenol	79.5	20	5.1	ug/l	100	80	50-120	5	25		
2,4-Dinitrophenol	76.3	20	5.3	ug/l	100	76	40-120	9	25		
2,4-Dinitrotoluene	82.0	10	4.2	ug/l	100	82	60-120	14	20		
2,6-Dinitrotoluene	79.4	10	3.2	ug/l	100	79	60-120	9	20		
Di-n-octyl phthalate	79.9	20	4.7	ug/l	100	80	60-130	4	20		
Fluoranthene	93.3	10	4.2	ug/l	100	93	55-120	9	20		
Fluorene	88.4	10	3.9	ug/l	100	88	60-120	13	20		
Hexachlorobenzene	84.6	10	4.8	ug/l	100	85	50-120	10	20		
Hexachlorobutadiene	73.6	10	4.2	ug/l	100	74	40-120	10	25		
Hexachlorocyclopentadiene	61.1	20	3.4	ug/l	100	61	15-120	5	30		
Hexachloroethane	67.6	10	4.2	ug/l	100	68	35-120	14	25		
Indeno(1,2,3-cd)pyrene	88.5	20	5.4	ug/l	100	88	40-130	6	25		
Isophorone	74.5	10	3.7	ug/l	100	74	50-120	7	20		
2-Methylnaphthalene	81.1	10	3.0	ug/l	100	81	50-120	9	20		
2-Methylphenol	74.5	10	3.7	ug/l	100	74	45-120	9	20		
4-Methylphenol	78.4	10	3.8	ug/l	100	78	45-120	8	20		
Naphthalene	80.1	10	4.5	ug/l	100	80	50-120	10	20		
2-Nitroaniline	89.1	20	3.9	ug/l	100	89	60-120	8	20		
3-Nitroaniline	87.6	20	4.5	ug/l	100	88	55-120	8	25		
4-Nitroaniline	93.8	20	4.9	ug/l	100	94	50-125	12	20		
Nitrobenzene	73.6	20	4.2	ug/l	100	74	50-120	10	25		
2-Nitrophenol	80.8	10	4.2	ug/l	100	81	55-120	9	25		
4-Nitrophenol	81.9	20	6.6	ug/l	100	82	45-120	11	25		

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - Annual Report Number: IOC0195	Sampled: 03/02/05 Received: 03/02/05
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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 Limit	Data Qualifiers
Batch: 5C03014 Extracted: 03/03/05											
LCS Dup Analyzed: 03/07/2005 (5C03014-BSD1)											
N-Nitrosodiphenylamine	74.4	10	4.0	ug/l	100	74	55-120	5	20		
N-Nitroso-di-n-propylamine	74.4	10	3.6	ug/l	100	74	45-120	7	20		
Pentachlorophenol	84.4	20	4.0	ug/l	100	84	50-120	7	25		
Phenanthrene	84.0	10	3.3	ug/l	100	84	55-120	9	20		
Phenol	74.1	10	4.0	ug/l	100	74	45-120	7	25		
Pyrene	85.1	10	3.9	ug/l	100	85	50-120	10	25		
1,2,4-Trichlorobenzene	72.0	10	4.4	ug/l	100	72	45-120	10	20		
2,4,5-Trichlorophenol	89.4	20	3.6	ug/l	100	89	60-120	10	20		
2,4,6-Trichlorophenol	87.7	20	4.1	ug/l	100	88	60-120	9	20		
1,2-Diphenylhydrazine/Azobenzene	86.1	20	5.0	ug/l	100	86	60-120	12	25		
N-Nitrosodimethylamine	70.7	20	3.7	ug/l	100	71	40-120	5	20		
Surrogate: 2-Fluorophenol	133			ug/l	200	66	30-120				
Surrogate: Phenol-d6	141			ug/l	200	70	35-120				
Surrogate: 2,4,6-Tribromophenol	179			ug/l	200	90	45-120				
Surrogate: Nitrobenzene-d5	78.3			ug/l	100	78	45-120				
Surrogate: 2-Fluorobiphenyl	81.6			ug/l	100	82	45-120				
Surrogate: Terphenyl-d14	81.8			ug/l	100	82	45-120				

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Michele Harper
Project Manager



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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: 5C04051 Extracted: 03/04/05

Blank Analyzed: 03/04/2005-03/07/2005 (5C04051-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.020	ug/l						
Chlordane	ND	1.0	0.20	ug/l						
4,4'-DDD	ND	0.10	0.020	ug/l						
4,4'-DDE	ND	0.10	0.025	ug/l						
4,4'-DDT	ND	0.10	0.030	ug/l						
Dieldrin	ND	0.10	0.015	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.040	ug/l						
Endosulfan sulfate	ND	0.20	0.015	ug/l						
Endrin	ND	0.10	0.020	ug/l						
Endrin aldehyde	ND	0.10	0.045	ug/l						
Endrin ketone	ND	0.10	0.020	ug/l						
Heptachlor	ND	0.10	0.030	ug/l						
Heptachlor epoxide	ND	0.10	0.020	ug/l						
Methoxychlor	ND	0.10	0.035	ug/l						
Toxaphene	ND	5.0	1.5	ug/l						
Surrogate: Tetrachloro-m-xylene	0.364			ug/l	0.500		73		35-120	
Surrogate: Decachlorobiphenyl	0.408			ug/l	0.500		82		45-120	

LCS Analyzed: 03/04/2005 (5C04051-BS1)

Aldrin	0.340	0.10	0.030	ug/l	0.500		68		45-115	
alpha-BHC	0.320	0.10	0.015	ug/l	0.500		64		45-115	
beta-BHC	0.385	0.10	0.015	ug/l	0.500		77		50-115	
delta-BHC	0.428	0.20	0.020	ug/l	0.500		86		55-120	
gamma-BHC (Lindane)	0.374	0.10	0.020	ug/l	0.500		75		45-115	
4,4'-DDD	0.431	0.10	0.020	ug/l	0.500		86		60-120	
4,4'-DDE	0.428	0.10	0.025	ug/l	0.500		86		55-120	
4,4'-DDT	0.448	0.10	0.030	ug/l	0.500		90		60-130	
Dieldrin	0.401	0.10	0.015	ug/l	0.500		80		55-120	
Endosulfan I	0.374	0.10	0.015	ug/l	0.500		75		50-115	
Endosulfan II	0.404	0.10	0.040	ug/l	0.500		81		60-125	
Endosulfan sulfate	0.411	0.20	0.015	ug/l	0.500		82		60-120	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - Annual Report Number: IOC0195	Sampled: 03/02/05 Received: 03/02/05
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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C04051 Extracted: 03/04/05											
LCS Analyzed: 03/04/2005 (5C04051-BS1)											
Endrin	0.409	0.10	0.020	ug/l	0.500		82	55-125			
Endrin aldehyde	0.398	0.10	0.045	ug/l	0.500		80	55-115			
Endrin ketone	0.417	0.10	0.020	ug/l	0.500		83	60-120			
Heptachlor	0.371	0.10	0.030	ug/l	0.500		74	45-115			
Heptachlor epoxide	0.381	0.10	0.020	ug/l	0.500		76	50-120			
Methoxychlor	0.429	0.10	0.035	ug/l	0.500		86	60-135			
Surrogate: Tetrachloro-m-xylene	0.321			ug/l	0.500		64	35-120			
Surrogate: Decachlorobiphenyl	0.396			ug/l	0.500		79	45-120			
Matrix Spike Analyzed: 03/04/2005 (5C04051-MS1)											
Source: IOB2149-04											
Aldrin	0.703	0.20	0.060	ug/l	1.00	ND	70	45-115			
alpha-BHC	0.683	0.20	0.030	ug/l	1.00	ND	68	45-115			
beta-BHC	0.777	0.20	0.030	ug/l	1.00	ND	78	50-115			
delta-BHC	0.867	0.40	0.040	ug/l	1.00	ND	87	55-120			
gamma-BHC (Lindane)	0.791	0.20	0.040	ug/l	1.00	ND	79	45-115			
4,4'-DDD	0.870	0.20	0.040	ug/l	1.00	ND	87	60-120			
4,4'-DDE	0.863	0.20	0.050	ug/l	1.00	ND	86	55-120			
4,4'-DDT	0.916	0.20	0.060	ug/l	1.00	ND	92	60-130			
Dieldrin	0.818	0.20	0.030	ug/l	1.00	ND	82	55-120			
Endosulfan I	0.766	0.20	0.030	ug/l	1.00	ND	77	50-115			
Endosulfan II	0.816	0.20	0.080	ug/l	1.00	ND	82	60-125			
Endosulfan sulfate	0.833	0.40	0.030	ug/l	1.00	ND	83	60-120			
Endrin	0.831	0.20	0.040	ug/l	1.00	ND	83	55-125			
Endrin aldehyde	0.804	0.20	0.090	ug/l	1.00	ND	80	55-115			
Endrin ketone	0.846	0.20	0.040	ug/l	1.00	ND	85	60-120			
Heptachlor	0.791	0.20	0.060	ug/l	1.00	ND	79	45-115			
Heptachlor epoxide	0.785	0.20	0.040	ug/l	1.00	ND	78	50-120			
Methoxychlor	0.866	0.20	0.070	ug/l	1.00	ND	87	60-135			
Surrogate: Tetrachloro-m-xylene	0.683			ug/l	1.00		68	35-120			
Surrogate: Decachlorobiphenyl	0.790			ug/l	1.00		79	45-120			

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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C04051 Extracted: 03/04/05											
Matrix Spike Dup Analyzed: 03/05/2005 (5C04051-MSD1)						Source: IOB2149-04					
Aldrin	0.797	0.20	0.060	ug/l	1.00	ND	80	45-115	13	30	
alpha-BHC	0.735	0.20	0.030	ug/l	1.00	ND	74	45-115	7	30	
beta-BHC	0.862	0.20	0.030	ug/l	1.00	ND	86	50-115	10	30	
delta-BHC	0.957	0.40	0.040	ug/l	1.00	ND	96	55-120	10	30	
gamma-BHC (Lindane)	0.852	0.20	0.040	ug/l	1.00	ND	85	45-115	7	30	
4,4'-DDD	0.992	0.20	0.040	ug/l	1.00	ND	99	60-120	13	30	
4,4'-DDE	0.970	0.20	0.050	ug/l	1.00	ND	97	55-120	12	30	
4,4'-DDT	1.02	0.20	0.060	ug/l	1.00	ND	102	60-130	11	30	
Dieldrin	0.908	0.20	0.030	ug/l	1.00	ND	91	55-120	10	30	
Endosulfan I	0.845	0.20	0.030	ug/l	1.00	ND	84	50-115	10	30	
Endosulfan II	0.921	0.20	0.080	ug/l	1.00	ND	92	60-125	12	30	
Endosulfan sulfate	0.946	0.40	0.030	ug/l	1.00	ND	95	60-120	13	30	
Endrin	0.927	0.20	0.040	ug/l	1.00	ND	93	55-125	11	30	
Endrin aldehyde	0.916	0.20	0.090	ug/l	1.00	ND	92	55-115	13	30	
Endrin ketone	0.970	0.20	0.040	ug/l	1.00	ND	97	60-120	14	30	
Heptachlor	0.851	0.20	0.060	ug/l	1.00	ND	85	45-115	7	30	
Heptachlor epoxide	0.855	0.20	0.040	ug/l	1.00	ND	86	50-120	9	30	
Methoxychlor	1.01	0.20	0.070	ug/l	1.00	ND	101	60-135	15	30	
Surrogate: Tetrachloro-m-xylene	0.734			ug/l	1.00		73	35-120			
Surrogate: Decachlorobiphenyl	0.907			ug/l	1.00		91	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: 5C04051 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005-03/07/2005 (5C04051-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	0.399			ug/l	0.500		80		45-120	
LCS Analyzed: 03/07/2005 (5C04051-BS2)										
Aroclor 1016	2.65	1.0	0.20	ug/l	4.00		66		50-115	
Aroclor 1260	3.00	1.0	0.40	ug/l	4.00		75		60-115	
Surrogate: Decachlorobiphenyl	0.408			ug/l	0.500		82		45-120	
Matrix Spike Analyzed: 03/07/2005 (5C04051-MS2)										
						Source: IOB2149-04				
Aroclor 1016	5.61	2.0	0.40	ug/l	8.00	ND	70		50-115	
Aroclor 1260	6.35	2.0	0.80	ug/l	8.00	ND	79		60-115	
Surrogate: Decachlorobiphenyl	0.819			ug/l	1.00		82		45-120	
Matrix Spike Dup Analyzed: 03/07/2005 (5C04051-MSD2)										
						Source: IOB2149-04				
Aroclor 1016	5.47	2.0	0.40	ug/l	8.00	ND	68	3	50-115	30
Aroclor 1260	5.86	2.0	0.80	ug/l	8.00	ND	73	8	60-115	25
Surrogate: Decachlorobiphenyl	0.756			ug/l	1.00		76		45-120	

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C03115 Extracted: 03/03/05											
Blank Analyzed: 03/03/2005 (5C03115-BLK1)											
Mercury	ND	0.00020	0.000063	mg/l							
LCS Analyzed: 03/03/2005 (5C03115-BS1)											
Mercury	0.00794	0.00020	0.000063	mg/l	0.00800		99	85-115			
Matrix Spike Analyzed: 03/03/2005 (5C03115-MS1)											
						Source: IOC0135-08					
Mercury	0.00811	0.00020	0.000063	mg/l	0.00800	ND	101	70-130			
Matrix Spike Dup Analyzed: 03/03/2005 (5C03115-MSD1)											
						Source: IOC0135-08					
Mercury	0.00815	0.00020	0.000063	mg/l	0.00800	ND	102	70-130	1	20	
Batch: 5C05038 Extracted: 03/05/05											
Blank Analyzed: 03/07/2005 (5C05038-BLK1)											
Antimony	ND	0.010	0.0042	mg/l							
Arsenic	ND	0.0050	0.0038	mg/l							
Beryllium	ND	0.0020	0.00062	mg/l							
Cadmium	ND	0.0050	0.00034	mg/l							
Chromium	ND	0.0050	0.00068	mg/l							
Copper	ND	0.010	0.0017	mg/l							
Lead	ND	0.0050	0.0021	mg/l							
Nickel	ND	0.010	0.0020	mg/l							
Selenium	ND	0.010	0.0046	mg/l							
Silver	ND	0.010	0.0013	mg/l							
Thallium	ND	0.010	0.0031	mg/l							
Zinc	ND	0.020	0.0037	mg/l							

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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	Limit	Data Qualifiers
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Batch: 5C05038 Extracted: 03/05/05

LCS Analyzed: 03/07/2005 (5C05038-BS1)

Antimony	0.520	0.010	0.0042	mg/l	0.500		104	85-115			
Arsenic	0.493	0.0050	0.0038	mg/l	0.500		99	85-115			
Beryllium	0.493	0.0020	0.00062	mg/l	0.500		99	85-115			
Cadmium	0.489	0.0050	0.00034	mg/l	0.500		98	85-115			
Chromium	0.497	0.0050	0.00068	mg/l	0.500		99	85-115			
Copper	0.470	0.010	0.0017	mg/l	0.500		94	85-115			
Lead	0.506	0.0050	0.0021	mg/l	0.500		101	85-115			
Nickel	0.487	0.010	0.0020	mg/l	0.500		97	85-115			
Selenium	0.485	0.010	0.0046	mg/l	0.500		97	85-115			
Silver	0.250	0.010	0.0013	mg/l	0.250		100	85-115			
Thallium	0.486	0.010	0.0031	mg/l	0.500		97	85-115			
Zinc	0.472	0.020	0.0037	mg/l	0.500		94	85-115			

Matrix Spike Analyzed: 03/07/2005 (5C05038-MS1)

Source: IOC0194-08

Antimony	0.544	0.010	0.0042	mg/l	0.500	ND	109	70-130			
Arsenic	0.520	0.0050	0.0038	mg/l	0.500	ND	104	70-130			
Beryllium	0.514	0.0020	0.00062	mg/l	0.500	ND	103	70-130			
Cadmium	0.510	0.0050	0.00034	mg/l	0.500	ND	102	70-130			
Chromium	0.509	0.0050	0.00068	mg/l	0.500	0.0012	102	70-130			
Copper	0.542	0.010	0.0017	mg/l	0.500	0.0047	107	70-130			
Lead	0.528	0.0050	0.0021	mg/l	0.500	ND	106	70-130			
Nickel	0.518	0.010	0.0020	mg/l	0.500	ND	104	70-130			
Selenium	0.479	0.010	0.0046	mg/l	0.500	ND	96	70-130			
Silver	0.258	0.010	0.0013	mg/l	0.250	ND	103	70-130			
Thallium	0.497	0.010	0.0031	mg/l	0.500	ND	99	70-130			
Zinc	0.524	0.020	0.0037	mg/l	0.500	0.0053	104	70-130			

Matrix Spike Dup Analyzed: 03/07/2005 (5C05038-MSD1)

Source: IOC0194-08

Antimony	0.548	0.010	0.0042	mg/l	0.500	ND	110	70-130	1	20	
Arsenic	0.523	0.0050	0.0038	mg/l	0.500	ND	105	70-130	1	20	
Beryllium	0.515	0.0020	0.00062	mg/l	0.500	ND	103	70-130	0	20	
Cadmium	0.512	0.0050	0.00034	mg/l	0.500	ND	102	70-130	0	20	
Chromium	0.512	0.0050	0.00068	mg/l	0.500	0.0012	102	70-130	1	20	
Copper	0.543	0.010	0.0017	mg/l	0.500	0.0047	108	70-130	0	20	
Lead	0.530	0.0050	0.0021	mg/l	0.500	ND	106	70-130	0	20	
Nickel	0.518	0.010	0.0020	mg/l	0.500	ND	104	70-130	0	20	

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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: 5C05038 Extracted: 03/05/05											
Matrix Spike Dup Analyzed: 03/07/2005 (5C05038-MSD1)						Source: IOC0194-08					
Selenium	0.481	0.010	0.0046	mg/l	0.500	ND	96	70-130	0	20	
Silver	0.257	0.010	0.0013	mg/l	0.250	ND	103	70-130	0	20	
Thallium	0.506	0.010	0.0031	mg/l	0.500	ND	101	70-130	2	20	
Zinc	0.524	0.020	0.0037	mg/l	0.500	0.0053	104	70-130	0	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C03078 Extracted: 03/03/05											
Blank Analyzed: 03/08/2005 (5C03078-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/08/2005 (5C03078-BS1)											
Biochemical Oxygen Demand	197	100	30	mg/l	198		99	85-115			
LCS Dup Analyzed: 03/08/2005 (5C03078-BSD1)											
Biochemical Oxygen Demand	196	100	30	mg/l	198		99	85-115	1	20	
Batch: 5C03114 Extracted: 03/03/05											
Blank Analyzed: 03/07/2005 (5C03114-BLK1)											
Total Cyanide	0.00300	0.0050	0.0022	mg/l							J
LCS Analyzed: 03/07/2005 (5C03114-BS1)											
Total Cyanide	0.184	0.0050	0.0022	mg/l	0.200		92	90-110			
Matrix Spike Analyzed: 03/07/2005 (5C03114-MS1)											
Total Cyanide	0.172	0.0050	0.0022	mg/l	0.200	ND	86	70-115			
Matrix Spike Dup Analyzed: 03/07/2005 (5C03114-MSD1)											
Total Cyanide	0.173	0.0050	0.0022	mg/l	0.200	ND	86	70-115	1	15	
Batch: 5C04085 Extracted: 03/04/05											
Blank Analyzed: 03/04/2005 (5C04085-BLK1)											
Turbidity	0.0600	1.0	0.040	NTU							J

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C04085 Extracted: 03/04/05										
Duplicate Analyzed: 03/04/2005 (5C04085-DUP1)					Source: IOC0252-01					
Turbidity	5.11	1.0	0.040	NTU		5.1		0	20	
Batch: 5C04089 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04089-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/04/2005 (5C04089-BS1)										
Total Dissolved Solids	1040	10	10	mg/l	1000		104 90-110			
Duplicate Analyzed: 03/04/2005 (5C04089-DUP1)					Source: IOC0261-01					
Total Dissolved Solids	277	10	10	mg/l		300		8	10	
Batch: 5C04101 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04101-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/04/2005 (5C04101-BS1)										
Total Suspended Solids	983	10	10	mg/l	1000		98 85-115			
Duplicate Analyzed: 03/04/2005 (5C04101-DUP1)					Source: IOB2158-01					
Total Suspended Solids	ND	10	10	mg/l		ND			10	
Batch: 5C07070 Extracted: 03/07/05										
Blank Analyzed: 03/07/2005 (5C07070-BLK1)										
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l						

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



Del Mar Analytical

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - Annual Report Number: IOC0195	Sampled: 03/02/05 Received: 03/02/05
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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: 5C07070 Extracted: 03/07/05											
LCS Analyzed: 03/07/2005 (5C07070-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/07/2005 (5C07070-MS1) Source: IOB2063-01											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0	ND	98	70-120			
Matrix Spike Dup Analyzed: 03/07/2005 (5C07070-MSD1) Source: IOB2063-01											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	3	15	
Batch: 5C07071 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07071-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/07/2005 (5C07071-BS1) M-NR1											
Oil & Grease	19.1	5.0	0.94	mg/l	20.0		96	65-120			
LCS Dup Analyzed: 03/07/2005 (5C07071-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	2	20	
Batch: 5C08052 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08052-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/08/2005 (5C08052-BS1)											
Perchlorate	50.0	4.0	0.80	ug/l	50.0		100	85-115			

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: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08052 Extracted: 03/08/05											
Matrix Spike Analyzed: 03/08/2005 (5C08052-MS1)						Source: IOC0163-01					
Perchlorate	57.4	4.0	0.80	ug/l	50.0	ND	115	80-120			
Matrix Spike Dup Analyzed: 03/08/2005 (5C08052-MSD1)						Source: IOC0163-01					
Perchlorate	57.2	4.0	0.80	ug/l	50.0	ND	114	80-120	0	20	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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



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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

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	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: P5C0504 Extracted: 03/05/05											
Blank Analyzed: 03/05/2005 (P5C0504-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	0.930			ug/l	1.00		93	80-125			
LCS Analyzed: 03/05/2005 (P5C0504-BS1)											
1,4-Dioxane	11.7	1.0	0.49	ug/l	10.0		117	70-130			
Surrogate: Dibromofluoromethane	0.930			ug/l	1.00		93	80-125			
LCS Dup Analyzed: 03/05/2005 (P5C0504-BSD1)											
1,4-Dioxane	11.3	1.0	0.49	ug/l	10.0		113	70-130	3	20	
Surrogate: Dibromofluoromethane	0.930			ug/l	1.00		93	80-125			
Matrix Spike Analyzed: 03/05/2005 (P5C0504-MS1) Source: POB0800-02											
1,4-Dioxane	12.6	1.0	0.49	ug/l	10.0	0.87	117	70-150			
Surrogate: Dibromofluoromethane	0.920			ug/l	1.00		92	80-125			
Matrix Spike Dup Analyzed: 03/05/2005 (P5C0504-MSD1) Source: POB0800-02											
1,4-Dioxane	12.0	1.0	0.49	ug/l	10.0	0.87	111	70-150	5	25	
Surrogate: Dibromofluoromethane	0.920			ug/l	1.00		92	80-125			

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
Received: 03/02/05

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.
- P1** Sample received and analyzed without chemical preservation.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- RL-2** Reporting limit raised due to high concentrations of hydrocarbons.
- 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.

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.



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

Project ID: Alfa Outfall 012 - Annual

Report Number: IOC0195

Sampled: 03/02/05
 Received: 03/02/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
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 245.1	Water	X	X
EPA 314.0	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
SM2540C	Water	X	X

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: IOC0195-01

Analysis Performed: EDD + Level 4

Samples: IOC0195-01

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: IOC0195-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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March 25, 2005

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

Attention: Bronwyn Kelly
Project: Alfa Outfall 012 - Annual
Sampled: 03/02/05
Del Mar Analytical Number: IOC0195

Dear Ms. Kelly:

Alta Analytical performed the PCDD/PCDF analysis by EPA 1613B for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ALTA ID
Outfall 012	IOC0195-01	25837-001

Attached is the original report from the subcontract laboratory. If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25837

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 04, 2005 under your Project Name "IOC0195". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762
FAX (916) 673-0106

Section I: Sample Inventory Report

Date Received: 3/4/2005

Alta Lab. ID

Client Sample ID

25837-001

IOC0195-01

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

Footnotes

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

Analyst: MAS Approved By: Martha M. Maier 16-Mar-2005 08:56

OPR Results		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	6593	Lab Sample:	0-OPR001	
Sample Size:	1,000 L	Date Extracted:	11-Mar-05	Date Analyzed DB-5:	14-Mar-05	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.28	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164
1,2,3,7,8-PeCDD	50.0	47.1	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	49.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141
1,2,3,6,7,8-HxCDD	50.0	49.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130
1,2,3,7,8,9-HxCDD	50.0	49.4	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	51.7	35 - 70	13C-OCDD	38.7	17 - 157
OCDD	100	104	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169
2,3,7,8-TCDF	10.0	9.58	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185
1,2,3,7,8-PeCDF	50.0	51.8	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178
2,3,4,7,8-PeCDF	50.0	51.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152
1,2,3,4,7,8-HxCDF	50.0	53.8	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	53.7	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	53.8	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147
1,2,3,7,8,9-HxCDF	50.0	51.8	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	54.5	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	65.7	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	56.0	39 - 69	13C-OCDF	44.9	17 - 157
OCDF	100	109	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 08:56

Sample ID: IOC0195-01

EPA Method 1613

Client Data

Name: Del Mar Analytical, Irvine
 Project: IOC0195
 Date Collected: 2-Mar-05
 Time Collected: 1443

Sample Data

Matrix: Aqueous
 Sample Size: 0.987 L

Laboratory Data

Lab Sample: 25837-001 Date Received: 4-Mar-05
 QC Batch No.: 6593 Date Extracted: 11-Mar-05
 Date Analyzed DB-5: 15-Mar-05 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCI ^d	Qualifiers
2,3,7,8-TCDD	ND	1.22			IS 13C-2,3,7,8-TCDD	44.2	25 - 164	
1,2,3,7,8-PeCDD	ND	1.06			13C-1,2,3,7,8-PeCDD	45.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.07			13C-1,2,3,4,7,8-HxCDD	53.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.20			13C-1,2,3,6,7,8-HxCDD	55.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.13			13C-1,2,3,4,6,7,8-HpCDD	52.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	14.8				13C-OCDD	36.5	17 - 157	
OCDD	168			J	13C-2,3,7,8-TCDF	45.3	24 - 169	
2,3,7,8-TCDF	ND	1.20			13C-1,2,3,7,8-PeCDF	42.0	24 - 185	
1,2,3,7,8-PeCDF	ND	1.79			13C-2,3,4,7,8-PeCDF	43.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.53			13C-1,2,3,4,7,8-HxCDF	42.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.976			13C-1,2,3,6,7,8-HxCDF	48.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.916			13C-2,3,4,6,7,8-HxCDF	47.9	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.06			13C-1,2,3,7,8,9-HxCDF	48.3	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.52			13C-1,2,3,4,6,7,8-HpCDF	46.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	4.82			J	13C-1,2,3,4,7,8,9-HpCDF	53.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.47			13C-OCDF	41.6	17 - 157	
OCDF	ND		9.11		CRS 37Cl-2,3,7,8-TCDD	68.3	35 - 197	

Totals

Total TCDD	ND	1.22		
Total PeCDD	ND	1.06		
Total HxCDD	2.69			
Total HpCDD	38.8			
Total TCDF	ND	1.20		
Total PeCDF	ND	1.66		
Total HxCDF	3.45			
Total HpCDF	11.2			

Footnotes

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

Analyst: JMH

Approved By: Martha M. Maier 16-Mar-2005 08:56

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)



Del Mar Analytical

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 0484 Chesapeake Drive, Suite 805, San Diego, CA 92123
 9533 South 51st Street, Suite B-120, Phoenix, AZ 85044
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 Ph (909) 570-1587 Fax (909) 570-1018
 Ph (619) 505-9590 Fax (619) 505-0890
 Ph (480) 795-0043 Fax (480) 795-0891
 Ph (702) 798-9220 Fax (702) 798-9821

SUBCONTRACT ORDER - PROJECT # IOC0195

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

25837 1.8°C

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

Analysis	Expiration	Comments
----------	------------	----------

Sample ID: IOC0195-01 Water	Sampled: 03/02/05 14:43	
1613-Dioxin-HR	03/09/05 14:43	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4-OUT	03/30/05 14:43	Excel EDD email to pm, Include Std logs for Lvl IV

Containers Supplied:
 1 L Amber (IOC0195-01AA)
 1 L Amber (IOC0195-01AB)

*← revised
 MH
 3/3/05*

Sampler = P.P.

*MH
 3/3/05*

SAMPLE INTEGRITY:

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

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

Released By	Date	Time	Received By	Date	Time
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 9530 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 # IOC0195

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical, Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Harper	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <i>25837 1.8C</i>

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

Analysis	Expiration	Comments
Sample ID: IOC0195-01 Water	Sampled: 03/02/05 14:43	
1613-Dioxin (TCDD)	03/09/05 14:43	TCDD only, Sub=Alta Labs, PP, J flags, no TEQ
EDD + Level 4-OUT	03/30/05 14:43	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0195-01AA)		
1 L Amber (IOC0195-01AB)		

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): _____

 3-3-05 1700 *Bettina Benedict* 3/4/05 0910
 Released By _____ Date _____ Time _____ Received By _____ Date _____ Time _____

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

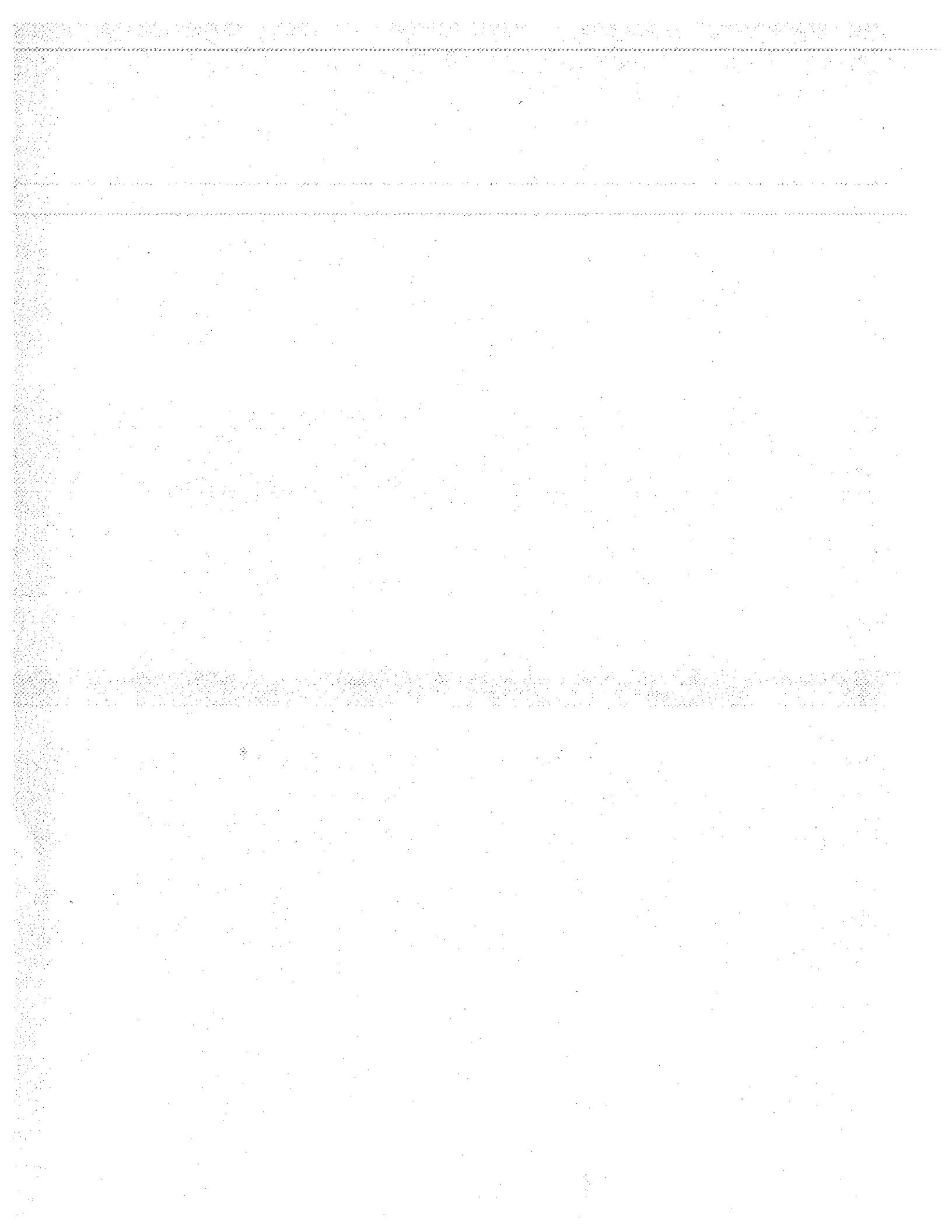
SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25837

1. Date Samples Arrived: <u>03/04/05 0910</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1105 3/4/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> / Blue Ice / Dry Ice / None Temp °C <u>1.8</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>7909 3745 9127</u>	✓		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. Intact? If not intact, describe condition in comment section.			✓
9. Sample Container Intact? If no, indicate sample condition in comment section.	✓		
10. Chain of Custody (COC) or other Sample Documentation Present?	✓		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	✓		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		✓	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓

Comments:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV47
 Task Order 313150010
 SDG No. IOC0625

No. of Analyses 1

Laboratory Del Mar

Date: April 6, 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 Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	
COMMENTS ^b	Acceptable as reviewed.
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC0625

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#: IOC0625
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 6, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC0625-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/07/05. The average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for both target compounds. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/11/05. The RRFs for both target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.4 BLANKS

One method blank (5C09037-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (5C09037-BS1) was extracted and analyzed with this SDG. Both percent recoveries were within the laboratory QC limits. A representative number of recoveries were

calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
 Received: 03/08/05

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: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: ug/l									
Naphthalene	EPA 625	5C09037	4.5	10	64	0.962	03/09/05	03/11/05	REV QUAL
N-Nitrosodimethylamine	EPA 625	5C09037	3.7	20	ND	0.962	03/09/05	03/11/05	U
Surrogate: 2-Fluorophenol (30-120%)					62 %				
Surrogate: Phenol-d6 (35-120%)					64 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					89 %				
Surrogate: Nitrobenzene-d5 (45-120%)					82 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					77 %				
Surrogate: Terphenyl-d14 (45-120%)					82 %				

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 T711TF52
 Task Order 313150010
 SDG No. IOC0625

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method GRO by Method 8015M

Date: April 7, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications assigned for the following: --detect reported above the linear range of the calibration --reanalysis rejected in favor of original analysis
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: Total Petroleum Hydrocarbons: Purgeable

SAMPLE DELIVERY GROUP: IOC0625

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#: IOC0625
Project Manager: B. McIlvaine
Matrix: Water
Analysis: TPH-Purgeable
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 1
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 012	Outfall 012	IOC0625-01	water	8015M/GRO
Outfall 012	Outfall 012RE	IOC0625-01RE1	water	8015M/GRO
Trip Blank	Trip Blank	IOC0625-02	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 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 08/26/04 was associated with the retained 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

Two water method blanks (5C10111-BLK1 and 5C15002-BLK1) were associated with the retained sample analyses. GRO (C4-C12) was not detected above the MDL in the method blanks. Review of the raw data indicated no false negative results. No qualifications were necessary.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two water method blank spikes (5C10111-BS1 and 5C15002-BS1) were associated with the retained sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC

limits of 70-140% in both blank spikes. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140% for all analyses. 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 012. 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.

DATA VALIDATION REPORT

Project: NPDES
SDG: IOC0625
Analysis: TPH

According to the case narrative for this SDG, the laboratory attributed the result for GRO above linear range in the initial 5x analysis of the sample to particulates present in the sample "contaminating the instrument." The laboratory reanalyzed the sample at a 100x dilution, effectively diluting the result below a reportable level. In the professional judgment of the reviewer, it was preferable to conservatively report the concentration above linear range. The result was qualified as estimated, "J." The reanalysis result was rejected, "R." No further qualifications were required.



Del Mar Analytical

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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
 Received: 03/08/05

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: IOC0625-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/07/05					<i>very good code</i> J E, N-1 *11
Reporting Units: ug/l										
GRO (C4 - C12)	EPA 8015 Mod.	5C15002	250	500	7400	5	03/15/05	03/15/05		
Surrogate: 4-BFB (FID) (65-140%)					115 %					
Sample ID: IOC0625-01RE1 (DRAFT: Outfall 012 ^{RE} Water)					Sampled: 03/07/05					R N-1 N-1
Reporting Units: ug/l										
GRO (C4 - C12)	EPA 8015 Mod.	5C15005	5000	10000	ND	100	03/15/05	03/16/05		
Surrogate: 4-BFB (FID) (65-140%)					98 %					
Sample ID: IOC0625-02 (DRAFT: Trip Blank - Water)					Sampled: 03/07/05					U
Reporting Units: ug/l										
GRO (C4 - C12)	EPA 8015 Mod.	5C10111	50	100	ND	1	03/10/05	03/11/05		
Surrogate: 4-BFB (FID) (65-140%)					88 %					

WKC
 04-07-05

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF53
 Task Order 313150010
 SDG No. IOC0625

No. of Analyses 1

Laboratory Del Mar Analytical

Date: April 7, 2005

Reviewer L. Calvin

Reviewer's Signature 

Analysis/Method EFH by Method 8015B

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: IOC0625

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#: IOC0625
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 7, 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 012	Outfall 012	IOC0625-01	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. The EFH analysis (rather than the GRO analysis) was requested in error on the COC for the Trip Blank sample. As the sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

The initial calibration associated with the sample analysis was analyzed on 11/12/04. The %RSD was within the QC limit of $\leq 20\%$. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One method blank (5C09041-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 (5C09041-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%, and the RPD was within the QC limit of $\leq 25\%$. The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The 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 sample. 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 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 sample was analyzed at a 2x dilution for a high concentration of EFH (C13-C22). The reporting limit was adjusted accordingly. The reporting limit was not adjusted for sample amount; however, the dilution factor on the sample result summary reflected the sample amount extracted. Results were reported in mg/L. 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: Alfa Outfall 012 - During Test Report Number: IOC0625	Sampled: 03/07/05 Received: 03/08/05
--	--	---

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifier
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/07/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C09041	0.16	1.0	3.3	1.94	03/09/05	03/10/05	rel qual code
Surrogate: n-Octacosane (40-125%)					75 %				

**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 T711VO79

Task Order 313150010

SDG No. IOC0625

No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: April 6, 2005

Reviewer's Signature



ACTION ITEMS^a

1. **Case Narrative**
Deficiencies

2. **Out of Scope**
Analyses

3. **Analyses Not Conducted**

4. **Missing Hardcopy**
Deliverables

5. **Incorrect Hardcopy**
Deliverables

6. **Deviations from Analysis**
Protocol, e.g.,
Holding Times
GC/MS Tune/Inst. Perform
Calibrations
Blanks
Surrogates
Matrix Spike/Dup LCS
Field QC
Internal Standard Performance
Compound Identification and
Quantitation
System Performance

Calibration outlier – no qualifications required.

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: IOC0625

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#: IOC0625
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 6, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624, SW846 Method 8260B*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOB0625-01	water	624
Trip Blank	Trip Blank	IOB0625-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

Two initial calibrations dated 02/01/05 and 02/19/05 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 all target compounds listed on the sample result summaries. There were two continuing calibration dated 03/09/05 (08:10 and 17:40) associated with the sample analyses in this SDG. The RRFs were ≥0.05 in the continuing calibrations. The %D for DIPE exceeded 20% in the continuing calibration dated 03/09/05 (17:40); however, the associated sample was a trip blank and did not require qualification for a %D outlier. 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 qualifications were required.

2.4 BLANKS

Two water method blanks (5C09026-BLK1 and 5C09027-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 (5C09026-BS1 and 5C09027-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 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 (IOC0625-02) was the trip blank associated with the site sample. There were no target compounds detected above the MDLs in the trip blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration standards and by the MDL study. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
 Received: 03/08/05

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: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: ug/l					REV QUAL				
1,2-Dibromoethane (EDB)	EPA 624	5C09027	0.32	2.0	ND	1	03/09/05	03/09/05	QUAL CODE
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C09027	0.32	5.0	ND	1	03/09/05	03/09/05	U
1,2,3-Trichloropropane	EPA 624	5C09027	0.85	10	ND	1	03/09/05	03/09/05	↓
Di-isopropyl Ether (DIPE)	EPA 624	5C09027	0.25	5.0	ND	1	03/09/05	03/09/05	
tert-Butanol (TBA)	EPA 624	5C09027	3.1	25	ND	1	03/09/05	03/09/05	
Surrogate: Dibromofluoromethane (80-120%)					110 %				
Surrogate: Toluene-d8 (80-120%)					110 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					106 %				
Sample ID: IOC0625-02 (DRAFT: Trip Blank - Water)					Sampled: 03/07/05				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C09026	0.32	2.0	ND	1	03/09/05	03/10/05	U
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C09026	0.32	5.0	ND	1	03/09/05	03/10/05	↓
1,2,3-Trichloropropane	EPA 624	5C09026	0.85	10	ND	1	03/09/05	03/10/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C09026	0.25	5.0	ND	1	03/09/05	03/10/05	
tert-Butanol (TBA)	EPA 624	5C09026	3.1	25	ND	1	03/09/05	03/10/05	
Surrogate: Dibromofluoromethane (80-120%)					118 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO83
 Task Order 313150010
 SDG No. IOC0625

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: April 6, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOC0625

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 #: IOC0625
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles (1,4-dioxane)
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 6, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method SW-846 8260B* and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC0625-01	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COCs were signed by field and laboratory personnel. The COC accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. The sample summary form did not have the Oufall 012 ID printed on it; the ID was added by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows were consistent with those specified in EPA Method 8260B. All ion abundances were within the established windows, and the sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

2.3 CALIBRATION

One initial calibration, dated 02/16/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥ 0.05 and the r^2 value was ≤ 0.995 . One continuing calibration, dated 03/11/05 was associated with this SDG. The RRF for 1,4-dioxane was ≥ 0.05 and the %D was $\leq 20\%$. The r^2 value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (P5C1117-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5C1117-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision were based on blank spike and 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 Trip Blanks

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 1,4-dioxane by Method 8260B/SIM. Chromatograms, retention times, and spectra for the sample and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limit was supported by the lowest concentration of the initial calibration standard and by the undated MDL supplied by the laboratory. Compound quantitation was verified by recalculating blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

2.13 SYSTEM PERFORMANCE

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



Del Mar Analytical

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

Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC0625
 Report Number: POC0278

Sampled: 03/07/05
 Received: 03/10/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	QUAL CODE
OUTFALL O1Z										
Sample ID: POC0278-01 (IOC0625-01 - Water)										
Reporting Units: ug/l										
1,4-Dioxane	EPA 8260B	P5C1117	0.49	1.0	ND	1	03/11/05	03/11/05	U	
Surrogate: Dibromofluoromethane (80-125%)					105 %					

AMEC VALIDATED

LEVEL IV

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

MP 4.6.05

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

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC112

Task Order 313150010

SDG No. IOC0625

No. of Analyses 1

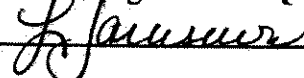
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate

Date: 04/05/05

Reviewer's Signature _____



ACTION ITEMS*

1. Case Narrative Deficiencies
2. Out of Scope Analyses
3. Analyses Not Conducted
4. Missing Hardcopy Deliverables
5. Incorrect Hardcopy Deliverables
6. Deviations from Analysis Protocol, e.g.,
 - Holding Times _____
 - GC/MS Tune/Inst. Performance _____
 - Calibrations _____
 - Blanks _____
 - Surrogates _____
 - Matrix Spike/Dup LCS _____
 - Field QC _____
 - Internal Standard Performance _____
 - Compound Identification and Quantitation _____
 - System Performance _____

COMMENTS* Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOC0625

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 #: IOC0625
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 5, 2005

The sample listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0, and 120.1*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 012	Outfall 012	IOC0625-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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 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: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
 Received: 03/08/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/07/05					REV QUAL
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C10074	0.30	0.50	0.56	1	03/10/05	03/10/05	*	
Biochemical Oxygen Demand	EPA 405.1	5C09057	0.59	2.0	6.9	1	03/09/05	03/14/05		
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	1.6	1	03/09/05	03/09/05		
Total Dissolved Solids	SM2540C	5C09095	10	10	240	1	03/09/05	03/09/05		
Total Suspended Solids	EPA 160.2	5C10075	10	10	110	1	03/10/05	03/10/05		
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05					
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C09059	0.10	0.10	0.10	1	03/09/05	03/09/05		
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5C09079	0.040	1.0	33	1	03/09/05	03/09/05		
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05					
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5C09056	0.80	4.0	ND	1	03/09/05	03/09/05	u	

AMEC VALIDATED

LEVEL IV

Analytic Not Valid

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

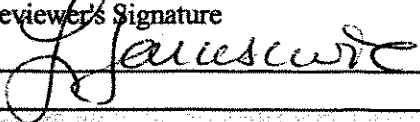
Package ID T711WC114
 Task Order 313150010
 SDG No. IOC0625

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 04/04/05
 Reviewer's Signature


ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	<u>Qualifications applied for method blank detects.</u>
Holding Times	
GC/MS Tune/Inst. Performance	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS^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: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC0625

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 #: IOC0625
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 4, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 405.1, 335.2, 413.1, 418.1, 160.2, 160.5, and 180.1, 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 012	Outfall 012	IOC0625-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for ammonia, total recoverable hydrocarbons, and oil and grease, the seven-day holding time for total suspended solids and total dissolved solids, and the 48-hour holding time for turbidity, 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 . The initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. Calibration is not applicable to oil and grease, total dissolved solids, total suspended solids, or total settleable solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5C09079-BLK1 at 0.050 NTU; however, the method blank result was insufficient to qualify the Outfall 012 result. The oil and grease method blank result was not subtracted from the site sample result as required by the method. The reviewer corrected the raw data and revised the Form I to reflect the sample result as a nondetect, "U". 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, oil and grease, and total recoverable hydrocarbons only) recoveries and RPDs were within the laboratory-established control limits. The LCS is not applicable to turbidity or settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. No further qualifications were required.

2.11 FIELD QC SAMPLES

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

DATA VALIDATION REPORT

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: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
 Received: 03/08/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water) - cont.					Sampled: 03/07/05					REV DUAL CET
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C10074	0.30	0.50	0.56	1	03/10/05	03/10/05		
Biochemical Oxygen Demand	EPA 405.1	5C09057	0.59	2.0	6.9	1	03/09/05	03/14/05		
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	1.6 NA	1	03/09/05	03/09/05	WJ B, J B	
Total Dissolved Solids	SM2540C	5C09095	10	10	240	1	03/09/05	03/09/05		
Total Suspended Solids	EPA 160.2	5C10075	10	10	110	1	03/10/05	03/10/05		
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05					
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C09059	0.10	0.10	0.10	1	03/09/05	03/09/05		
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5C09079	0.040	1.0	33	1	03/09/05	03/09/05		
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05					
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5C09056	0.80	4.0	ND	1	03/09/05	03/09/05	*	

4/5-12-05

AMEC VALIDATED

LEVEL IV

Del Mar Analytical Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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 9630 South 51st St., Suite B-126, 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: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

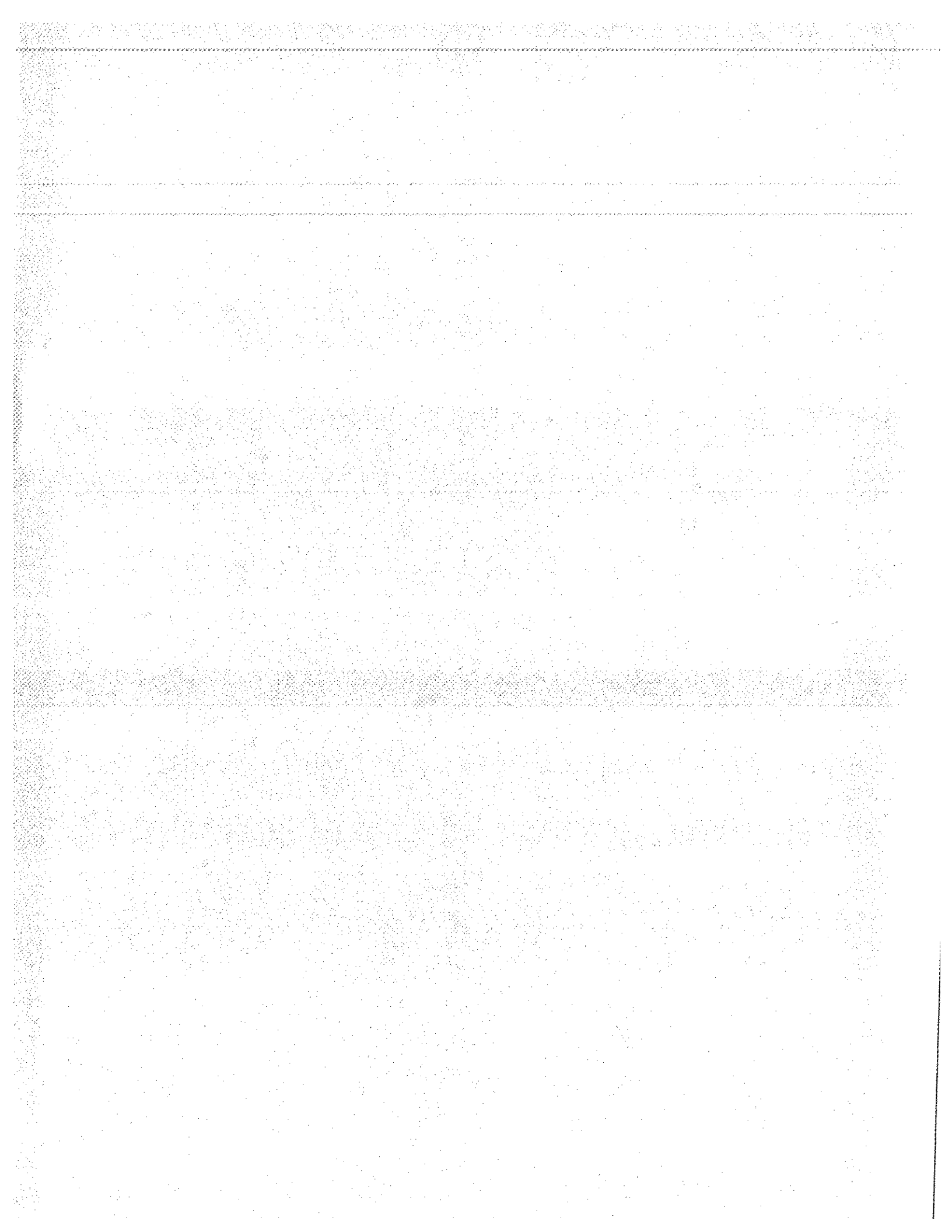
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0625-01 (DRAFT: Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C10089	0.31	1.0	17	1	03/10/05	03/10/05	REV SUAL OUT IOC

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: Alfa Outfall 012 - During Test

Sampled: 03/07/05
Received: 03/08/05
Issued: 04/07/05 19:32

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

CASE NARRATIVE

- SAMPLE RECEIPT: Samples were received intact, at 6°C, on ice and with chain of custody documentation.
- HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
- PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
- QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.
- COMMENTS: Results that fall between the MDL and RL are 'J' flagged.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.
- ADDITIONAL INFORMATION: Sample IOC0625-01 contained particulate matter in the VOA vials which interfered with the analysis of EPA 8015-TPHg. The initial analysis was performed on an undiluted sample utilizing a large diameter syringe. These particulates were included as part of the sample analysis and resulted in TPH values exceeding the calibration range of the instrument, as well as, instrument contamination and failure of the CCV. The sample was reanalyzed at a dilution and utilized a smaller diameter syringe which excluded the particulate matter and attained results of non detect at a higher reporting limit. The smaller diameter syringe was necessary due to its accuracy at lower levels. Both results are included in this report.

LABORATORY ID	CLIENT ID	MATRIX
IOC0625-01	Outfall 012	Water
IOC0625-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC0625	Sampled: 03/07/05 Received: 03/08/05
--	--	---

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: IOC0625-01 (Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C10089	0.31	1.0	17	1	03/10/05	03/10/05	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC0625	Sampled: 03/07/05 Received: 03/08/05
--	--	---

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: IOC0625-01 (Outfall 012 - Water) - cont.					Sampled: 03/07/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C09041	0.16	1.0	3.3	1.94	03/09/05	03/10/05	
Surrogate: n-Octacosane (40-125%)					75 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
Received: 03/08/05

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: IOC0625-01 (Outfall 012 - Water) - cont.					Sampled: 03/07/05		N-1		
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C15002	0.25	0.50	7.4	5	03/15/05	03/15/05	E
Surrogate: 4-BFB (FID) (65-140%)					115 %				
Sample ID: IOC0625-01RE1 (Outfall 012 - Water)					Sampled: 03/07/05		N-1		
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C15005	5.0	10	ND	100	03/15/05	03/16/05	
Surrogate: 4-BFB (FID) (65-140%)					98 %				
Sample ID: IOC0625-02 (Trip Blank - Water)					Sampled: 03/07/05				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C10111	0.050	0.10	ND	1	03/10/05	03/11/05	
Surrogate: 4-BFB (FID) (65-140%)					88 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05
Received: 03/08/05

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: IOC0625-01 (Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C09027	0.32	2.0	ND	1	03/09/05	03/09/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C09027	0.32	5.0	ND	1	03/09/05	03/09/05	
1,2,3-Trichloropropane	EPA 624	5C09027	0.85	10	ND	1	03/09/05	03/09/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C09027	0.25	5.0	ND	1	03/09/05	03/09/05	
tert-Butanol (TBA)	EPA 624	5C09027	3.1	25	ND	1	03/09/05	03/09/05	
Surrogate: Dibromofluoromethane (80-120%)					110 %				
Surrogate: Toluene-d8 (80-120%)					110 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					106 %				
Sample ID: IOC0625-02 (Trip Blank - Water)					Sampled: 03/07/05				
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C09026	0.32	2.0	ND	1	03/09/05	03/10/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C09026	0.32	5.0	ND	1	03/09/05	03/10/05	
1,2,3-Trichloropropane	EPA 624	5C09026	0.85	10	ND	1	03/09/05	03/10/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C09026	0.25	5.0	ND	1	03/09/05	03/10/05	
tert-Butanol (TBA)	EPA 624	5C09026	3.1	25	ND	1	03/09/05	03/10/05	
Surrogate: Dibromofluoromethane (80-120%)					118 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
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: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

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: IOC0625-01 (Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: ug/l									
Naphthalene	EPA 625	5C09037	4.5	10	64	0.962	03/09/05	03/11/05	
N-Nitrosodimethylamine	EPA 625	5C09037	3.7	20	ND	0.962	03/09/05	03/11/05	
Surrogate: 2-Fluorophenol (30-120%)					62 %				
Surrogate: Phenol-d6 (35-120%)					64 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					89 %				
Surrogate: Nitrobenzene-d5 (45-120%)					82 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					77 %				
Surrogate: Terphenyl-d14 (45-120%)					82 %				

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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0625-01 (Outfall 012 - Water) - cont.					Sampled: 03/07/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C10074	0.30	0.50	0.56	1	03/10/05	03/10/05	
Biochemical Oxygen Demand	EPA 405.1	5C09057	0.59	2.0	6.9	1	03/09/05	03/14/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	1.6	1	03/09/05	03/09/05	B, J
Total Dissolved Solids	SM2540C	5C09095	10	10	240	1	03/09/05	03/09/05	
Total Suspended Solids	EPA 160.2	5C10075	10	10	110	1	03/10/05	03/10/05	
Sample ID: IOC0625-01 (Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C09059	0.10	0.10	0.10	1	03/09/05	03/09/05	
Sample ID: IOC0625-01 (Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: NTU									
Turbidity	EPA 180.1	5C09079	0.040	1.0	33	1	03/09/05	03/09/05	
Sample ID: IOC0625-01 (Outfall 012 - Water)					Sampled: 03/07/05				
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C09056	0.80	4.0	ND	1	03/09/05	03/09/05	

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Sampled: 03/07/05

Received: 03/08/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0625-01 (Outfall 012 - Water) - cont.					Sampled: 03/07/05				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C1117	0.49	1.0	ND	1	03/11/05	03/11/05	
Surrogate: Dibromofluoromethane (80-125%)					105 %				

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Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 012 (IOC0625-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/07/2005 14:52	03/08/2005 18:30	03/09/2005 09:38	03/09/2005 11:00
EPA 180.1	2	03/07/2005 14:52	03/08/2005 18:30	03/09/2005 09:00	03/09/2005 10:00
EPA 405.1	2	03/07/2005 14:52	03/08/2005 18:30	03/09/2005 11:00	03/14/2005 17:15

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Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C10089 Extracted: 03/10/05											
Blank Analyzed: 03/10/2005 (5C10089-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 03/10/2005 (5C10089-BS1)											
Total Recoverable Hydrocarbons	4.83	1.0	0.31	mg/l	5.00		97	65-120			M-NR1
LCS Dup Analyzed: 03/10/2005 (5C10089-BSD1)											
Total Recoverable Hydrocarbons	4.76	1.0	0.31	mg/l	5.00		95	65-120	1	20	

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Sampled: 03/07/05

Received: 03/08/05

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: 5C09041 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09041-BLK1)										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.117			mg/l	0.200		58 40-125			
LCS Analyzed: 03/09/2005 (5C09041-BS1)										
EFH (C13 - C40)	0.524	0.50	0.082	mg/l	0.775		68 40-120			M-NRI
Surrogate: n-Octacosane	0.124			mg/l	0.200		62 40-125			
LCS Dup Analyzed: 03/09/2005 (5C09041-BSD1)										
EFH (C13 - C40)	0.491	0.50	0.082	mg/l	0.775		63 40-120	7	25	J
Surrogate: n-Octacosane	0.108			mg/l	0.200		54 40-125			

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Sampled: 03/07/05
Received: 03/08/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C10111 Extracted: 03/10/05										
Blank Analyzed: 03/10/2005 (5C10111-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00853			mg/l	0.0100		85 65-140			
LCS Analyzed: 03/10/2005 (5C10111-BS1)										
GRO (C4 - C12)	0.809	0.10	0.050	mg/l	0.800		101 70-140			
Surrogate: 4-BFB (FID)	0.0293			mg/l	0.0300		98 65-140			
Matrix Spike Analyzed: 03/10/2005 (5C10111-MS1) Source: IOC0347-08										
GRO (C4 - C12)	0.226	0.10	0.050	mg/l	0.220	ND	103 60-140			
Surrogate: 4-BFB (FID)	0.0126			mg/l	0.0100		126 65-140			
Matrix Spike Dup Analyzed: 03/10/2005 (5C10111-MSD1) Source: IOC0347-08										
GRO (C4 - C12)	0.223	0.10	0.050	mg/l	0.220	ND	101 60-140	1	20	
Surrogate: 4-BFB (FID)	0.0121			mg/l	0.0100		121 65-140			
Batch: 5C15002 Extracted: 03/15/05										
Blank Analyzed: 03/15/2005 (5C15002-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00943			mg/l	0.0100		94 65-140			
LCS Analyzed: 03/15/2005 (5C15002-BS1)										
GRO (C4 - C12)	0.647	0.10	0.050	mg/l	0.800		81 70-140			
Surrogate: 4-BFB (FID)	0.0256			mg/l	0.0300		85 65-140			
Matrix Spike Analyzed: 03/15/2005 (5C15002-MS1) Source: IOC0393-01										
GRO (C4 - C12)	0.245	0.10	0.050	mg/l	0.220	ND	111 60-140			
Surrogate: 4-BFB (FID)	0.0106			mg/l	0.0100		106 65-140			

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Sampled: 03/07/05
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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 Limit	Data Qualifiers
Batch: 5C15002 Extracted: 03/15/05											
Matrix Spike Dup Analyzed: 03/15/2005 (5C15002-MSD1)						Source: IOC0393-01					
GRO (C4 - C12)	0.254	0.10	0.050	mg/l	0.220	ND	115	60-140	4	20	
Surrogate: 4-BFB (FID)	0.0113			mg/l	0.0100		113	65-140			
Batch: 5C15005 Extracted: 03/15/05											
Blank Analyzed: 03/15/2005 (5C15005-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00997			mg/l	0.0100		100	65-140			
LCS Analyzed: 03/15/2005 (5C15005-BS1)											
GRO (C4 - C12)	0.618	0.10	0.050	mg/l	0.800		77	70-140			
Surrogate: 4-BFB (FID)	0.0313			mg/l	0.0300		104	65-140			
Matrix Spike Analyzed: 03/15/2005 (5C15005-MS1)						Source: IOC0348-14					
GRO (C4 - C12)	0.210	0.10	0.050	mg/l	0.220	ND	95	60-140			
Surrogate: 4-BFB (FID)	0.0108			mg/l	0.0100		108	65-140			
Matrix Spike Dup Analyzed: 03/15/2005 (5C15005-MSD1)						Source: IOC0348-14					
GRO (C4 - C12)	0.204	0.10	0.050	mg/l	0.220	ND	93	60-140	3	20	
Surrogate: 4-BFB (FID)	0.0105			mg/l	0.0100		105	65-140			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C09026 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09026-BLK1)										
1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l						
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l						
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l						
tert-Butanol (TBA)	ND	25	3.1	ug/l						
Surrogate: Dibromofluoromethane	26.7			ug/l	25.0		107		80-120	
Surrogate: Toluene-d8	25.0			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	23.9			ug/l	25.0		96		80-120	
LCS Analyzed: 03/09/2005 (5C09026-BS1)										
1,2-Dibromoethane (EDB)	26.3	2.0	0.32	ug/l	25.0		105		75-125	
Methyl-tert-butyl Ether (MTBE)	27.1	5.0	0.32	ug/l	25.0		108		55-145	
1,2,3-Trichloropropane	26.2	10	0.85	ug/l	25.0		105		60-130	
Di-isopropyl Ether (DIPE)	29.7	5.0	0.25	ug/l	25.0		119		65-135	
tert-Butanol (TBA)	124	25	3.1	ug/l	125		99		70-140	
Surrogate: Dibromofluoromethane	28.0			ug/l	25.0		112		80-120	
Surrogate: Toluene-d8	25.0			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	27.2			ug/l	25.0		109		80-120	
Matrix Spike Analyzed: 03/09/2005 (5C09026-MS1)					Source: IOC0643-01					
1,2-Dibromoethane (EDB)	30.2	2.0	0.32	ug/l	25.0	ND	121		70-130	
Methyl-tert-butyl Ether (MTBE)	31.7	5.0	0.32	ug/l	25.0	ND	127		50-155	
1,2,3-Trichloropropane	32.2	10	0.85	ug/l	25.0	ND	129		55-140	
Di-isopropyl Ether (DIPE)	31.6	5.0	0.25	ug/l	25.0	ND	126		65-140	
tert-Butanol (TBA)	121	25	3.1	ug/l	125	ND	97		65-145	
Surrogate: Dibromofluoromethane	27.8			ug/l	25.0		111		80-120	
Surrogate: Toluene-d8	25.2			ug/l	25.0		101		80-120	
Surrogate: 4-Bromofluorobenzene	27.2			ug/l	25.0		109		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
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Batch: 5C09026 Extracted: 03/09/05

Matrix Spike Dup Analyzed: 03/09/2005 (5C09026-MSD1)

Source: IOC0643-01

1,2-Dibromoethane (EDB)	25.1	2.0	0.32	ug/l	25.0	ND	100 70-130	18	25	
Methyl-tert-butyl Ether (MTBE)	26.0	5.0	0.32	ug/l	25.0	ND	104 50-155	20	25	
1,2,3-Trichloropropane	24.8	10	0.85	ug/l	25.0	ND	99 55-140	26	30	
Di-isopropyl Ether (DIPE)	30.0	5.0	0.25	ug/l	25.0	ND	120 65-140	5	25	
tert-Butanol (TBA)	123	25	3.1	ug/l	125	ND	98 65-145	2	25	
Surrogate: Dibromofluoromethane	27.3			ug/l	25.0		109 80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	26.0			ug/l	25.0		104 80-120			

Batch: 5C09027 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09027-BLK1)

1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l						
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l						
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l						
tert-Butanol (TBA)	ND	25	3.1	ug/l						
Surrogate: Dibromofluoromethane	26.8			ug/l	25.0		107 80-120			
Surrogate: Toluene-d8	28.0			ug/l	25.0		112 80-120			
Surrogate: 4-Bromofluorobenzene	26.7			ug/l	25.0		107 80-120			

LCS Analyzed: 03/09/2005 (5C09027-BS1)

1,2-Dibromoethane (EDB)	26.9	2.0	0.32	ug/l	25.0		108 75-125			
Methyl-tert-butyl Ether (MTBE)	27.5	5.0	0.32	ug/l	25.0		110 55-145			
1,2,3-Trichloropropane	26.4	10	0.85	ug/l	25.0		106 60-130			
Di-isopropyl Ether (DIPE)	29.6	5.0	0.25	ug/l	25.0		118 65-135			
tert-Butanol (TBA)	141	25	3.1	ug/l	125		113 70-140			
Surrogate: Dibromofluoromethane	27.0			ug/l	25.0		108 80-120			
Surrogate: Toluene-d8	27.9			ug/l	25.0		112 80-120			
Surrogate: 4-Bromofluorobenzene	27.3			ug/l	25.0		109 80-120			

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Sampled: 03/07/05

Received: 03/08/05

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
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Batch: 5C09027 Extracted: 03/09/05

Matrix Spike Analyzed: 03/09/2005 (5C09027-MS1)

Source: IOC0567-26

1,2-Dibromoethane (EDB)	24.8	2.0	0.32	ug/l	25.0	ND	99	70-130			
Methyl-tert-butyl Ether (MTBE)	24.2	5.0	0.32	ug/l	25.0	ND	97	50-155			
1,2,3-Trichloropropane	23.3	10	0.85	ug/l	25.0	ND	93	55-140			
Di-isopropyl Ether (DIPE)	29.1	5.0	0.25	ug/l	25.0	ND	116	65-140			
tert-Butanol (TBA)	175	25	3.1	ug/l	125	ND	140	65-145			
Surrogate: Dibromofluoromethane	27.1			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	27.5			ug/l	25.0		110	80-120			
Surrogate: 4-Bromofluorobenzene	27.3			ug/l	25.0		109	80-120			

Matrix Spike Dup Analyzed: 03/09/2005 (5C09027-MSD1)

Source: IOC0567-26

1,2-Dibromoethane (EDB)	27.3	2.0	0.32	ug/l	25.0	ND	109	70-130	10	25	
Methyl-tert-butyl Ether (MTBE)	27.5	5.0	0.32	ug/l	25.0	ND	110	50-155	13	25	
1,2,3-Trichloropropane	26.9	10	0.85	ug/l	25.0	ND	108	55-140	14	30	
Di-isopropyl Ether (DIPE)	30.3	5.0	0.25	ug/l	25.0	ND	121	65-140	4	25	
tert-Butanol (TBA)	151	25	3.1	ug/l	125	ND	121	65-145	15	25	
Surrogate: Dibromofluoromethane	27.8			ug/l	25.0		111	80-120			
Surrogate: Toluene-d8	27.8			ug/l	25.0		111	80-120			
Surrogate: 4-Bromofluorobenzene	27.1			ug/l	25.0		108	80-120			

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Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

METHOD BLANK/QC DATA

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

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Data Qualifiers. Includes sections for Batch: 5C09037, Blank Analyzed: 03/11/2005, LCS Analyzed: 03/11/2005, and LCS Dup Analyzed: 03/11/2005.

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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: Alfa Outfall 012 - During Test Report Number: IOC0625	Sampled: 03/07/05 Received: 03/08/05
--	--	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09056 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09056-BLK1)										
Perchlorate	ND	4.0	0.80	ug/l						
LCS Analyzed: 03/09/2005 (5C09056-BS1)										
Perchlorate	49.5	4.0	0.80	ug/l	50.0		99 85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09056-MS1) Source: IOC0638-01										
Perchlorate	52.4	4.0	0.80	ug/l	50.0	2.5	100 80-120			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09056-MSD1) Source: IOC0638-01										
Perchlorate	51.6	4.0	0.80	ug/l	50.0	2.5	98 80-120	2	20	
Batch: 5C09057 Extracted: 03/09/05										
Blank Analyzed: 03/14/2005 (5C09057-BLK1)										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						
LCS Analyzed: 03/14/2005 (5C09057-BS1)										
Biochemical Oxygen Demand	214	100	30	mg/l	198		108 85-115			
LCS Dup Analyzed: 03/14/2005 (5C09057-BSD1)										
Biochemical Oxygen Demand	211	100	30	mg/l	198		107 85-115	1	20	
Batch: 5C09079 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09079-BLK1)										
Turbidity	0.0500	1.0	0.040	NTU						J

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: Alfa Outfall 012 - During Test Report Number: IOC0625	Sampled: 03/07/05 Received: 03/08/05
--	--	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09079 Extracted: 03/09/05											
Duplicate Analyzed: 03/09/2005 (5C09079-DUP1)											
Turbidity	47.0	2.0	0.080	NTU		46			2	20	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	0.94	mg/l							J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120			M-NR1
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20	
Batch: 5C09095 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09095-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/09/2005 (5C09095-BS1)											
Total Dissolved Solids	1000	10	10	mg/l	1000		100	90-110			
Duplicate Analyzed: 03/09/2005 (5C09095-DUP1)											
Total Dissolved Solids	626	10	10	mg/l		630			1	10	
Batch: 5C10074 Extracted: 03/10/05											
Blank Analyzed: 03/10/2005 (5C10074-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							

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 Project Manager

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

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: 5C10074 Extracted: 03/10/05											
LCS Analyzed: 03/10/2005 (5C10074-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/10/2005 (5C10074-MS1)											
						Source: IOC0564-01					
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	ND	115	70-120			
Matrix Spike Dup Analyzed: 03/10/2005 (5C10074-MSD1)											
						Source: IOC0564-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	ND	101	70-120	13	15	
Batch: 5C10075 Extracted: 03/10/05											
Blank Analyzed: 03/10/2005 (5C10075-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/10/2005 (5C10075-BS1)											
Total Suspended Solids	979	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 03/10/2005 (5C10075-DUP1)											
						Source: IOC0570-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	

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 Michele Harper
 Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC0625	Sampled: 03/07/05 Received: 03/08/05
--	--	---

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: P5C1117 Extracted: 03/11/05											
Blank Analyzed: 03/11/2005 (P5C1117-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.02			ug/l	1.00		102	80-125			
LCS Analyzed: 03/11/2005 (P5C1117-BS1)											
1,4-Dioxane	11.4	1.0	0.49	ug/l	10.0		114	70-130			
Surrogate: Dibromofluoromethane	1.02			ug/l	1.00		102	80-125			
LCS Dup Analyzed: 03/11/2005 (P5C1117-BSD1)											
1,4-Dioxane	11.6	1.0	0.49	ug/l	10.0		116	70-130	2	20	
Surrogate: Dibromofluoromethane	1.02			ug/l	1.00		102	80-125			
Matrix Spike Analyzed: 03/11/2005 (P5C1117-MS1)											
1,4-Dioxane	15.0	1.0	0.49	ug/l	10.0	ND	150	70-150			
Surrogate: Dibromofluoromethane	0.940			ug/l	1.00		94	80-125			
Matrix Spike Dup Analyzed: 03/11/2005 (P5C1117-MSD1)											
1,4-Dioxane	11.5	1.0	0.49	ug/l	10.0	ND	115	70-150	26	25	R
Surrogate: Dibromofluoromethane	0.890			ug/l	1.00		89	80-125			

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- E** Concentration exceeds the calibration range and therefore result is semi-quantitative.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- N-1** See case narrative.
- R** The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

ADDITIONAL COMMENTS

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC0625

Sampled: 03/07/05

Received: 03/08/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 314.0	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
SM2540C	Water	X	X

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

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: IOC0625-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

#231 IO00625

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/12/04

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

Project:
 Boeing-SSFL NPDES
 During Test - Outfall 012
 Alpha Test Stand

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

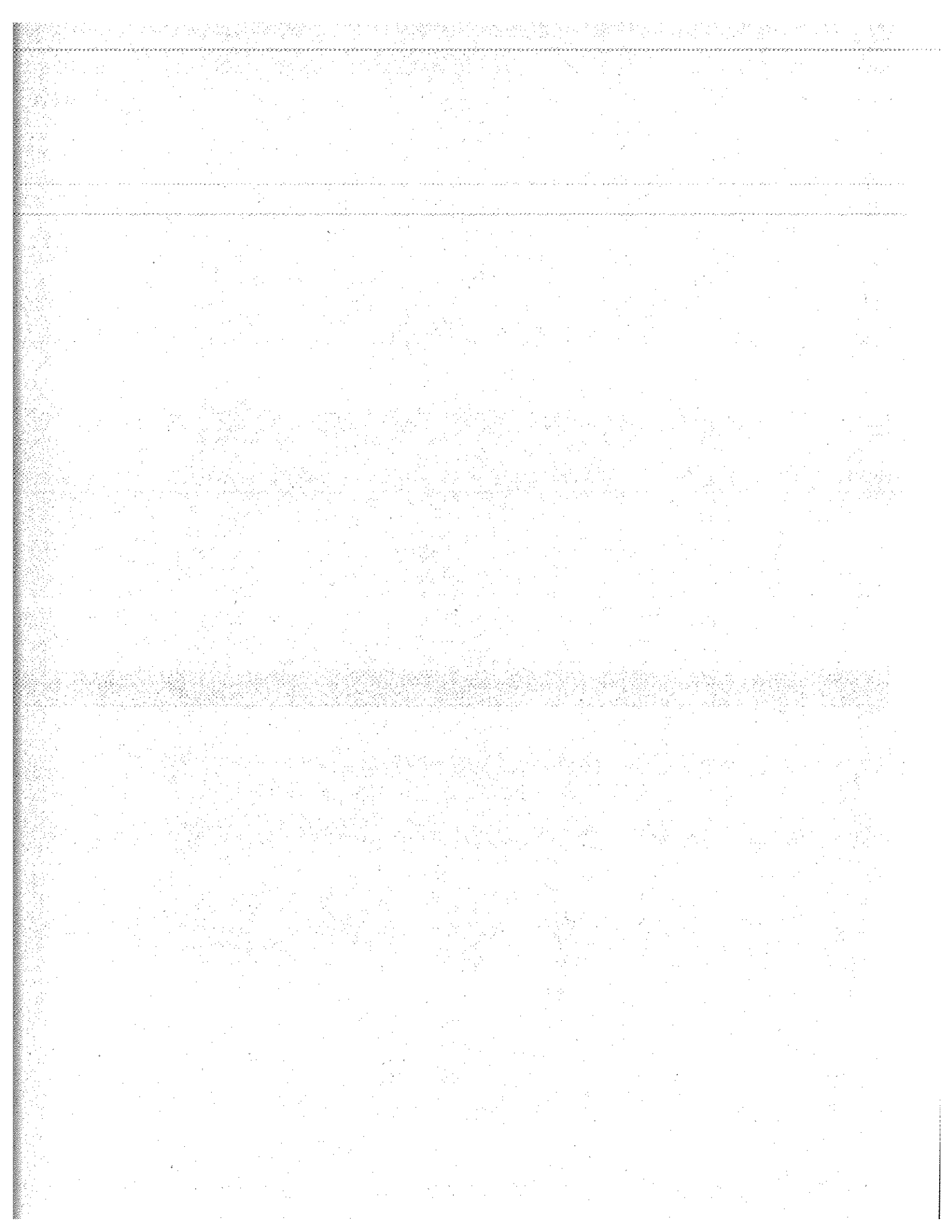
Sampler: PAT Pollack
 REK BANA OR

ANALYSIS REQUIRED		Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH=Total Rec. Petroleum Hydrocarbons (EPA 418.1)	624 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Tit. (350.2) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	Field readings: Temp = 74.3 pH = 5.63	Comments
Outfall 012	1L Amber	1	X												
Outfall 012 duplicate	1L Amber	1	X												
Outfall 012	VOAS	1	X												
Outfall 012 duplicate	VOAS	2	X												
Outfall 012	1L Amber	1		X											
Outfall 012 duplicate	1L Amber	1		X											
Outfall 012	VOAS	1			X										
Outfall 012 duplicate	VOAS	2			X										
Outfall 012	1L Amber	1				X									
Outfall 012 duplicate	1L Amber	1				X									
Outfall 012	VOAS	1					X								
Outfall 012 duplicate	VOAS	2					X								
Outfall 012	1L Amber	1						X							
Outfall 012 duplicate	1L Amber	1						X							
Outfall 012	VOAS	1							X						
Outfall 012 duplicate	VOAS	2							X						
Outfall 012	1L Poly	1								X					
Outfall 012	1L Amber	1									X				
Outfall 012 duplicate	1L Amber	1									X				
Outfall 012	500ml Poly	1										X			
Outfall 012	1L Poly	1											X		
Outfall 012	1L Poly	1												X	
Trip Blank	VOAS	6													

[Handwritten Signature]

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: 6°C

Received By: *[Signature]* Date/Time: 3/8/05 10:20
 Received By: *[Signature]* Date/Time: 3/8/05 18:30
 Received By: *[Signature]* Date/Time: 3/8/05 18:30



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

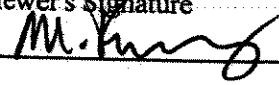
AMEC Earth & Environmental
 550 South Wadsworth Boulevard
 Suite 500
 Lakewood, CO 80226

Package ID T711SV52
 Task Order 313150010
 SDG No. IOC1969
 No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: April 11, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC1969

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#: IOC1969
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 11, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC1969-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 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. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/28/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.4 BLANKS

One method blank (5C25042-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5C25042-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary,

to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ," for nondetects, and "J," for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits. A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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



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 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: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	5C25042	4.5	10	34	0.98	03/25/05	03/28/05	REV QUAL
N-Nitrosodimethylamine	EPA 625	5C25042	3.7	20	ND	0.98	03/25/05	03/28/05	QUAL CODE
Surrogate: 2-Fluorophenol (30-120%)					58 %				U
Surrogate: Phenol-d6 (35-120%)					63 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					71 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					79 %				

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 T711TF58
 Task Order 313150010
 SDG No. IOC19696

No. of Analyses 1

Laboratory Pacific Analytical
 Reviewer L. Calvin
 Analysis/Method EFH by Method 8015B

Date: April 11, 2005
 Reviewer's Signature


ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	
COMMENTS^b	Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOC1969

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#: IOC1969
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 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC1969-01	water	8015B/EFH

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The 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. The EFH analysis (rather than the GRO analysis) was requested in error on the COC for the Trip Blank sample. The sample was analyzed correctly. As the site sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

The initial calibration associated with the sample analysis was analyzed on 11/12/04. The %RSD was within the QC limit of $\leq 20\%$. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One method blank (5C25001-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 (5C25001-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%,

and the RPD was within the QC limit of $\leq 25\%$. The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was 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.

2.7 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 sample. 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 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. Results were reported in mg/L (ppm). No qualifications were required.



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C25001	0.082	0.50	0.75	0.952	03/25/05	03/25/05	real qual qual code
Surrogate: n-Octacosane (40-125%)					51 %				

**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 T711TF59
 Task Order 313150010
 SDG No. IOC1969

No. of Analyses 2

Laboratory Pacific Analytical

Reviewer L. Calvin

Analysis/Method GRO by Method 8015M

Date: April 11, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/Purgeable

SAMPLE DELIVERY GROUP: IOC1969

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#: IOC1969
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 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC1969-01	water	8015M/GRO
Trip Blank	Trip Blank	IOC1969-02	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 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 08/14/04 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 (5C25003-BLK1) were 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 (5C25003-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140% in the blank spike.

The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC limits of 65-140%. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the site 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 012. 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 calibration and by the laboratory MDL. The results were reported in mg/L (ppm). No qualifications were required.



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (DRAFT: Outfall 012 - Water) - cont. Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C25003	0.50	1.0	2.9	10	03/25/05	03/25/05	val qual code
Surrogate: 4-BFB (FID) (65-140%)					109 %				
Sample ID: IOC1969-02 (DRAFT: Trip Blank - Water) Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C25003	0.050	0.10	ND	1	03/25/05	03/25/05	u
Surrogate: 4-BFB (FID) (65-140%)					102 %				

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 T711VO89

Task Order 313150010

SDG No. IOC1969

No. of Analyses 2

Laboratory Del Mar

Date: April 11, 2005

Reviewer M. Pokorny

Reviewer's Signature


Analysis/Method Volatiles

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualification required for single mass ion identification. _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
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: IOC1969

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#: IOC1969
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 11, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, *EPA SW-846 Method 8260B*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC1969-01	water	624
Trip Blank	Trip Blank	IOC1969-02	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 \pm 2°C. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. The COC accounted for the analysis 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 all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 03/13/05 was associated with this SDG. The average RRFs were ≥ 0.05 for all compounds listed on the sample result summary. The %RSDs were $\leq 35\%$ for the target compounds analyzed by EPA Method 624. One continuing calibration associated with the sample analyses was analyzed 03/25/05. The RRFs were ≥ 0.05 in the continuing calibration. The %Ds were $\leq 20\%$ for the target compounds listed on the result summary. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (5C25027-BLK1) was associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summary. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5C25027-BS1) was associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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: +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 five 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. According to the laboratory case narrative, the tert-butanol (TBA) detect for sample Outfall 012 was qualitatively identified based on the compounds retention time and the presence of a single mass ion; therefore, tert-butanol was qualified as estimated, "J." The TBA retention time, quantitation, and mass chromatograph were verified by the reviewer. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. Detects below the reporting limits were qualified as estimated, "J," by the laboratory. No further qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C25027	0.32	2.0	ND	1	03/25/05	03/26/05	U
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C25027	0.32	5.0	ND	1	03/25/05	03/26/05	↓
1,2,3-Trichloropropane	EPA 624	5C25027	0.85	10	ND	1	03/25/05	03/26/05	↓
Di-isopropyl Ether (DIPE)	EPA 624	5C25027	0.25	5.0	ND	1	03/25/05	03/26/05	↓
tert-Butanol (TBA)	EPA 624	5C25027	3.1	25	10	1	03/25/05	03/26/05	J ID, J * 11, PNQ
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					116 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					106 %				
Sample ID: IOC1969-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C25027	0.32	2.0	ND	1	03/25/05	03/26/05	U
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C25027	0.32	5.0	ND	1	03/25/05	03/26/05	↓
1,2,3-Trichloropropane	EPA 624	5C25027	0.85	10	ND	1	03/25/05	03/26/05	↓
Di-isopropyl Ether (DIPE)	EPA 624	5C25027	0.25	5.0	ND	1	03/25/05	03/26/05	↓
tert-Butanol (TBA)	EPA 624	5C25027	3.1	25	ND	1	03/25/05	03/26/05	↓
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					114 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					105 %				

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV


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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO91
 Task Order 313150010
 SDG No. IOC1969
 No. of Analyses 1

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Volatiles (1,4-dioxane)

Date: April 11, 2005
 Reviewer's Signature


ACTION ITEMS*

1. **Case Narrative**
Deficiencies
2. **Out of Scope**
Analyses
3. **Analyses Not Conducted**
4. **Missing Hardcopy**
Deliverables
5. **Incorrect Hardcopy**
Deliverables
6. **Deviations from Analysis**
Protocol, e.g.,
 Holding Times
 GC/MS Tune/Inst. Perform
 Calibrations
 Blanks
 Surrogates
 Matrix Spike/Dup LCS
 Field QC
 Internal Standard Performance
 Compound Identification and
 Quantitation
 System Performance

COMMENTS^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: VOLATILES

SAMPLE DELIVERY GROUP: IOC1969

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 #: IOC1969
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles (1,4-dioxane)
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 11, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method SW-846 8260B* and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC1969-01	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COCs were signed by field and laboratory personnel. The COCs accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. The sample summary form did not have the Oufall 012 ID printed on it; the ID was added by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows were consistent with those specified in EPA Method 8260B. All ion abundances were within the established windows, and the sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

2.3 CALIBRATION

One initial calibration, dated 03/21/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥ 0.05 and the r^2 value was ≤ 0.995 . One continuing calibration, dated 03/30/05 was associated with this SDG. The RRF for 1,4-dioxane was ≥ 0.05 and the %D was $\leq 20\%$. The r^2 value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (P5C3022-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5C3022-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision were based on blank spike and 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 Trip Blanks

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 1,4-dioxane by Method 8260B/SIM. Chromatograms, retention times, and spectra for the sample and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limit was supported by the lowest concentration of the initial calibration standards and by the undated MDL supplied by the laboratory. Compound quantitation was verified by recalculating blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

2.13 SYSTEM PERFORMANCE

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



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Del Mar Analytical - Irvine 17461 Derian Ave. Suite 100 Irvine, CA 92614 Attention: Michele Harper	Project ID: IOC1969 Report Number: POC0754	Sampled: 03/24/05 Received: 03/26/05
---	---	---

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers						
OUTFALL 012															
Sample ID: POC0754-01 (IOC1969-01 - Water)															
Reporting Units: ug/l															
1,4-Dioxane	EPA 8260B	P5C3022	0.49	1.0	ND 117%	1	03/30/05	03/30/05	<table border="1"> <tr> <td>RES</td> <td>QUAL</td> </tr> <tr> <td>QUAL</td> <td>CODE</td> </tr> <tr> <td>U</td> <td></td> </tr> </table>	RES	QUAL	QUAL	CODE	U	
RES	QUAL														
QUAL	CODE														
U															
Surrogate: Dibromofluoromethane (80-125%)															

AMEC VALIDATED

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

LEVEL IV

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOC1969

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 #: IOC1969
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 7, 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC1969
Analysis: Perchlorate

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 012	Outfall 012	IOC1969-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, ICCS, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C25070	0.30	0.50	0.56	1	03/25/05	03/25/05	* REV QUAL CODE
Biochemical Oxygen Demand	EPA 405.1	5C24132	0.59	2.0	3.7	1	03/24/05	03/29/05	
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	1.1	1	03/25/05	03/25/05	
Total Dissolved Solids	SM2540C	5C24102	10	10	170	1	03/24/05	03/25/05	
Total Suspended Solids	EPA 160.2	5C25082	10	10	31	1	03/25/05	03/25/05	
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C24080	0.10	0.10	ND	1	03/24/05	03/24/05	
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C25100	0.040	1.0	23	1	03/25/05	03/25/05	
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/25/05	u

AMEC VALIDATED

LEVEL IV

*Analysis Not Valid

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 T711WC126
 Task Order 313150010
 SDG No. IOC1969

No. of Analyses 1

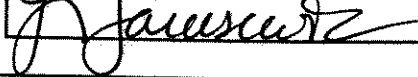
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date 04/06/05

Reviewer's Signature



ACTION ITEMS^a

1. **Case Narrative Deficiencies**

2. **Out of Scope Analyses**

3. **Analyses Not Conducted**

4. **Missing Hardcopy Deliverables**

5. **Incorrect Hardcopy Deliverables**

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

Qualifications were applied for:

1) Detects below the reporting limit

Holding Times

GC/MS Tune/Inst.

Performance

Calibrations

Blanks

Surrogates

Matrix Spike/Dup LCS

Field QC

Internal Standard

Performance

Compound Identification

and Quantitation

System Performance

COMMENTS^b

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC1969

Prepared by

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

I. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC1969
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 6, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 405.1, 413.1, 418.1, 160.2, 160.5, and 180.1, 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 012	Outfall 012	IOC1969-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for ammonia, total recoverable hydrocarbons, and oil and grease, the seven-day holding time for total suspended solids and total dissolved solids, and the 48-hour holding time for turbidity, biological oxygen demand, and total settleable solids 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 information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. Calibration is not applicable to oil and grease, total dissolved solids, total suspended solids, or total settleable solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5C25100-BLK1 at 0.050 NTU; however, the method blank result was insufficient to qualify the Outfall 012 result. The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample and laboratory control 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 settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

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

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C26002	0.31	1.0	5.3	1	03/26/05	03/26/05	REV SML CML

AMEC VALIDATED

LEVEL IV

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water) - cont. Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C25070	0.30	0.50	0.56	1	03/25/05	03/25/05	
Biochemical Oxygen Demand	EPA 405.1	5C24132	0.59	2.0	3.7	1	03/24/05	03/29/05	
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	1.1	1	03/25/05	03/25/05	J
Total Dissolved Solids	SM2540C	5C24102	10	10	170	1	03/24/05	03/25/05	J
Total Suspended Solids	EPA 160.2	5C25082	10	10	31	1	03/25/05	03/25/05	J
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water) Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C24080	0.10	0.10	ND	1	03/24/05	03/24/05	u
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water) Reporting Units: NTU									
Turbidity	EPA 180.1	5C25100	0.040	1.0	23	1	03/25/05	03/25/05	
Sample ID: IOC1969-01 (DRAFT: Outfall 012 - Water) Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/25/05	*

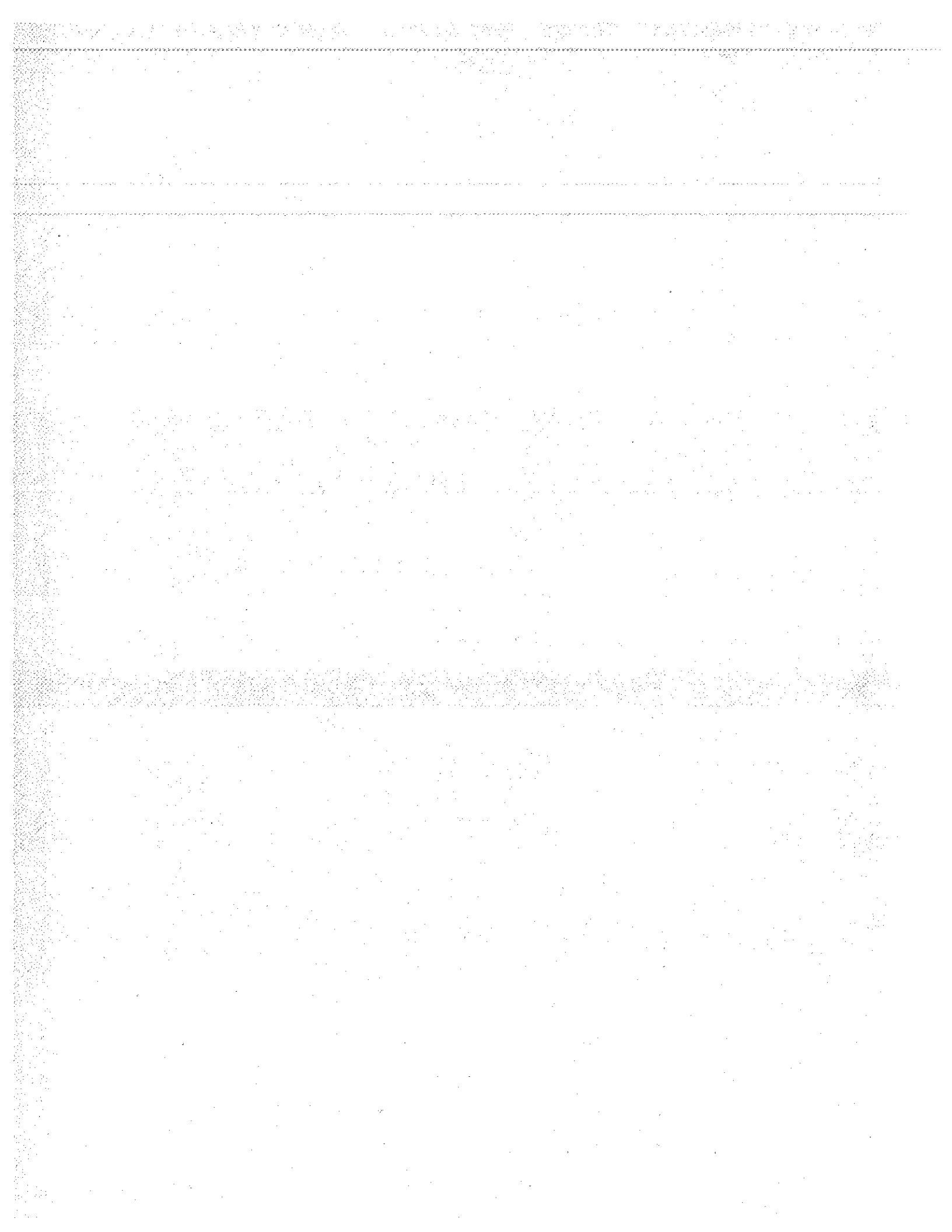
AMEC VALIDATED

LEVEL IV

Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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LABORATORY REPORT

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

Project: Alfa Outfall 012 - During Test

Sampled: 03/24/05
Received: 03/24/05
Issued: 04/12/05 18:58

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 3 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

SAMPLE CROSS REFERENCE

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

LABORATORY ID

IOC1969-01

IOC1969-02

CLIENT ID

Outfall 012

Trip Blank

MATRIX

Water

Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C26002	0.31	1.0	5.3	1	03/26/05	03/26/05	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
Received: 03/24/05

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: IOC1969-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C25001	0.082	0.50	0.75	0.952	03/25/05	03/25/05	
Surrogate: n-Octacosane (40-125%)					51 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: IOC1969-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C25003	0.50	1.0	2.9	10	03/25/05	03/25/05	
Surrogate: 4-BFB (FID) (65-140%)					109 %				
Sample ID: IOC1969-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C25003	0.050	0.10	ND	1	03/25/05	03/25/05	
Surrogate: 4-BFB (FID) (65-140%)					102 %				

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05

Received: 03/24/05

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: IOC1969-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C25027	0.32	2.0	ND	1	03/25/05	03/26/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C25027	0.32	5.0	ND	1	03/25/05	03/26/05	
1,2,3-Trichloropropane	EPA 624	5C25027	0.85	10	ND	1	03/25/05	03/26/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C25027	0.25	5.0	ND	1	03/25/05	03/26/05	
tert-Butanol (TBA)	EPA 624	5C25027	3.1	25	10	1	03/25/05	03/26/05	ID, J
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					116 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					106 %				
Sample ID: IOC1969-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C25027	0.32	2.0	ND	1	03/25/05	03/26/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C25027	0.32	5.0	ND	1	03/25/05	03/26/05	
1,2,3-Trichloropropane	EPA 624	5C25027	0.85	10	ND	1	03/25/05	03/26/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C25027	0.25	5.0	ND	1	03/25/05	03/26/05	
tert-Butanol (TBA)	EPA 624	5C25027	3.1	25	ND	1	03/25/05	03/26/05	
Surrogate: Dibromofluoromethane (80-120%)					113 %				
Surrogate: Toluene-d8 (80-120%)					114 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					105 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC1969	Sampled: 03/24/05 Received: 03/24/05
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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: IOC1969-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	5C25042	4.5	10	34	0.98	03/25/05	03/28/05	
N-Nitrosodimethylamine	EPA 625	5C25042	3.7	20	ND	0.98	03/25/05	03/28/05	
Surrogate: 2-Fluorophenol (30-120%)					58 %				
Surrogate: Phenol-d6 (35-120%)					63 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					71 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					79 %				

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1969-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C25070	0.30	0.50	0.56	1	03/25/05	03/25/05	
Biochemical Oxygen Demand	EPA 405.1	5C24132	0.59	2.0	3.7	1	03/24/05	03/29/05	
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	1.1	1	03/25/05	03/25/05	J
Total Dissolved Solids	SM2540C	5C24102	10	10	170	1	03/24/05	03/25/05	
Total Suspended Solids	EPA 160.2	5C25082	10	10	31	1	03/25/05	03/25/05	
Sample ID: IOC1969-01 (Outfall 012 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C24080	0.10	0.10	ND	1	03/24/05	03/24/05	
Sample ID: IOC1969-01 (Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C25100	0.040	1.0	23	1	03/25/05	03/25/05	
Sample ID: IOC1969-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/25/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC1969	Sampled: 03/24/05 Received: 03/24/05
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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: IOC1969-01 (Outfall 012 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C3022	0.49	1.0	ND	1	03/30/05	03/30/05	
Surrogate: Dibromofluoromethane (80-125%)					117 %				

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Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05

Received: 03/24/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 012 (IOC1969-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/24/2005 14:10	03/24/2005 19:23	03/24/2005 20:00	03/24/2005 21:00
EPA 180.1	2	03/24/2005 14:10	03/24/2005 19:23	03/25/2005 15:00	03/25/2005 16:00
EPA 405.1	2	03/24/2005 14:10	03/24/2005 19:23	03/24/2005 22:49	03/29/2005 10:00

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Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C26002 Extracted: 03/26/05										
Blank Analyzed: 03/26/2005 (5C26002-BLK1)										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
LCS Analyzed: 03/26/2005 (5C26002-BS1)										
Total Recoverable Hydrocarbons	4.72	1.0	0.31	mg/l	5.00		94	65-120		M-NRI
LCS Dup Analyzed: 03/26/2005 (5C26002-BSD1)										
Total Recoverable Hydrocarbons	4.84	1.0	0.31	mg/l	5.00		97	65-120	3	20

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Report Number: IOC1969

Sampled: 03/24/05

Received: 03/24/05

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: 5C25001 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25001-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	0.122			mg/l	0.200		61	40-125			
LCS Analyzed: 03/25/2005 (5C25001-BS1)											
EFH (C13 - C40)	0.456	0.50	0.082	mg/l	0.775		59	40-120			M-NR1 J
Surrogate: n-Octacosane	0.107			mg/l	0.200		54	40-125			
LCS Dup Analyzed: 03/25/2005 (5C25001-BSD1)											
EFH (C13 - C40)	0.380	0.50	0.082	mg/l	0.775		49	40-120	18	25	J
Surrogate: n-Octacosane	0.0964			mg/l	0.200		48	40-125			

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Sampled: 03/24/05

Received: 03/24/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit Limits	RPD Limit	Data Qualifiers
Batch: 5C25003 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25003-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.0109			mg/l	0.0100		109		65-140		
LCS Analyzed: 03/25/2005 (5C25003-BS1)											
GRO (C4 - C12)	0.755	0.10	0.050	mg/l	0.800		94		70-140		
Surrogate: 4-BFB (FID)	0.0301			mg/l	0.0300		100		65-140		
Matrix Spike Analyzed: 03/25/2005 (5C25003-MS1)											
						Source: IOC1192-06					
GRO (C4 - C12)	1.22	0.10	0.050	mg/l	0.220	1.0	100		60-140		
Surrogate: 4-BFB (FID)	0.0128			mg/l	0.0100		128		65-140		
Matrix Spike Dup Analyzed: 03/25/2005 (5C25003-MSD1)											
						Source: IOC1192-06					
GRO (C4 - C12)	1.18	0.10	0.050	mg/l	0.220	1.0	82		60-140	3	20
Surrogate: 4-BFB (FID)	0.0127			mg/l	0.0100		127		65-140		

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Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: 5C25027 Extracted: 03/25/05										
Blank Analyzed: 03/25/2005 (5C25027-BLK1)										
1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l						
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l						
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l						
tert-Butanol (TBA)	ND	25	3.1	ug/l						
Surrogate: Dibromofluoromethane	27.6			ug/l	25.0		110	80-120		
Surrogate: Toluene-d8	28.4			ug/l	25.0		114	80-120		
Surrogate: 4-Bromofluorobenzene	26.4			ug/l	25.0		106	80-120		
LCS Analyzed: 03/25/2005 (5C25027-BS1)										
1,2-Dibromoethane (EDB)	24.1	2.0	0.32	ug/l	25.0		96	75-125		
Methyl-tert-butyl Ether (MTBE)	24.5	5.0	0.32	ug/l	25.0		98	55-145		
1,2,3-Trichloropropane	22.5	10	0.85	ug/l	25.0		90	60-130		
Di-isopropyl Ether (DIPE)	27.0	5.0	0.25	ug/l	25.0		108	65-135		
tert-Butanol (TBA)	141	25	3.1	ug/l	125		113	70-140		
Surrogate: Dibromofluoromethane	27.6			ug/l	25.0		110	80-120		
Surrogate: Toluene-d8	28.5			ug/l	25.0		114	80-120		
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0		108	80-120		
Matrix Spike Analyzed: 03/25/2005 (5C25027-MS1)					Source: IOC2023-01					
1,2-Dibromoethane (EDB)	28.0	2.0	0.32	ug/l	25.0	ND	112	70-130		
Methyl-tert-butyl Ether (MTBE)	29.5	5.0	0.32	ug/l	25.0	ND	118	50-155		
1,2,3-Trichloropropane	28.4	10	0.85	ug/l	25.0	ND	114	55-140		
Di-isopropyl Ether (DIPE)	28.3	5.0	0.25	ug/l	25.0	ND	113	65-140		
tert-Butanol (TBA)	148	25	3.1	ug/l	125	ND	118	65-145		
Surrogate: Dibromofluoromethane	28.4			ug/l	25.0		114	80-120		
Surrogate: Toluene-d8	29.0			ug/l	25.0		116	80-120		
Surrogate: 4-Bromofluorobenzene	26.6			ug/l	25.0		106	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: 5C25027 Extracted: 03/25/05											
Matrix Spike Dup Analyzed: 03/25/2005 (5C25027-MSD1)						Source: IOC2023-01					
1,2-Dibromoethane (EDB)	28.8	2.0	0.32	ug/l	25.0	ND	115	70-130	3	25	
Methyl-tert-butyl Ether (MTBE)	30.7	5.0	0.32	ug/l	25.0	ND	123	50-155	4	25	
1,2,3-Trichloropropane	29.0	10	0.85	ug/l	25.0	ND	116	55-140	2	30	
Di-isopropyl Ether (DIPE)	28.4	5.0	0.25	ug/l	25.0	ND	114	65-140	0	25	
tert-Butanol (TBA)	140	25	3.1	ug/l	125	ND	112	65-145	6	25	
Surrogate: Dibromofluoromethane	28.6			ug/l	25.0		114	80-120			
Surrogate: Toluene-d8	29.1			ug/l	25.0		116	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0		108	80-120			

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C25042 Extracted: 03/25/05											
Blank Analyzed: 03/28/2005 (5C25042-BLK1)											
Naphthalene	ND	10	4.5	ug/l							
N-Nitrosodimethylamine	ND	20	3.7	ug/l							
Surrogate: 2-Fluorophenol	113			ug/l	200		56	30-120			
Surrogate: Phenol-d6	124			ug/l	200		62	35-120			
Surrogate: 2,4,6-Tribromophenol	152			ug/l	200		76	45-120			
Surrogate: Nitrobenzene-d5	69.8			ug/l	100		70	45-120			
Surrogate: 2-Fluorobiphenyl	71.1			ug/l	100		71	45-120			
Surrogate: Terphenyl-d14	82.6			ug/l	100		83	45-120			
LCS Analyzed: 03/28/2005 (5C25042-BS1)											
Naphthalene	74.9	10	4.5	ug/l	100		75	50-120			M-NR1
N-Nitrosodimethylamine	69.9	20	3.7	ug/l	100		70	40-120			
Surrogate: 2-Fluorophenol	123			ug/l	200		62	30-120			
Surrogate: Phenol-d6	130			ug/l	200		65	35-120			
Surrogate: 2,4,6-Tribromophenol	159			ug/l	200		80	45-120			
Surrogate: Nitrobenzene-d5	71.7			ug/l	100		72	45-120			
Surrogate: 2-Fluorobiphenyl	71.9			ug/l	100		72	45-120			
Surrogate: Terphenyl-d14	83.9			ug/l	100		84	45-120			
LCS Dup Analyzed: 03/28/2005 (5C25042-BSD1)											
Naphthalene	70.1	10	4.5	ug/l	100		70	50-120	7	20	
N-Nitrosodimethylamine	60.5	20	3.7	ug/l	100		60	40-120	14	20	
Surrogate: 2-Fluorophenol	111			ug/l	200		56	30-120			
Surrogate: Phenol-d6	120			ug/l	200		60	35-120			
Surrogate: 2,4,6-Tribromophenol	156			ug/l	200		78	45-120			
Surrogate: Nitrobenzene-d5	65.8			ug/l	100		66	45-120			
Surrogate: 2-Fluorobiphenyl	68.7			ug/l	100		69	45-120			
Surrogate: Terphenyl-d14	81.8			ug/l	100		82	45-120			

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



Del Mar Analytical

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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C24102 Extracted: 03/24/05											
Blank Analyzed: 03/25/2005 (5C24102-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/25/2005 (5C24102-BS1)											
Total Dissolved Solids	1030	10	10	mg/l	1000		103	90-110			
Duplicate Analyzed: 03/25/2005 (5C24102-DUP1)											
Total Dissolved Solids	1040	10	10	mg/l		Source: IOC1711-04 1000			4	10	
Batch: 5C24132 Extracted: 03/24/05											
Blank Analyzed: 03/29/2005 (5C24132-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/29/2005 (5C24132-BS1)											
Biochemical Oxygen Demand	214	100	30	mg/l	198		108	85-115			
LCS Dup Analyzed: 03/29/2005 (5C24132-BSD1)											
Biochemical Oxygen Demand	210	100	30	mg/l	198		106	85-115	2	20	
Batch: 5C25043 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25043-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/25/2005 (5C25043-BS1)											
Oil & Grease	15.5	5.0	0.94	mg/l	20.0		78	65-120			M-NR1

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

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: 5C25043 Extracted: 03/25/05											
LCS Dup Analyzed: 03/25/2005 (5C25043-BSD1)											
Oil & Grease	15.8	5.0	0.94	mg/l	20.0		79	65-120	2	20	
Batch: 5C25061 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25061-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/25/2005 (5C25061-BS1)											
Perchlorate	48.8	4.0	0.80	ug/l	50.0		98	85-115			
Matrix Spike Analyzed: 03/25/2005 (5C25061-MS1) Source: IOC2024-01											
Perchlorate	49.6	4.0	0.80	ug/l	50.0	1.2	97	80-120			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25061-MSD1) Source: IOC2024-01											
Perchlorate	49.9	4.0	0.80	ug/l	50.0	1.2	97	80-120	1	20	
Batch: 5C25070 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25070-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/25/2005 (5C25070-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/25/2005 (5C25070-MS1) Source: IOC1969-01											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	0.56	90	70-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC1969	Sampled: 03/24/05 Received: 03/24/05
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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: 5C25070 Extracted: 03/25/05											
Matrix Spike Dup Analyzed: 03/25/2005 (5C25070-MSD1)						Source: IOC1969-01					
Ammonia-N (Distilled)	9.24	0.50	0.30	mg/l	10.0	0.56	87	70-120	3	15	
Batch: 5C25082 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25082-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/25/2005 (5C25082-BS1)											
Total Suspended Solids	987	10	10	mg/l	1000		99	85-115			
Duplicate Analyzed: 03/25/2005 (5C25082-DUP1)						Source: IOC1926-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5C25100 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25100-BLK1)											
Turbidity	0.0500	1.0	0.040	NTU							J
Duplicate Analyzed: 03/25/2005 (5C25100-DUP1)						Source: IOC1929-02					
Turbidity	11.7	1.0	0.040	NTU		12			3	20	

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

METHOD BLANK/QC DATA

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: P5C3022 Extracted: 03/30/05											
Blank Analyzed: 03/30/2005 (P5C3022-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.15			ug/l	1.00		115	80-125			
LCS Analyzed: 03/30/2005 (P5C3022-BS1)											
1,4-Dioxane	9.88	1.0	0.49	ug/l	10.0		99	70-130			
Surrogate: Dibromofluoromethane	1.12			ug/l	1.00		112	80-125			
LCS Dup Analyzed: 03/30/2005 (P5C3022-BSD1)											
1,4-Dioxane	8.86	1.0	0.49	ug/l	10.0		89	70-130	11	20	
Surrogate: Dibromofluoromethane	1.12			ug/l	1.00		112	80-125			
Matrix Spike Analyzed: 03/30/2005 (P5C3022-MS1) Source: POC0684-01											
1,4-Dioxane	14.6	1.0	0.49	ug/l	10.0	6.2	84	70-150			
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
Matrix Spike Dup Analyzed: 03/30/2005 (P5C3022-MSD1) Source: POC0684-01											
1,4-Dioxane	15.9	1.0	0.49	ug/l	10.0	6.2	97	70-150	9	25	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05

Received: 03/24/05

DATA QUALIFIERS AND DEFINITIONS

- ID** Due to the low levels of analyte found in the sample, the analyte was qualitatively identified based on the compound's retention time and the presence of a single mass ion.
- 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

ADDITIONAL COMMENTS

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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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC1969

Sampled: 03/24/05
 Received: 03/24/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 314.0	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
SM2540C	Water	X	X

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

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: IOC1969-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

#420 IOX1969

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 During Test -- Outfall 012 Alfa Test Stand				Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH=Total Rec. Petroleum Hydrocarbons (EPA 418.1)	624 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Titr. (350.2) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	Temp = 56.8 F pH = 7.0				Comments
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH=Total Rec. Petroleum Hydrocarbons (EPA 418.1)	624 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Titr. (350.2) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	Temp = 56.8 F pH = 7.0				Comments		
Outfall 012	W	1L Amber	1	HCl	1A	X																		
Outfall 012 duplicate	W	1L Amber	1	HCl	1B	X																		
Outfall 012	W	VOAs	1	HCl	2A		X																	
Outfall 012 duplicate	W	VOAs	2	HCl	2B, 2C		X																	
Outfall 012	W	1L Amber	1	None	3A			X																
Outfall 012 duplicate	W	1L Amber	1	None	3B		X																	
Outfall 012	W	VOAs	1	HCl	4A				X															
Outfall 012 duplicate	W	VOAs	2	HCl	4B, 4C				X															
Outfall 012	W	1L Amber	1	HCl	5A					X														
Outfall 012 duplicate	W	1L Amber	1	HCl	5B					X														
Outfall 012	W	VOAs	1	HCl	6A						X													
Outfall 012 duplicate	W	VOAs	2	HCl	6B, 6C						X													
Outfall 012	W	1L Poly	1	None	7A							X												
Outfall 012	W	1L Amber	1	None	8A								X											
Outfall 012 duplicate	W	1L Amber	1	None	8B								X											
Outfall 012	W	500ml Poly	1	H2SO4	9A									X										
Outfall 012	W	1L Poly	1	None	10A											X								
Outfall 012	W	1L Poly	1	None	11A																			
Trip Blank	W	VOAs	6	HCl	12A, 12B, 12C, 12D, 12E, 12F			X																

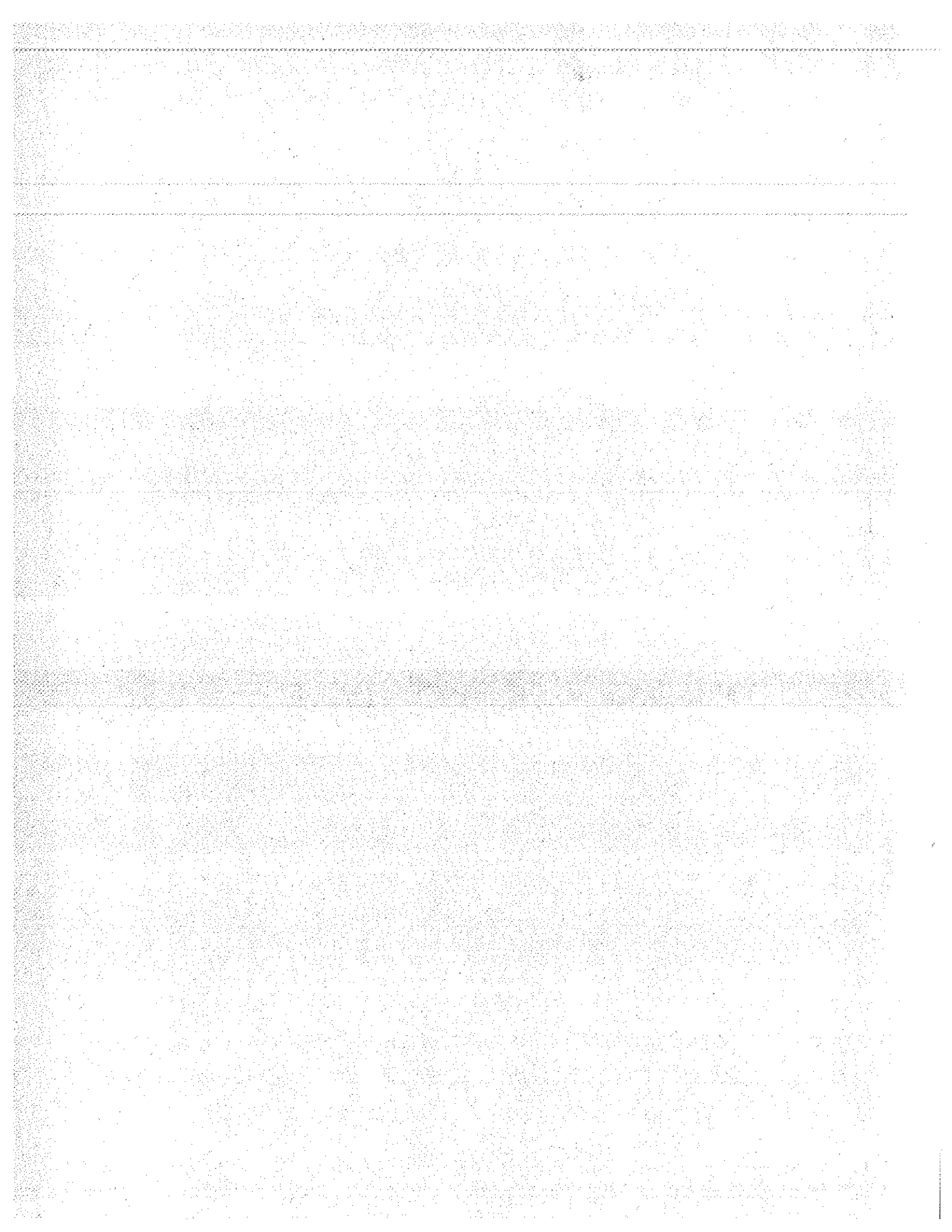
Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours 10 Days _____
 72 Hours _____ Normal _____
 Perchlorate Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample Integrity - (Check) On Ice: 50

Relinquished By: *[Signature]* Date/Time: 3-24-05 16:00
 Received By: *[Signature]* Date/Time: 3/24/05 16:00

Relinquished By: *[Signature]* Date/Time: 3/24/05 19:23
 Received By: *[Signature]* Date/Time: 3/24/05 19:23

Relinquished By: *[Signature]* Date/Time: 3/24/05 19:23
 Received By: *[Signature]* Date/Time: 3/24/05 19:23

[Handwritten Signature]



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV54
 Task Order 313150010
 SDG No. IOC2360

Laboratory Del Mar

No. of Analyses 21

Reviewer M. Pokorny

Date: April 11, 2005

Analysis/Method Semivolatiles

Reviewer's Signature


ACTION ITEMS*

1. **Case Narrative Deficiencies** _____
2. **Out of Scope Analyses** _____
3. **Analyses Not Conducted** _____
4. **Missing Hardcopy Deliverables** _____
5. **Incorrect Hardcopy Deliverables** _____
6. **Deviations from Analysis Protocol, e.g.,**
 - Holding Times _____
 - GC/MS Tune/Inst. Perform _____
 - Calibrations _____
 - Blanks _____
 - Surrogates _____
 - Matrix Spike/Dup LCS _____
 - Field QC _____
 - Internal Standard Performance _____
 - Compound Identification and _____
 - Quantitation _____
 - System Performance _____

COMMENTS* Acceptable as reviewed.

^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: IOC2360

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#: IOC2360
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 12, 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 012	Outfall 012	IOC2360-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/07/05. The average RRFs were ≥0.05 and the %RSDs were ≤35% or $r^2 \geq 0.995$ for both target compounds. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 04/05/05. The RRFs for both target compounds were ≥0.05, and the %Ds were ≤20%. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.4 BLANKS

One method blank (5C31053-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C31053-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary,

to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ," for nondetects, and "J," for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits. A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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



Del Mar Analytical

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 9810 South 51st S., 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: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									REV QUAL	QUAL CODE
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ug/l										
Naphthalene	EPA 625	5C31053	4.5	10	13	0.98	03/31/05	04/06/05		
N-Nitrosodimethylamine	EPA 625	5C31053	3.7	20	ND	0.98	03/31/05	04/06/05	U	
Surrogate: 2-Fluorophenol (30-120%)					65 %					
Surrogate: Phenol-d6 (35-120%)					68 %					
Surrogate: 2,4,6-Tribromophenol (45-120%)					72 %					
Surrogate: Nitrobenzene-d5 (45-120%)					79 %					
Surrogate: 2-Fluorobiphenyl (45-120%)					88 %					
Surrogate: Terphenyl-d14 (45-120%)					111 %					

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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF62
Task Order 313150010
SDG No. IOC2360

No. of Analyses 2
Date: April 11, 2005
Reviewer's Signature


Laboratory Pacific Analytical
Reviewer L. Calvin
Analysis/Method GRO by Method 8015M

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

COMMENTS^b | Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/Purgeable

SAMPLE DELIVERY GROUP: IOC2360

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#: IOC2360
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 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC2360-01	water	8015M/GRO
Trip Blank	Trip Blank	IOC2360-02	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 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 08/26/04 was associated with the sample analyses. The %RSD for GRO (C4-C12) was within the QC limit of $\leq 20\%$. An initial calibration verification (ICV) was not provided in the data package. The %Ds for 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 (5C31001-BLK1) were 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 (5C31001-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140% in the blank spike.

The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC limits of 65-140%. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the site 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 012. 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 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 calibration and by the laboratory MDL. The results were reported in mg/L (ppm). No qualifications were required.



Del Mar Analytical

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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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: IOC2360-01 (DRAFT: Outfall 012 - Water) - cont. Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C31001	0.050	0.10	1.4	1	03/31/05	03/31/05	rel qual scale
Surrogate: 4-BFB (FID) (65-140%)					112 %				
Sample ID: IOC2360-02 (DRAFT: Trip Blank - Water) Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C31001	0.050	0.10	ND	1	03/31/05	03/31/05	u
Surrogate: 4-BFB (FID) (65-140%)					91 %				

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 T711TF63
 Task Order 313150010
 SDG No. IOC2360
 No. of Analyses 1

Laboratory Pacific Analytical

Reviewer L. Calvin

Analysis/Method EPH by Method 8015B

Date: April 11, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOC2360

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#: IOC2360
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 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC2360-01	water	8015B/EFH

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The 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. The EFH analysis (rather than the GRO analysis) was requested in error on the COC for the Trip Blank sample. The sample was analyzed correctly. As the site 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 03/11/05. The %RSD was within the QC limit of $\leq 20\%$. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One method blank (5C31011-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 (5C31011-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%,

and the RPD was within the QC limit of $\leq 25\%$. The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was 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.

2.7 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 sample. 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 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. Results were reported in mg/L (ppm). No qualifications were required.



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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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: IOC2360-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C31011	0.082	0.50	0.66	0.962	03/31/05	03/31/05	rel qual code
Surrogate: n-Octacosane (40-125%)					94 %				

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 T711VO93
 Task Order 313150010
 SDG No. IOC2360
 No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: April 13, 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** **Qualification required for continuing calibration outlier.**
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: IOC2360

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 #: IOC2360
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles (1,4-dioxane)
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 13, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method SW-846 8260B* and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 012	Outfall 012	IOC2360-01	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The original and transfer COCs were signed by field and laboratory personnel. The COCs accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. The sample summary form did not have the Outfall 012 ID printed on it; the ID was added by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 GC/MS TUNING

The ion abundance windows were consistent with those specified in EPA Method 8260B. All ion abundances were within the established windows, and the sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

2.3 CALIBRATION

One initial calibration, dated 03/21/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥ 0.05 and the r^2 value was ≤ 0.995 . One continuing calibration, dated 04/02/05 was associated with this SDG. The RRF for 1,4-dioxane was ≥ 0.05 and the %D was $>20\%$. 1,4-Dioxane was qualified as an estimated nondetect, "UJ," in sample Outfall 012. The r^2 value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

One water method blank (P5D0201-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5D0201-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision were based on blank spike and 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 Trip Blanks

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 1,4-dioxane by Method 8260B/SIM. Chromatograms, retention times, and spectra for the sample and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limit was supported by the lowest concentration of the initial calibration standards and by the undated MDL supplied by the laboratory. Compound quantitation was verified by recalculating blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

2.13 SYSTEM PERFORMANCE

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



Del Mar Analytical

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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

Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05
 Received: 04/01/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
OUTFALL 012									
Sample ID: POD0005-01 (IOC2360-01 - Water)									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D0201	0.49	1.0	ND	1	04/02/05	04/02/05	REV QUAL
Surrogate: Dibromofluoromethane (80-125%)					116%				QUAL CODE
									U J C

AMEC VALIDATED

LEVEL IV

Del Mar Analytical - Phoenix
 Karen Maxwell
 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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO94
 Task Order 313150010
 SDG No. IOC2360
 No. of Analyses 2

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Volatiles

Date: April 13, 2005
 Reviewer's Signature 

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOC2360

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#: IOC2360
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 13, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, *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 012	Outfall 012	IOC2360-01	water	624
Trip Blank	Trip Blank	IOC2360-02	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 COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. The 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 EPA Method 624, and all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 03/04/05 was associated with this SDG. The average RRFs were ≥0.05 for all compounds listed on the sample result summaries. The %RSDs were ≤35% for the target compounds analyzed by EPA Method 624. One continuing calibration associated with the sample analyses was analyzed 03/31/05. The RRFs were ≥0.05 in the continuing calibration. The %Ds for the continuing calibrations associated with the site samples were all ≤20%. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (5C31014-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

One water blank spike (5C31014-BS1) was associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision were based on blank spike and 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 Trip Blanks

Sample Trip Blank (IOC2360-02) was the trip blank associated with this SDG. No target compounds were reported in the Trip Blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration standards and by the MDL study. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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



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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0044 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: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C31014	0.32	2.0	ND	1	03/31/05	03/31/05	U
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C31014	0.32	5.0	ND	1	03/31/05	03/31/05	↓
1,2,3-Trichloropropane	EPA 624	5C31014	0.85	10	ND	1	03/31/05	03/31/05	↓
Di-isopropyl Ether (DIPE)	EPA 624	5C31014	0.25	5.0	ND	1	03/31/05	03/31/05	↓
tert-Butanol (TBA)	EPA 624	5C31014	3.1	25	ND	1	03/31/05	03/31/05	↓
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOC2360-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C31014	0.32	2.0	ND	1	03/31/05	03/31/05	U
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C31014	0.32	5.0	ND	1	03/31/05	03/31/05	↓
1,2,3-Trichloropropane	EPA 624	5C31014	0.85	10	ND	1	03/31/05	03/31/05	↓
Di-isopropyl Ether (DIPE)	EPA 624	5C31014	0.25	5.0	ND	1	03/31/05	03/31/05	↓
tert-Butanol (TBA)	EPA 624	5C31014	3.1	25	ND	1	03/31/05	03/31/05	↓
Surrogate: Dibromofluoromethane (80-120%)					109 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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Data Qualifier Reference Table

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

Qualification Code Reference Table

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

***#**

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC2360

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 #: IOC2360
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 8, 2005

The samples listed in Table I was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 405.1, 413.1, 418.1, 160.2, 160.5, and 180.1, 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 012	Outfall 012	IOC2360-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for ammonia, total recoverable hydrocarbons, and oil and grease, the seven-day holding time for total suspended solids and total dissolved solids, and the 48-hour holding time for turbidity, biological oxygen demand, and total settleable solids 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 information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. Calibration is not applicable to oil and grease, total dissolved solids, total suspended solids, or total settleable solids. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample and laboratory control sample duplicate (BOD, total recoverable hydrocarbons, and oil and grease only) recoveries and RPDs were within the laboratory-established control

DATA VALIDATION REPORT

limits. The LCS is not applicable to turbidity, conductivity, or settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. The oil and grease blank value was not subtracted from the site sample raw data as required by the method. The reviewer corrected the raw data and the changed the results on the sample Form I. The data was qualified as an estimated detect ("J"), between the MDL and the reporting limit with a "DNQ" qualification code. No further transcription errors or calculation errors were noted. No further qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

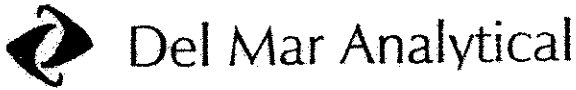
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C31088	0.31	1.0	4.1	1	03/31/05	03/31/05	REV DUPLICATE CODE

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

Project ID: Alfa Outfall 012 - During Test
 Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C31085	0.30	0.50	0.56	1	03/31/05	03/31/05	
Biochemical Oxygen Demand	EPA 405.1	5C31066	0.59	2.0	4.2	1	03/31/05	04/05/05	
Oil & Grease	EPA 413.1	5C31087	0.94	5.0	5.8 4.7	1	03/31/05	03/31/05	J B, D
Total Dissolved Solids	SM2540C	5C30093	10	10	180	1	03/30/05	03/30/05	
Total Suspended Solids	EPA 160.2	5C30091	10	10	14	1	03/30/05	03/30/05	
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C31067	0.10	0.10	ND	1	03/31/05	03/31/05	U
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D01075	0.040	1.0	20	1	04/01/05	04/01/05	
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C31059	0.80	4.0	ND	1	03/31/05	03/31/05	*

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LEVEL IV

*Analysis Not Validated

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EWJ
 5/12/05

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOC2360

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 #: IOC2360
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 8, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 012	Outfall 012	IOC2360-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, ICCS, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C31085	0.30	0.50	0.56	1	03/31/05	03/31/05	* <u>REV QUAL SUITS CODE</u>
Biochemical Oxygen Demand	EPA 405.1	5C31066	0.59	2.0	4.2	1	03/31/05	04/05/05	
Oil & Grease	EPA 413.1	5C31087	0.94	5.0	5.8	1	03/31/05	03/31/05	3
Total Dissolved Solids	SM2540C	5C30093	10	10	180	1	03/30/05	03/30/05	
Total Suspended Solids	EPA 160.2	5C30091	10	10	14	1	03/30/05	03/30/05	
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C31067	0.10	0.10	ND	1	03/31/05	03/31/05	
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D01075	0.040	1.0	20	1	04/01/05	04/01/05	
Sample ID: IOC2360-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C31059	0.80	4.0	ND	1	03/31/05	03/31/05	u

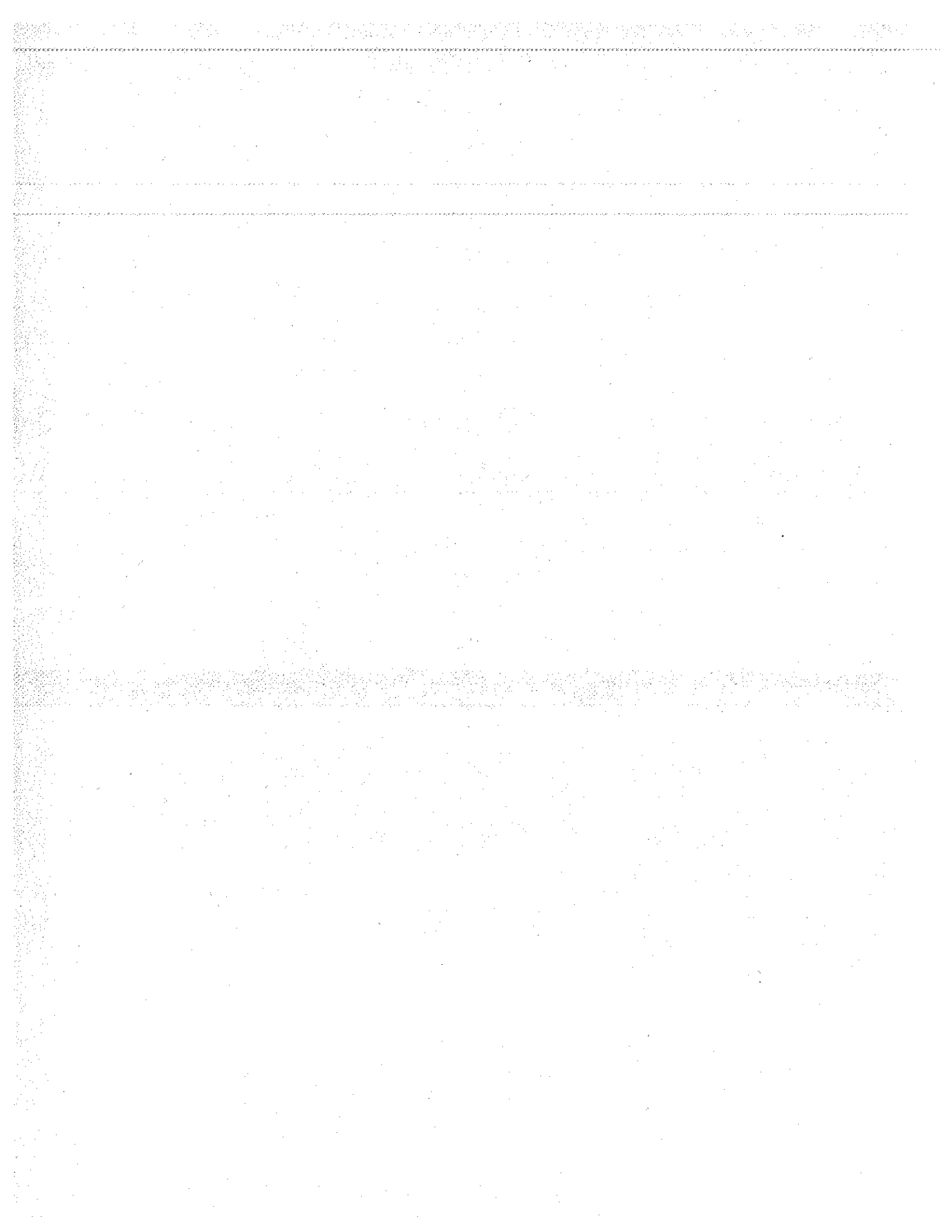
AMEC VALIDATED

LEVEL IV

Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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LABORATORY REPORT

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

Project: Alfa Outfall 012 - During Test

Sampled: 03/30/05
Received: 03/30/05
Issued: 04/13/05 09:21

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 2 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
IOC2360-01	Outfall 012	Water
IOC2360-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
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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: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C31088	0.31	1.0	4.1	1	03/31/05	03/31/05	

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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: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
Received: 03/30/05

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: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C31011	0.082	0.50	0.66	0.962	03/31/05	03/31/05	
Surrogate: n-Octacosane (40-125%)					94 %				

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C31001	0.050	0.10	1.4	1	03/31/05	03/31/05	
Surrogate: 4-BFB (FID) (65-140%)					112 %				
Sample ID: IOC2360-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C31001	0.050	0.10	ND	1	03/31/05	03/31/05	
Surrogate: 4-BFB (FID) (65-140%)					91 %				

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C31014	0.32	2.0	ND	1	03/31/05	03/31/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C31014	0.32	5.0	ND	1	03/31/05	03/31/05	
1,2,3-Trichloropropane	EPA 624	5C31014	0.85	10	ND	1	03/31/05	03/31/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C31014	0.25	5.0	ND	1	03/31/05	03/31/05	
tert-Butanol (TBA)	EPA 624	5C31014	3.1	25	ND	1	03/31/05	03/31/05	
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					100 %				
Sample ID: IOC2360-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5C31014	0.32	2.0	ND	1	03/31/05	03/31/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5C31014	0.32	5.0	ND	1	03/31/05	03/31/05	
1,2,3-Trichloropropane	EPA 624	5C31014	0.85	10	ND	1	03/31/05	03/31/05	
Di-isopropyl Ether (DIPE)	EPA 624	5C31014	0.25	5.0	ND	1	03/31/05	03/31/05	
tert-Butanol (TBA)	EPA 624	5C31014	3.1	25	ND	1	03/31/05	03/31/05	
Surrogate: Dibromofluoromethane (80-120%)					109 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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 Michele Harper
 Project Manager

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05

Received: 03/30/05

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: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	5C31053	4.5	10	13	0.98	03/31/05	04/06/05	
N-Nitrosodimethylamine	EPA 625	5C31053	3.7	20	ND	0.98	03/31/05	04/06/05	
Surrogate: 2-Fluorophenol (30-120%)					65 %				
Surrogate: Phenol-d6 (35-120%)					68 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					72 %				
Surrogate: Nitrobenzene-d5 (45-120%)					79 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					88 %				
Surrogate: Terphenyl-d14 (45-120%)					111 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C31085	0.30	0.50	0.56	1	03/31/05	03/31/05	
Biochemical Oxygen Demand	EPA 405.1	5C31066	0.59	2.0	4.2	1	03/31/05	04/05/05	
Oil & Grease	EPA 413.1	5C31087	0.94	5.0	5.8	1	03/31/05	03/31/05	B
Total Dissolved Solids	SM2540C	5C30093	10	10	180	1	03/30/05	03/30/05	
Total Suspended Solids	EPA 160.2	5C30091	10	10	14	1	03/30/05	03/30/05	
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C31067	0.10	0.10	ND	1	03/31/05	03/31/05	
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D01075	0.040	1.0	20	1	04/01/05	04/01/05	
Sample ID: IOC2360-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C31059	0.80	4.0	ND	1	03/31/05	03/31/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
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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: IOC2360-01 (Outfall 012 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D0201	0.49	1.0	ND	1	04/02/05	04/02/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					116 %				

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
Received: 03/30/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 012 (IOC2360-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/30/2005 14:45	03/30/2005 19:20	03/31/2005 09:24	03/31/2005 10:30
EPA 180.1	2	03/30/2005 14:45	03/30/2005 19:20	04/01/2005 09:00	04/01/2005 10:00
EPA 405.1	2	03/30/2005 14:45	03/30/2005 19:20	03/31/2005 16:30	04/05/2005 12:00

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
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METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C31088 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31088-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 03/31/2005 (5C31088-BS1)											
Total Recoverable Hydrocarbons	4.90	1.0	0.31	mg/l	5.00		98	65-120			M-NR1
LCS Dup Analyzed: 03/31/2005 (5C31088-BSD1)											
Total Recoverable Hydrocarbons	4.94	1.0	0.31	mg/l	5.00		99	65-120	1	20	

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
Received: 03/30/05

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C31011 Extracted: 03/31/05										
Blank Analyzed: 03/31/2005 (5C31011-BLK1)										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.170			mg/l	0.200		85		40-125	
LCS Analyzed: 03/31/2005 (5C31011-BS1)										
EFH (C13 - C40)	0.640	0.50	0.082	mg/l	0.775		83		40-120	M-NR1
Surrogate: n-Octacosane	0.186			mg/l	0.200		93		40-125	
LCS Dup Analyzed: 03/31/2005 (5C31011-BSD1)										
EFH (C13 - C40)	0.620	0.50	0.082	mg/l	0.775		80	40-120	3	25
Surrogate: n-Octacosane	0.162			mg/l	0.200		81		40-125	

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Michele Harper
Project Manager



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
Received: 03/30/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C31001 Extracted: 03/31/05										
Blank Analyzed: 03/31/2005 (5C31001-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00918			mg/l	0.0100		92		65-140	
LCS Analyzed: 03/31/2005 (5C31001-BS1)										
GRO (C4 - C12)	0.669	0.10	0.050	mg/l	0.800		84		70-140	
Surrogate: 4-BFB (FID)	0.0256			mg/l	0.0300		85		65-140	
Matrix Spike Analyzed: 03/31/2005 (5C31001-MS1) Source: IOC1878-03										
GRO (C4 - C12)	0.939	0.10	0.050	mg/l	0.220	0.80	63		60-140	
Surrogate: 4-BFB (FID)	0.00984			mg/l	0.0100		98		65-140	
Matrix Spike Dup Analyzed: 03/31/2005 (5C31001-MSD1) Source: IOC1878-03										
GRO (C4 - C12)	0.998	0.10	0.050	mg/l	0.220	0.80	90	6	60-140	20
Surrogate: 4-BFB (FID)	0.0105			mg/l	0.0100		105		65-140	

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
Received: 03/30/05

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: 5C31014 Extracted: 03/31/05									
Blank Analyzed: 03/31/2005 (5C31014-BLK1)									
1,2-Dibromoethane (EDB)	ND	2.0	0.32	ug/l					
Methyl-tert-butyl Ether (MTBE)	ND	5.0	0.32	ug/l					
1,2,3-Trichloropropane	ND	10	0.85	ug/l					
Di-isopropyl Ether (DIPE)	ND	5.0	0.25	ug/l					
tert-Butanol (TBA)	ND	25	3.1	ug/l					
Surrogate: Dibromofluoromethane	27.1			ug/l	25.0		108 80-120		
Surrogate: Toluene-d8	25.0			ug/l	25.0		100 80-120		
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99 80-120		
LCS Analyzed: 03/31/2005 (5C31014-BS1)									
1,2-Dibromoethane (EDB)	24.5	2.0	0.32	ug/l	25.0		98 75-125		
Methyl-tert-butyl Ether (MTBE)	24.6	5.0	0.32	ug/l	25.0		98 55-145		
1,2,3-Trichloropropane	22.8	10	0.85	ug/l	25.0		91 60-130		
Di-isopropyl Ether (DIPE)	24.9	5.0	0.25	ug/l	25.0		100 65-135		
tert-Butanol (TBA)	130	25	3.1	ug/l	125		104 70-140		
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0		106 80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100 80-120		
Surrogate: 4-Bromofluorobenzene	25.6			ug/l	25.0		102 80-120		
Matrix Spike Analyzed: 03/31/2005 (5C31014-MS1)					Source: IOC2248-03				
1,2-Dibromoethane (EDB)	25.8	2.0	0.32	ug/l	25.0	ND	103 70-130		
Methyl-tert-butyl Ether (MTBE)	25.9	5.0	0.32	ug/l	25.0	ND	104 50-155		
1,2,3-Trichloropropane	23.9	10	0.85	ug/l	25.0	ND	96 55-140		
Di-isopropyl Ether (DIPE)	26.9	5.0	0.25	ug/l	25.0	ND	108 65-140		
tert-Butanol (TBA)	150	25	3.1	ug/l	125	ND	120 65-145		
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106 80-120		
Surrogate: Toluene-d8	25.0			ug/l	25.0		100 80-120		
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101 80-120		

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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: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05

Received: 03/30/05

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: 5C31014 Extracted: 03/31/05											
Matrix Spike Dup Analyzed: 03/31/2005 (5C31014-MSD1)						Source: IOC2248-03					
1,2-Dibromoethane (EDB)	27.2	2.0	0.32	ug/l	25.0	ND	109	70-130	5	25	
Methyl-tert-butyl Ether (MTBE)	27.5	5.0	0.32	ug/l	25.0	ND	110	50-155	6	25	
1,2,3-Trichloropropane	25.9	10	0.85	ug/l	25.0	ND	104	55-140	8	30	
Di-isopropyl Ether (DIPE)	26.4	5.0	0.25	ug/l	25.0	ND	106	65-140	2	25	
tert-Butanol (TBA)	144	25	3.1	ug/l	125	ND	115	65-145	4	25	
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			

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 Michele Harper
 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
--	--	---

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: 5C31053 Extracted: 03/31/05										
Blank Analyzed: 04/05/2005 (5C31053-BLK1)										
Naphthalene	ND	10	4.5	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	118			ug/l	200		59 30-120			
Surrogate: Phenol-d6	127			ug/l	200		64 35-120			
Surrogate: 2,4,6-Tribromophenol	124			ug/l	200		62 45-120			
Surrogate: Nitrobenzene-d5	69.9			ug/l	100		70 45-120			
Surrogate: 2-Fluorobiphenyl	79.3			ug/l	100		79 45-120			
Surrogate: Terphenyl-d14	112			ug/l	100		112 45-120			
LCS Analyzed: 04/06/2005 (5C31053-BS1)										
Naphthalene	82.0	10	4.5	ug/l	100		82 50-120			M-NR1
N-Nitrosodimethylamine	58.5	20	3.7	ug/l	100		58 40-120			
Surrogate: 2-Fluorophenol	131			ug/l	200		66 30-120			
Surrogate: Phenol-d6	143			ug/l	200		72 35-120			
Surrogate: 2,4,6-Tribromophenol	143			ug/l	200		72 45-120			
Surrogate: Nitrobenzene-d5	77.6			ug/l	100		78 45-120			
Surrogate: 2-Fluorobiphenyl	88.0			ug/l	100		88 45-120			
Surrogate: Terphenyl-d14	118			ug/l	100		118 45-120			
LCS Dup Analyzed: 04/06/2005 (5C31053-BSD1)										
Naphthalene	75.6	10	4.5	ug/l	100		76 50-120	8	20	
N-Nitrosodimethylamine	54.0	20	3.7	ug/l	100		54 40-120	8	20	
Surrogate: 2-Fluorophenol	118			ug/l	200		59 30-120			
Surrogate: Phenol-d6	129			ug/l	200		64 35-120			
Surrogate: 2,4,6-Tribromophenol	137			ug/l	200		68 45-120			
Surrogate: Nitrobenzene-d5	70.1			ug/l	100		70 45-120			
Surrogate: 2-Fluorobiphenyl	80.7			ug/l	100		81 45-120			
Surrogate: Terphenyl-d14	111			ug/l	100		111 45-120			



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

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: 5C30091 Extracted: 03/30/05											
Blank Analyzed: 03/30/2005 (5C30091-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/30/2005 (5C30091-BS1)											
Total Suspended Solids	935	10	10	mg/l	1000		94	85-115			
Duplicate Analyzed: 03/30/2005 (5C30091-DUP1)											
						Source: IOC2203-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5C30093 Extracted: 03/30/05											
Blank Analyzed: 03/30/2005 (5C30093-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/30/2005 (5C30093-BS1)											
Total Dissolved Solids	1010	10	10	mg/l	1000		101	90-110			
Duplicate Analyzed: 03/30/2005 (5C30093-DUP1)											
						Source: IOC2323-04					
Total Dissolved Solids	480	10	10	mg/l		470			2	10	
Batch: 5C31059 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31059-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/31/2005 (5C31059-BS1)											
Perchlorate	48.6	4.0	0.80	ug/l	50.0		97	85-115			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
--	--	---

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: 5C31059 Extracted: 03/31/05											
Matrix Spike Analyzed: 03/31/2005 (5C31059-MS1)						Source: IOC2234-01					
Perchlorate	52.6	4.0	0.80	ug/l	50.0	4.3	97	80-120			
Matrix Spike Dup Analyzed: 03/31/2005 (5C31059-MSD1)						Source: IOC2234-01					
Perchlorate	53.1	4.0	0.80	ug/l	50.0	4.3	98	80-120	1	20	
Batch: 5C31066 Extracted: 03/31/05											
Blank Analyzed: 04/05/2005 (5C31066-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 04/05/2005 (5C31066-BS1)											
Biochemical Oxygen Demand	210	100	30	mg/l	198		106	85-115			
LCS Dup Analyzed: 04/05/2005 (5C31066-BSD1)											
Biochemical Oxygen Demand	206	100	30	mg/l	198		104	85-115	2	20	
Batch: 5C31085 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31085-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/31/2005 (5C31085-BS1)											
Ammonia-N (Distilled)	10.6	0.50	0.30	mg/l	10.0		106	80-115			
Matrix Spike Analyzed: 03/31/2005 (5C31085-MS1)						Source: IOC2377-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120			

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
 Received: 03/30/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C31085 Extracted: 03/31/05											
Matrix Spike Dup Analyzed: 03/31/2005 (5C31085-MSD1)						Source: IOC2377-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120	0	15	
Batch: 5C31087 Extracted: 03/31/05											
Blank Analyzed: 03/31/2005 (5C31087-BLK1)											
Oil & Grease	1.10	5.0	0.94	mg/l							J
LCS Analyzed: 03/31/2005 (5C31087-BS1)											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120			M-NR1
LCS Dup Analyzed: 03/31/2005 (5C31087-BSD1)											
Oil & Grease	21.2	5.0	0.94	mg/l	20.0		106	65-120	1	20	
Batch: 5D01075 Extracted: 04/01/05											
Blank Analyzed: 04/01/2005 (5D01075-BLK1)											
Turbidity	ND	1.0	0.040	NTU							
Duplicate Analyzed: 04/01/2005 (5D01075-DUP1)											
Turbidity	0.110	1.0	0.040	NTU		0.12			9	20	J

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
--	--	---

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: P5D0201 Extracted: 04/02/05											
Blank Analyzed: 04/02/2005 (P5D0201-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.13			ug/l	1.00		113	80-125			
LCS Analyzed: 04/02/2005 (P5D0201-BS1)											
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0		86	70-130			
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
LCS Dup Analyzed: 04/02/2005 (P5D0201-BSD1)											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130	5	20	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
Matrix Spike Analyzed: 04/02/2005 (P5D0201-MS1) Source: POC0786-06											
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0	ND	86	70-150			
Surrogate: Dibromofluoromethane	1.01			ug/l	1.00		101	80-125			
Matrix Spike Dup Analyzed: 04/02/2005 (P5D0201-MSD1) Source: POC0786-06											
1,4-Dioxane	8.91	1.0	0.49	ug/l	10.0	ND	89	70-150	4	25	
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOC2360

Sampled: 03/30/05
Received: 03/30/05

DATA QUALIFIERS AND DEFINITIONS

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

ADDITIONAL COMMENTS

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.



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Alfa Outfall 012 - During Test Report Number: IOC2360	Sampled: 03/30/05 Received: 03/30/05
--	--	---

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 314.0	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 418.1	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
SM2540C	Water	X	X

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

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: IOC2360-01

Del Mar Analytical, Irvine

Michele Harper

Project Manager



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

SUBCONTRACT ORDER - PROJECT # IOC2360

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:

Del Mar Analytical - Phoenix
9830 S. 51st Street, Suite B-120
Phoenix, AZ 85044
Phone : (480) 785-0043
Fax: (480) 785-0851

Analysis	Expiration	Due	Comments
Sample ID: IOC2360-01 Water		Sampled: 03/30/05 14:45	
Dioxane-8260B-out	04/13/05 14:45	04/01/05 15:00	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
Level 4 Data Package - Out	04/27/05 14:45	04/01/05 15:00	Boeing

Containers Supplied:

- 40 ml VOA w/HCL (IOC2360-01H)
- 40 ml VOA w/HCL (IOC2360-01I)
- 40 ml VOA w/HCL (IOC2360-01J)

POD0005-01

SAMPLE INTEGRITY:

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

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

Samples Received On Ice: Yes No
Samples Received at (temp): 5.1°C

Released By: Date: 3-31-05 Time: 17:00
Received By: Date: 4-1-05 Time: 09:50
Released By: Date: 4-1-05 Time: 17:00
Received By: Date: 4-1-05 Time: 17:00

1002360

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 During Test -- Outfall 012 Alfa Test Stand												Temp = 68.4 pH = 7.2					
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691												Comments					
Sampler:		Fax Number: (626) 568-6515																	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Oil & Grease (EPA 413.1)	8015-gas	8015-diesel/jet fuel	1,4-Dioxane-8260B	TRPH, Total Rec. (EPA 418.1)	624 (EDB, 1,2,3-TCF, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Titr. (350.2) w/ dist	Perchlorate	Turbidity, TDS, TSS	Settleable Solids	
Outfall 012	W	1L Amber	1	3-30-05 17:45	HCl	1A	X												
Outfall 012 duplicate	W	1L Amber	1		HCl	1B	X												
Outfall 012	W	VOAs	1		HCl	2A		X											
Outfall 012 duplicate	W	VOAs	2		HCl	2B, 2C		X											
Outfall 012	W	1L Amber	1		None	3A			X										
Outfall 012 duplicate	W	1L Amber	1		None	3B		X											
Outfall 012	W	VOAs	1		HCl	4A			X										
Outfall 012 duplicate	W	VOAs	2		HCl	4B, 4C		X											
Outfall 012	W	1L Amber	1		HCl	5A				X									
Outfall 012 duplicate	W	1L Amber	1		HCl	5B				X									
Outfall 012	W	VOAs	1		HCl	6A					X								
Outfall 012 duplicate	W	VOAs	2		HCl	6B, 6C					X								
Outfall 012	W	1L Poly	1		None	7A						X							
Outfall 012 duplicate	W	1L Amber	1		None	8A							X						
Outfall 012 duplicate	W	1L Amber	1		None	8B								X					
Outfall 012	W	500ml Poly	1		H2SO4	9A									X				
Outfall 012	W	1L Poly	1		None	10A										X			
Outfall 012	W	1L Poly	1	3-30-05 17:45	None	11A													
Trip Blank	W	VOAs	2		HCl	12A, 12B, 12C, 12D, 12E, 12F			X										

Relinquished By: *[Signature]* Date/Time: 3-30-05 15:00
 Received By: *[Signature]* Date/Time: 3/30/05 15:00
 Relinquished By: *[Signature]* Date/Time: 3/30/05 19:20
 Received By: *[Signature]* Date/Time: 3/30/05 19:20
 Turn around Time: (check) 24 Hours 5 Days 10 Days Normal
 Perchlorate Only 72 Hours
 Metals Only 72 Hours
 Sample Integrity: (check) Intact On Ice: 3C
 *Bubbles in Tanker Tank Blanks

BIOLOGICAL OXYGEN DEMAND DATA SHEET

Lab Number: 100 2360-01
 Batch Number: 5C 31066
 Date Sampled: 3/31/05
 Date Received: 3/31/05
 Temperature: 20.00C
 Original pH: 7.0
 Chlorine: ND
 Chlorine Removal: N/A

Dilution Water: 5030623
 Seed Solution: 5030190
 Seed Used: Natural Seed
 Amount: 1.5 ml
 Client: LXX
 Sample Location: _____
 Seed Correction Factor: 0.13
 pH Correction: _____

Sample Amount	Bottle Number	Initial D.O.	5 Day D.O.	D.O. Used	Corrected D.O.	Dilution Factor	5 Day B.O.D
20 ml	356	3.64	AV 6.92	1.62	1.14	15	19.10
50	AM1	3.68	6.92	AV 1.48	1.28	6	7.63
100	AMC	3.84	6.68	2.16	1.68	3	5.04
300	AG	9.88	6.18	3.34	3.36	1	3.36
5		AV 3/31/05					
6							
7							
LCS							
LCSD							
SEED							
SEED DUP							
BLANK							

5 DAY BOD AVERAGE: 4.20
 ANALYST: AV
 DATE: IN: 3/31/05 16:30
 OUT: 4/5/05



QA/QC DATA PACKAGE: LEVEL IV



QA/QC DATA PACKAGE LEVEL IV

TABLE SUMMARY

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LABORATORY REPORT

Prepared For: Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project: IOC2360

Sampled: 03/30/05
 Received: 04/01/05
 Issued: 04/05/05 09:34

NELAP #01109CA California ELAP#2446

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

CASE NARRATIVE

LABORATORY ID

POD0005-01

CLIENT ID

IOC2360-01

MATRIX

Water

SAMPLE RECEIPT: Samples were received intact, at 5°C, on ice and with chain of custody documentation.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: Results that fall between the MDL and RL are 'J' flagged.

SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

Reviewed By:

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager



QA/QC DATA PACKAGE: LEVEL IV

CHAIN OF CUSTODY FORMS



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (908) 370-4667 Fax (908) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-8686 Fax (619) 505-8689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2520 E. Sunset Rd., Suite #5, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC2360

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:

Del Mar Analytical - Phoenix
 9830 S. 51st Street, Suite B-120
 Phoenix, AZ 85044
 Phone : (480) 785-0043
 Fax: (480) 785-0851

Analysis	Expiration	Due	Comments
Sample ID: IOC2360-01 Water		Sampled: 03/30/05 14:45	
Dioxane-8260B-out	04/13/05 14:45	04/01/05 15:00	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
Level 4 Data Package - Out	04/27/05 14:45	04/01/05 15:00	Boeing

Containers Supplied:

- 40 ml VOA w/HCL (IOC2360-01H)
- 40 ml VOA w/HCL (IOC2360-01I)
- 40 ml VOA w/HCL (IOC2360-01J)

POD0005-01

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Property: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): <u>5.1°C</u>

Released By	Date <u>3-31-05</u> Time <u>1700</u>	Received By <u>JH 4/1/5</u>	Date <u>4-1-5</u> Time <u>09:50</u>
Released By	Date	Received By	Date <u>4-1-5</u> Time <u>17:00</u>

WORK ORDER

POD0005



Client: Del Mar Analytical - Irvine	Project Name: Alfa Outfall 012 - During Test
Client Code: DMAI	Project Number: IOC2360
Project Manager: Karen Maxwell	Printed: 4/1/2005 11:28:36AM

Report Information	Sample Receipt Information	Invoice Information
Client Name: Del Mar Analytical - Irvine	Samples Received at: 5.1°C	Del Mar Analytical - Irvine
Client PM: Michele Harper	All containers intact: Yes	Michele Harper
Address: 17461 Derian Ave. Suite 100 Irvine, CA 92614	Sample labels/COC agree: Yes	17461 Derian Ave. Suite 100
Phone: (949) 261-1022	Samples Preserved Properly: Yes	Irvine, CA 92614
Fax: (949) 261-1228	Custody Seals Present: Yes	Phone (949) 261-1022
Due Date: 04/04/05 18:00 (1 day TAT)	Samples received on ice: Yes	Fax: (949) 261-1228
	Samples Received By: Jennifer Hojnacki 04/01/05 09:50	Pricing Information:
	Samples Logged By: Jennifer Hojnacki 04/01/05 11:26	Acct Mgr.: Julie Slocum Hoskin

Work Order Comments

IOC2360 Autolog from DMAI 04/01/05 11:26

EDD Information:	No EDD information has been stored in the system for this client. If you would like to have EDD default information show up here for this client, please contact the IT Department
-------------------------	--

Analysis	Due	TAT	Expires	Price	Comments
POD0005-01 IOC2360-01 / *8260B (1,4-Dioxane)	04/04/05 17:00	1	04/13/05 14:45	\$155.00+100%	Boeing-permit, sub DMAP, J flags, ID=DMA+Outfall 012
*Level IV QC Package	04/06/05 17:00	3	03/25/06 15:45	\$0.00	Boeing

*The Total Price listed above for Work Order POD0005 includes the surcharge listed next to the analysis for the upper level QC packet requested.

AM 4/1/05



SAMPLE RECEIPT FORM

Date/Time: 4/1/2005 11:28:36AM

Client Code: DMAI

DMA Project Number: POD0005

Received By: Jennifer Hojnacki

Logged By: Jennifer Hojnacki

Sample Temperature: 5.1°C

Samples Received: On Ice On Blue Ice Unchilled

Check All that Apply:

Analysis	N/A	pH Verified	Additional Preservative Added?	Sample Numbers Needing Adjustment
500ml Amber w/HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HCL	_____
1L Amber w/HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HCL	_____
Poly w/HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HNO3	_____
Poly w/H2SO4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> H2SO4	_____
500ml Amber w/H2SO4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> H2SO4	_____
1L Amber w/H2SO4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> H2SO4	_____
Poly w/NaOH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NaOH	_____
Poly w/ NaOH + Zinc Acetate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NaOH + Zinc Acetate	_____

Volatile Soil Samples Received in: N/A Brass Sleeves Glass Jars Encore Field Methanol

Other: _____

Date	Initials	Sample Number	Comments
4/1/2005		POD0005-01	

4/1/2005 11:28:37AM

Reviewed By _____ Date _____ Time _____



QC DATA PACKAGE: LEVEL IV

ANALYTICAL REPORTS



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

Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05

Received: 04/01/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: POD0005-01 (IOC2360-01 - Water)									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D0201	0.49	1.0	ND	1	04/02/05	04/02/05	
Surrogate: Dibromofluoromethane (80-125%)					116 %				

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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QA/QC DATA PACKAGE: LEVEL IV

QUALITY CONTROL SUMMARIES



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical - Irvine 17461 Derian Ave. Suite 100 Irvine, CA 92614 Attention: Michele Harper	Project ID: IOC2360 Report Number: POD0005	Sampled: 03/30/05 Received: 04/01/05
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METHOD BLANK/QC DATA

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: P5D0201 Extracted: 04/02/05											
Blank Analyzed: 04/02/2005 (P5D0201-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.13			ug/l	1.00		113	80-125			
LCS Analyzed: 04/02/2005 (P5D0201-BS1)											
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0		86	70-130			
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
LCS Dup Analyzed: 04/02/2005 (P5D0201-BSD1)											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130	5	20	
Surrogate: Dibromofluoromethane	1.14			ug/l	1.00		114	80-125			
Matrix Spike Analyzed: 04/02/2005 (P5D0201-MS1)											
						Source: POC0786-06					
1,4-Dioxane	8.59	1.0	0.49	ug/l	10.0	ND	86	70-150			
Surrogate: Dibromofluoromethane	1.01			ug/l	1.00		101	80-125			
Matrix Spike Dup Analyzed: 04/02/2005 (P5D0201-MSD1)											
						Source: POC0786-06					
1,4-Dioxane	8.91	1.0	0.49	ug/l	10.0	ND	89	70-150	4	25	
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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Del Mar Analytical - Irvine
17461 Derian Ave. Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05

Received: 04/01/05

DATA QUALIFIERS AND DEFINITIONS

- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD Relative Percent Difference

Del Mar Analytical - Phoenix
Karen Maxwell
Project Manager

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Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC2360

Report Number: POD0005

Sampled: 03/30/05
 Received: 04/01/05

Certification Summary

Del Mar Analytical - Phoenix

Method	Matrix	Nelac	California
EPA 8260B	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.

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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QA/QC DATA PACKAGE: LEVEL IV

EPA METHOD 8260B LABORATORY RAW DATA

GCMS TUNING
INITIAL/DAILY CALIBRATION
RUNLOG
CONTINUING CALBRATION
QUANTITATION REPORTS
CHROMATOGRAMS
EXTRACTION LOG
STANDARD LOG

Calibration Status Report GCMS1

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration

*3/21/05
 Jky*

#	ID	Conc	ISTD Conc	Path\File
1	1	0	1	D:\HPCHEM\1\DATA\031905\P0319018.D
2	2	0	1	D:\HPCHEM\1\DATA\031905\P0319010.D
3	5	1	1	D:\HPCHEM\1\DATA\031905\P0319011.D
4	10	1	1	D:\HPCHEM\1\DATA\031905\P0319012.D
5	20	2	1	D:\HPCHEM\1\DATA\031905\P0319013.D
6	50	5	1	D:\HPCHEM\1\DATA\031905\P0319014.D
7	100	10	1	D:\HPCHEM\1\DATA\031905\P0319015.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Mar 21 07:49 2005	Mar 21 07:48 19105	19 Mar 2005 3:54 pm
2	2	Mar 19 14:55 2005	Mar 19 13:43 19105	19 Mar 2005 11:26 am
3	5	Mar 19 14:55 2005	Mar 19 13:43 19105	19 Mar 2005 11:59 am
4	10	Mar 19 14:55 2005	Mar 19 13:37 19105	19 Mar 2005 12:32 pm
5	20	Mar 19 14:55 2005	Mar 19 13:37 19105	19 Mar 2005 1:05 pm
6	50	Mar 19 14:55 2005	Mar 19 14:18 19105	19 Mar 2005 1:38 pm
7	100	Mar 19 14:55 2005	Mar 19 14:54 19105	19 Mar 2005 2:11 pm

DX031905.M

Mon Mar 21 12:55:30 2005

GCMS1

*3/21/05
 Jky*

Compound List Report GCMS1

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration
 Total Cpnds : 6

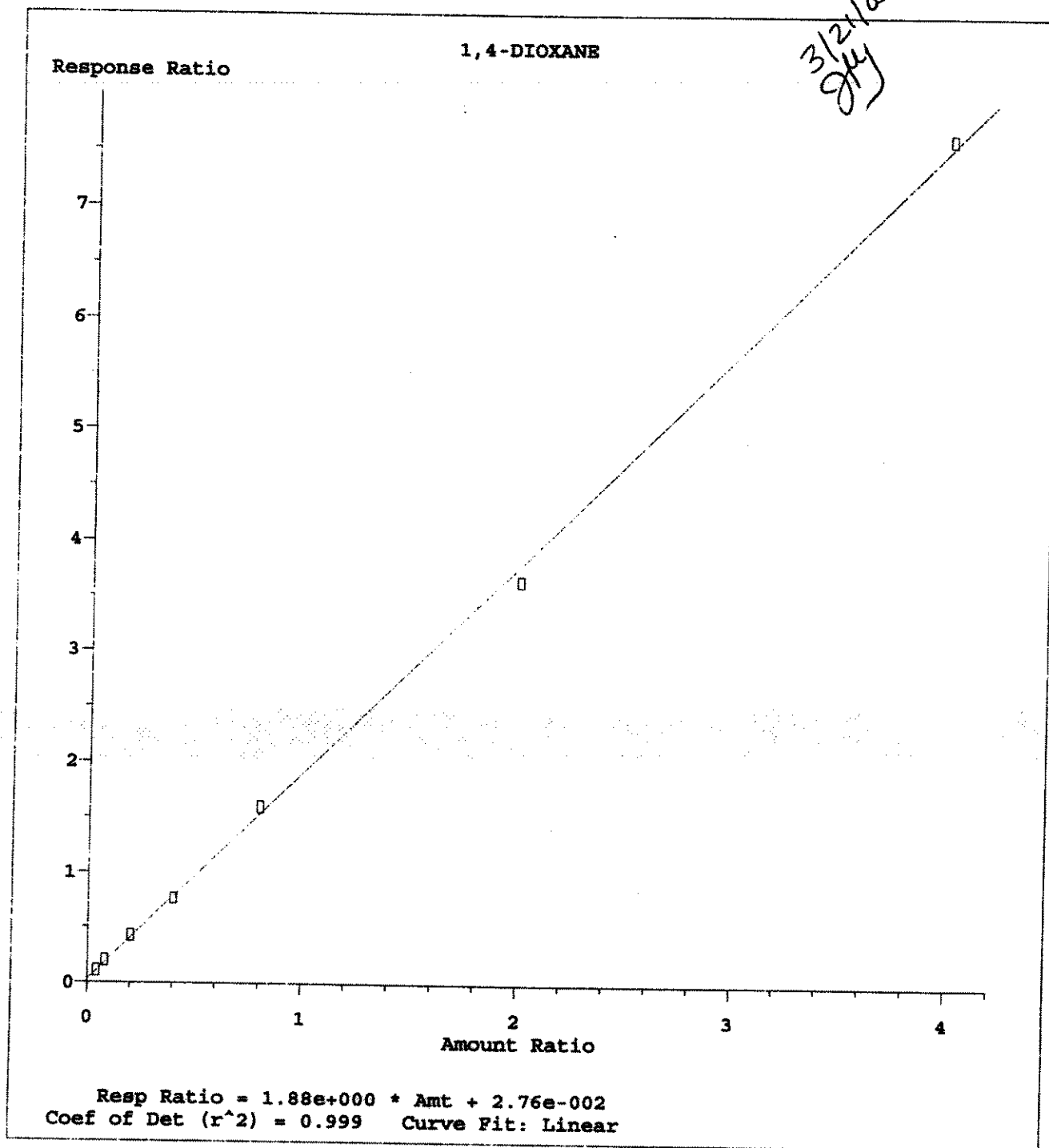
3/21/05
 gky

PK#	Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I Pentafluorobenzene (IS)	99	10.57	1.000	A	1	A	B
2	S Dibromofluoromethane (SU1)	113	10.07	0.953	A	0	A	B
3	I 1,4-DIOXANE-d8	64	12.35	1.000	A	1	A	B
4	T 1,4-DIOXANE	88	12.43	1.007	L	2	A	B
5	I 1,2,3-Trichloropropane-d5	79	15.08	1.000	A	2	A	B
6	T 1,2,3-Trichloropropane	75	15.08	1.000	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
 #Qual = number of qualifiers
 A/H = Area or Height
 ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

 DX031905.M Mon Mar 21 12:55:24 2005 GCMS1

3/21/05
 S



Method Name: D:\HPCHEM\1\METHODS\DX031905.M
 Calibration Table Last Updated: Mon Mar 21 12:54:07 2005

3/22/05
Jfy

Response Factor Report GCMS1

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration

3/21/05
 Jly

Calibration File

1 =P0319018.D 2 =P0319010.D 5 =P0319011.D 10 =P0319012.D
 20 =P0319013.D 50 =P0319014.D 100 =P0319015.D

Compound	1	2	5	10	20	50	100	Avg	%RSD
1) I Pentafluorobenzene (IS)									
2) S Dibromofluoromethane (SU1)									
			0.881	0.829	0.802	0.730	0.720	0.689	0.640
								0.756	11.19
3) I 1,4-DIOXANE-d8									
4) T 1,4-DIOXANE									
			2.705	2.478	2.101	1.905	1.822	1.905	2.130
									15.66
5) I 1,2,3-Trichloropropane-d5									
6) T 1,2,3-Trichloropropane									
								0.000#	-1.00

(#) = Out of Range

DX031905.M

Tue Mar 22 12:15:58 2005 GCMS1

3/21/05
 Jly

Injection Log

Directory: D:\HPCHEM\1\DATA\031905

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	P0319001.D	1.	TUNE/BLANK	1X 10ML	19 Mar 2005 06:19
2	2	P0319002.D	1.	CCV	1X 10ML	19 Mar 2005 06:32
3	3	P0319003.D	1.	LCS DUP	1X 10ML	19 Mar 2005 07:08
4	4	P0319004.D	1.	LCS DUP DNU	1X 10ML	19 Mar 2005 07:44
5	5	P0319005.D	1.	TUNE	1X 10ML	19 Mar 2005 08:39
6	6	P0319006.D	1.	CCV	1X 10ML	19 Mar 2005 09:07
7	7	P0319007.D	1.	CCV DNU	1X 10ML	19 Mar 2005 09:39
8	8	P0319008.D	1.	BLANK	1X 10ML	19 Mar 2005 10:12
9	9	P0319009.D	1.	1.0 PPB CAL DNU	1X 10ML	19 Mar 2005 10:54
10	10	P0319010.D	1.	2.0 PPB CAL	1X 10ML	19 Mar 2005 11:26
11	11	P0319011.D	1.	5.0 PPB CAL	1X 10ML	19 Mar 2005 11:59
12	12	P0319012.D	1.	10.0 PPB CAL	1X 10ML	19 Mar 2005 12:32
13	13	P0319013.D	1.	20.0 PPB CAL	1X 10ML	19 Mar 2005 13:05
14	14	P0319014.D	1.	50.0 PPB CAL	1X 10ML	19 Mar 2005 13:38
15	15	P0319015.D	1.	100.0 PPB CAL	1X 10ML	19 Mar 2005 14:11
16	16	P0319016.D	1.	CLEAN-OUT BLANK/TUNE DNU	1X 10ML	19 Mar 2005 14:44
17	17	P0319017.D	1.	BLANK	1X 10ML	19 Mar 2005 15:21
18	18	P0319018.D	1.	1.0 PPB CAL	1X 10ML	19 Mar 2005 15:54
19	19	P0319019.D	1.	SS/CCV	1X 10ML	19 Mar 2005 16:27

3/21/05
JW

DMAP GC/MS 1 DAILY LOG SUMMARY

CAL CURVE

DATE: 3/19/05

QC BATCH # (s):

P501902J6 3/21/05

ANALYST: JY/MS

SEQUENCE FILE: C:\GCMS1\DATA\

CALIBRATION METHOD(S): DX021605.M/W072903.M

POS #	FILENAME	SAMPLE ID.CLIENT	SAMPLE VOL.	pH	EPA METHOD	MATRIX	COMMENTS
✓	P0319001	TUNE	1ul	NA	8200	H2O	
1	2	CCV	1X10ML				
2	3	LCS DUP					-DIU IS LOW
3	4	LCS DUP					-DIU IS LOW → replace fix p
✓	5	TUNE					
1	6	CCV					-DIU, IS's still low
2	7	CCV					↓ will re-calibrate
3	8	BLANK					
4	9	1.0 ppb Cal					DIU's Grubb/PTL interface
5	10	2.0					
6	11	5.0					
7	12	10.0					
8	13	20.0					
9	14	50.0					
10	15	100.0					
11	16	clean w/blank/Tune					
12	17	MS/ET/Blank					
13	18	1.0 ppb Cal					
14	19	55/CCV					

~~MS 3/19/05~~

STANDARD ID NUMBERS

CCV / H₂O LCS / H₂O SPIKE: 5030018

Internal Std: 5030259 ³⁵³ 3/21/05

CALIBRATION STD: 5030348/5030349

IS / Surrogate / BFB: 5030321

REVIEWER / DATE: Sg/2/05

tune / 5030090

BFB

Data File : D:\HPCHEM\1\DATA\031905\0319005.D

Vial: 5

Acq On : 19 Mar 2005 8:39 am

Operator: JG/MS/CLS

Sample : TUNE

Inst : GCMS1

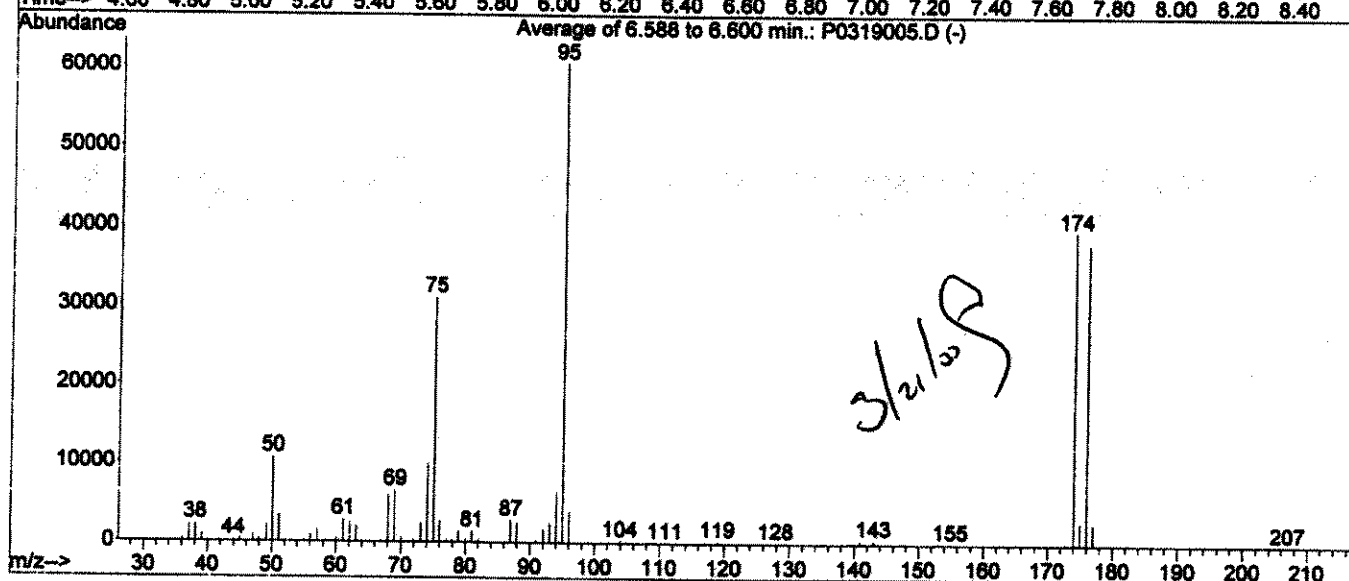
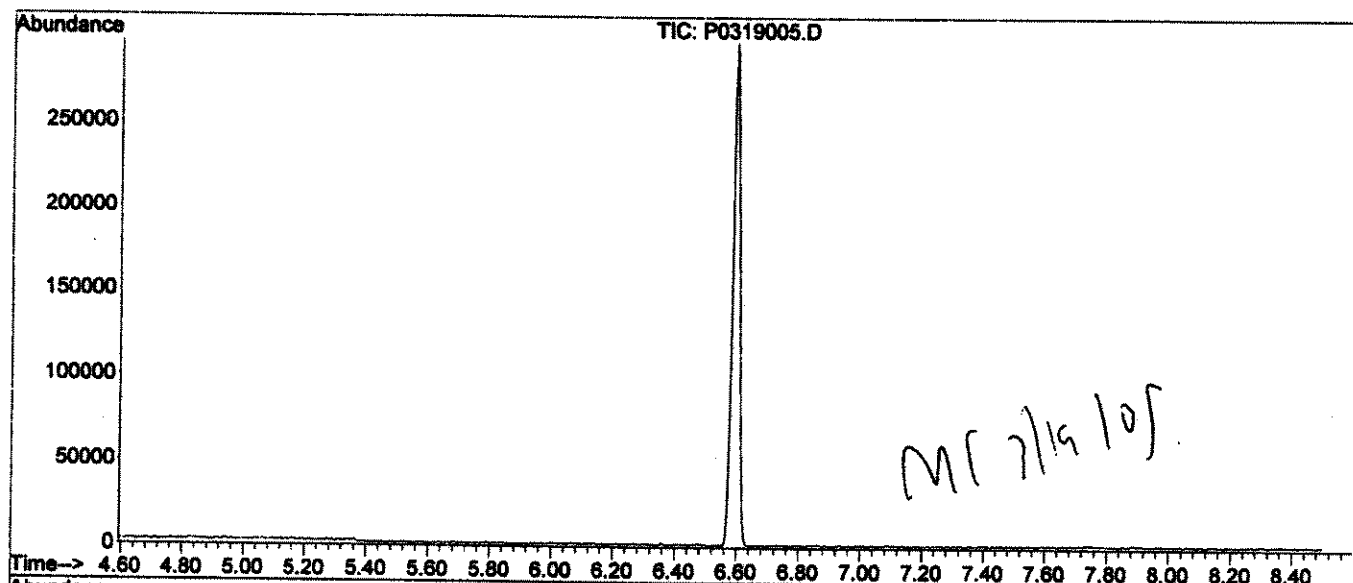
Misc : 1X 10ML

Multiplr: 1.00

MS Integration Params: DIOXANE.P

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)

Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)



AutoFind: Scans 411, 412, 413; Background Corrected with Scan 395

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.5	10615	PASS
75	95	30	60	51.3	31037	PASS
95	95	100	100	100.0	60549	PASS
96	95	5	9	6.6	3996	PASS
173	174	0.00	2	0.6	226	PASS
174	95	50	100	65.5	39648	PASS
175	174	5	9	6.9	2752	PASS
176	174	95	101	96.0	38059	PASS
177	176	5	9	6.9	2638	PASS

1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0319006.D
Data File Path D:\HPCHEM1\DATA\MS1905P0319006.D
Sample Name CCV

Date Acquired 3/19/2005 9:07
Operator JG/MS/CLS
Acq. Method File DX021605
GCMS1

Diox dg low
MS 3/19/05

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	83241	45485	41621	166482	TRUE
1,4-DIOXANE-d8	14475	3821	7237.5	28950	FALSE

SURROGATE	AMOUNT.	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	0.99	99.4	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	15.67	10.00	156.69	70	130	FALSE

3/21/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319006.D
 Acq On : 19 Mar 2005 9:07 am
 Sample : CCV
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 9:22 2005

Vial: 6
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	45485	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	3821	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1)	10.07	113	34911	0.99	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	99.00%	

Target Compounds

4) 1,4-DIOXANE	12.43	88	3845	15.67	ug/L	Qvalue 94
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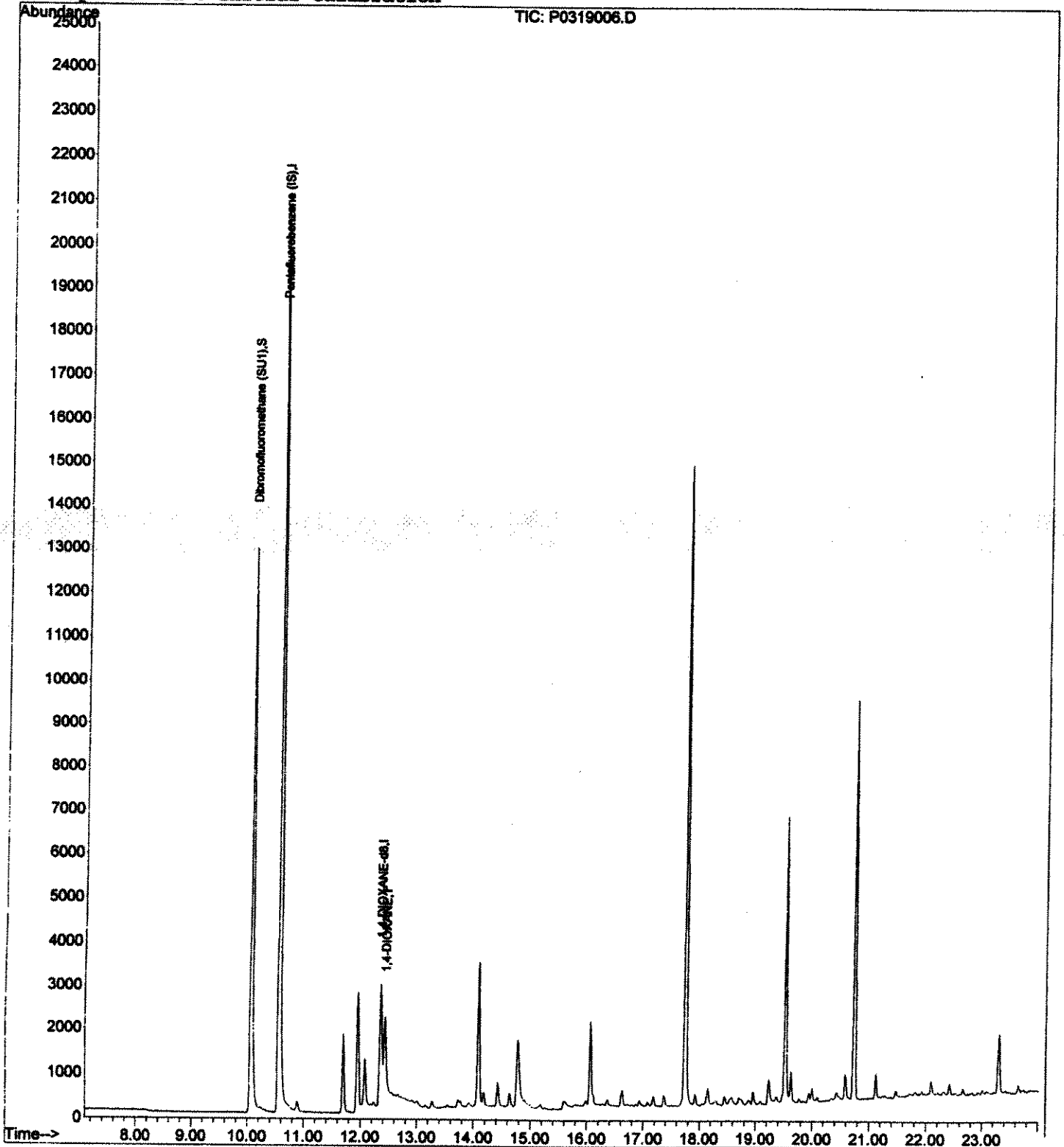
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319006.D
Acq On : 19 Mar 2005 9:07 am
Sample : CCV
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 9:22 2005

Vial: 6
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P031907.D
Data File Path D:\HPCHEM1\DATA\031905\
Sample Name CCV

Date Acquired 3/19/2005 9:39
Operator JG/MS/CLS
Acq. Method File DX021605
GCMS1

Diox-d8 conv.
Re-calibrate.
ML 3/19/05

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	83241	44113	41621	166482	TRUE
1,4-DIOXANE-d8	14475	5363	7237.5	28950	FALSE

SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	1.01	101.4	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	12.47	10.00	124.68	70	130	TRUE

DM

3/21/05

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319007.D
 Acq On : 19 Mar 2005 9:39 am
 Sample : CCV
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 10:14 2005

Vial: 7
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	44413	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5363	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 34770 1.01 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 101.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 4328 12.47 ug/L Qvalue 99

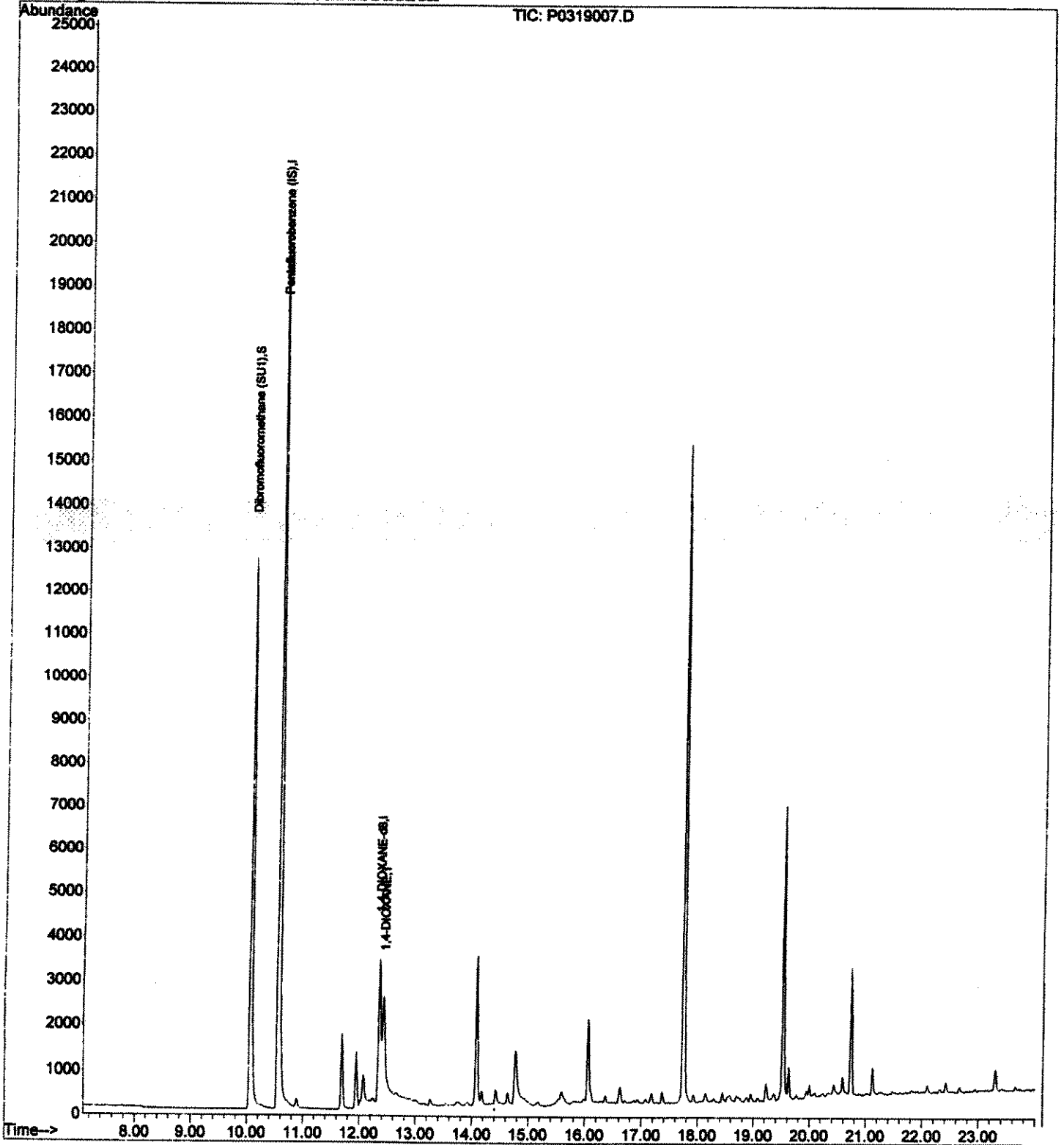
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\0319007.D
Acq On : 19 Mar 2005 9:39 am
Sample : CCV
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 10:14 2005

Vial: 7
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319008.D
 Acq On : 19 Mar 2005 10:12 am
 Sample : BLANK
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 10:34 2005

Vial: 8
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

MT 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	46878	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6171	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0 <i>NT</i>	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1)	10.07	113	37890	1.05	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	105.00%	✓

Target Compounds

4) 1,4-DIOXANE	12.45	88	278	0.23	ug/L	<i>ND</i> ^{Qvalue} 92
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3/21/05

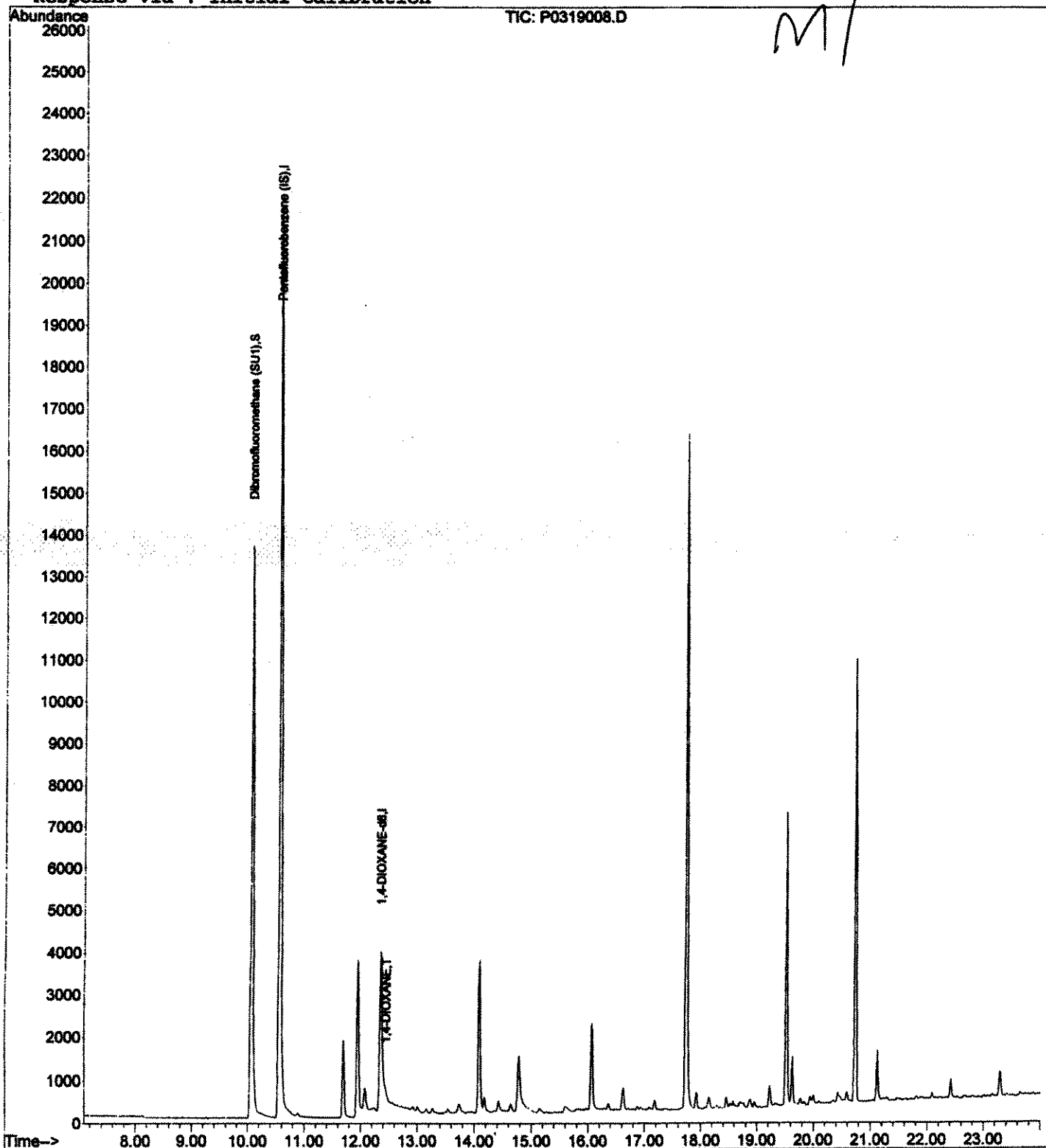
Quantitation Report

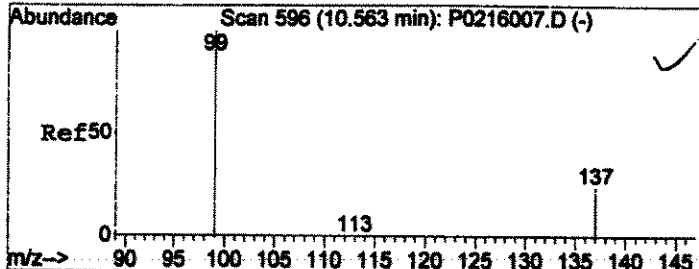
Data File : D:\HPCHEM\1\DATA\031905\0319008.D
Acq On : 19 Mar 2005 10:12 am
Sample : BLANK
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 10:34 2005

Vial: 8
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

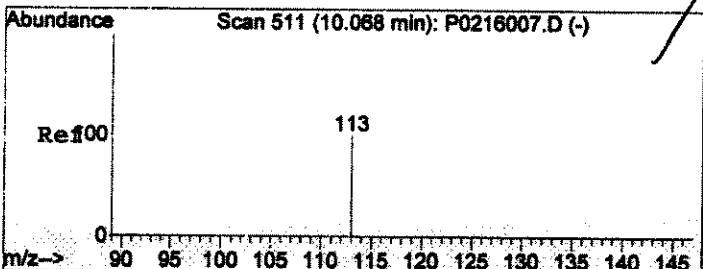
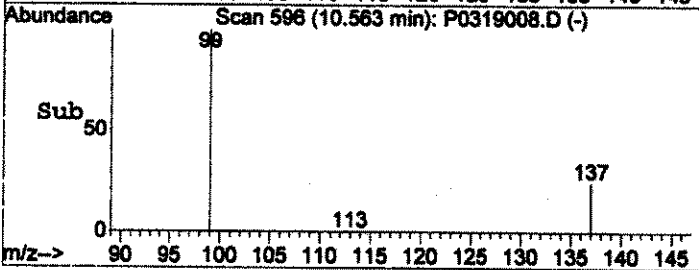
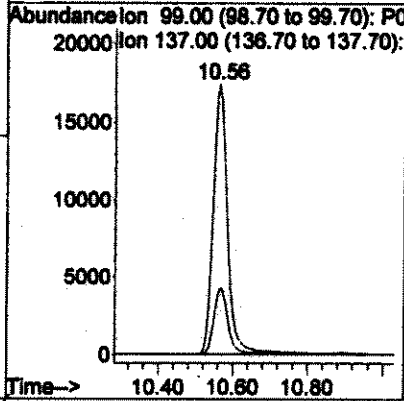
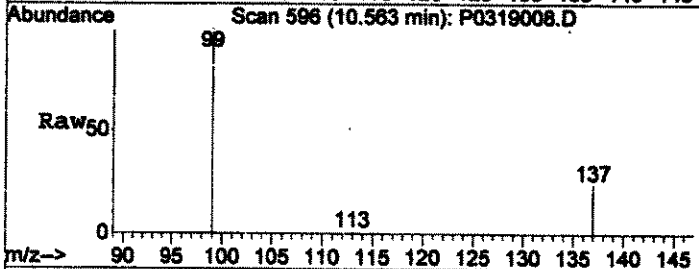
Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration





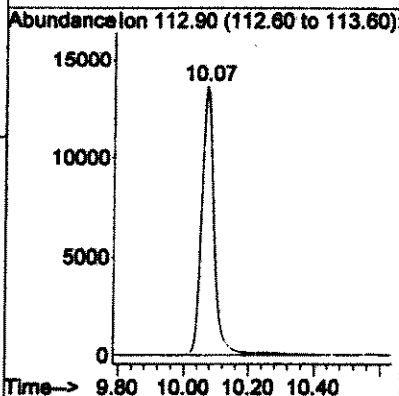
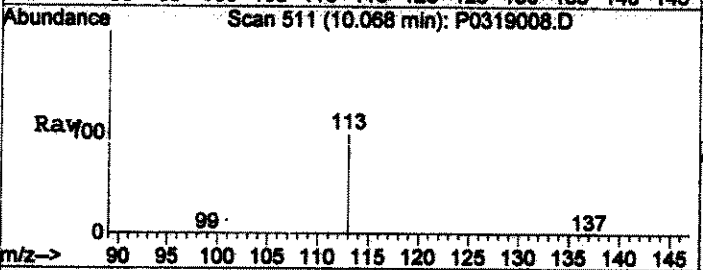
#1
 Pentafluorobenzene (IS)
 Concen: 1.00 ug/L
 RT: 10.56 min Scan# 596
 Delta R.T. 0.00 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 99 Resp: 46878
 Ion Ratio Lower Upper
 99 100
 137 23.9 3.7 43.7

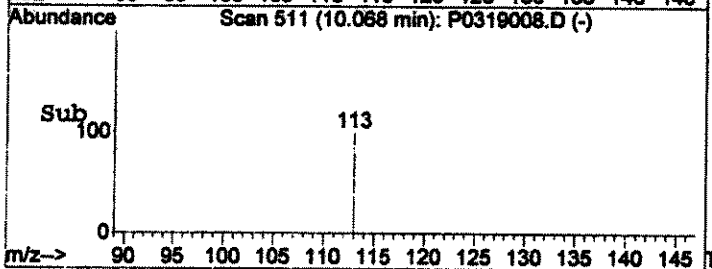


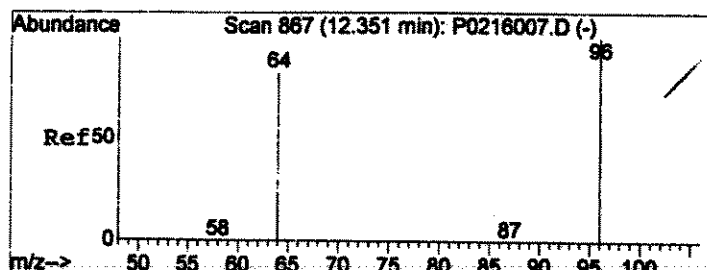
#2
 Dibromofluoromethane (SU1)
 Concen: 1.00 ug/L
 RT: 10.07 min Scan# 511
 Delta R.T. 0.00 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 113 Resp: 37890



8

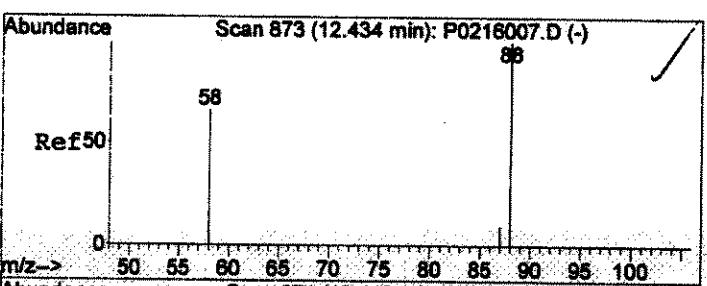
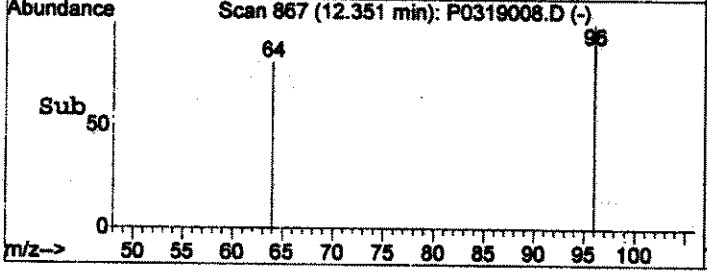
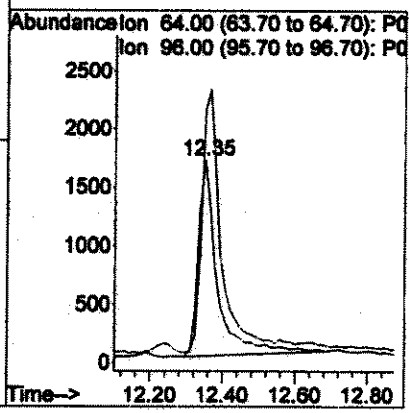
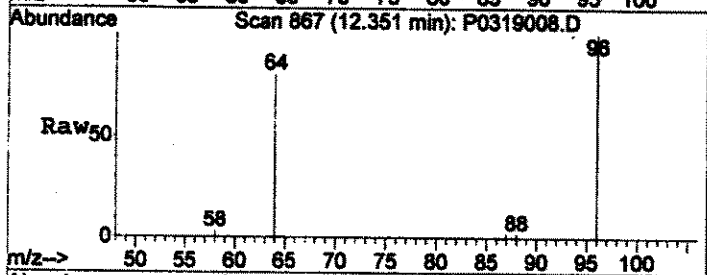




#3
 1,4-DIOXANE-d8
 Concen: 25.00 ug/L
 RT: 12.35 min Scan# 867
 Delta R.T. -0.00 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 64 Resp: 6171

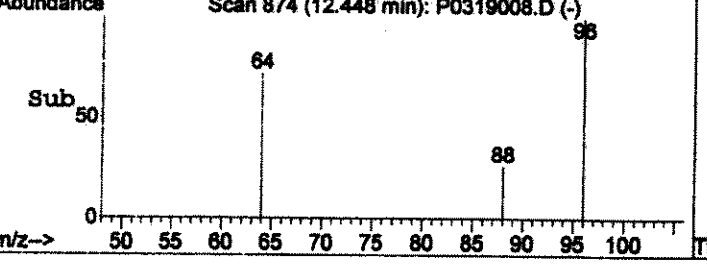
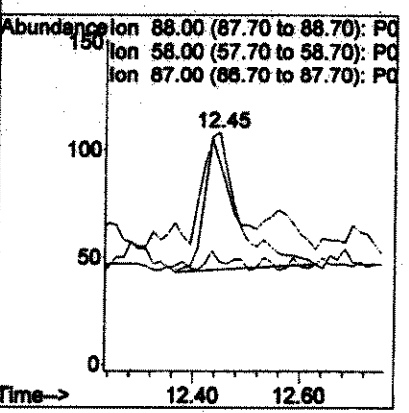
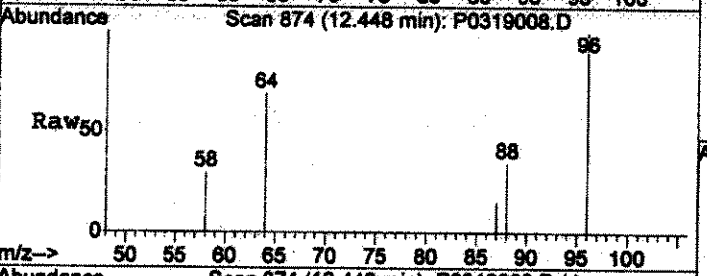
Ion	Ratio	Lower	Upper
64	100		
96	123.7	70.1	170.1

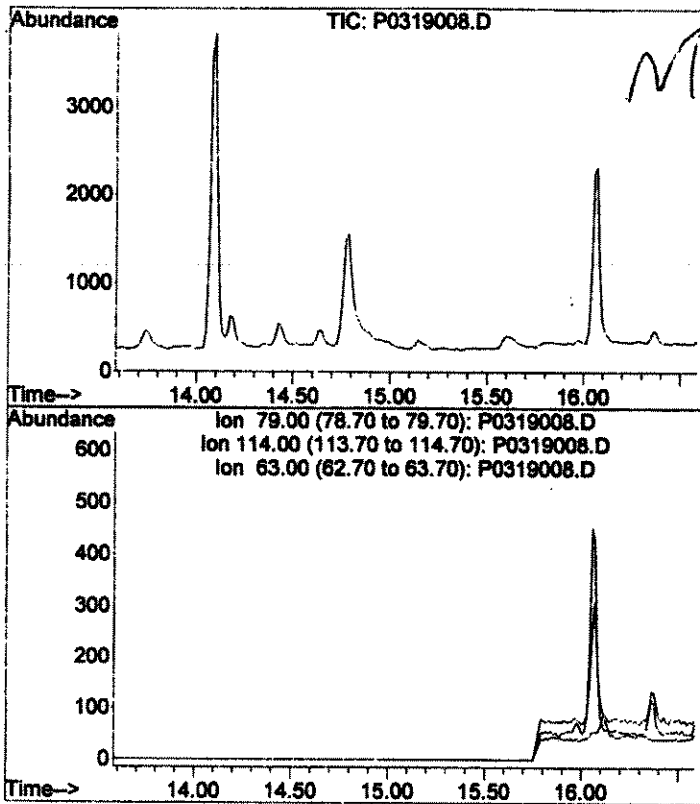


#4
 1,4-DIOXANE
 Concen: 0.23 ug/L
 RT: 12.45 min Scan# 874
 Delta R.T. 0.01 min
 Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

Tgt Ion: 88 Resp: 278

Ion	Ratio	Lower	Upper
88	100		
58	61.5	16.3	116.3
87	3.1	0.0	59.9





#5
 1,2,3-Trichloropropane-d5
 Concen: 0.00 ug/L
 Expected RT: 15.08 min

Lab File: P0319008.D
 Acq: 19 Mar 2005 10:12 am

Tgt Ion:	79
Sig	Exp Ratio
79	100
114	0.0
63	98.0

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319009.D
 Acq On : 19 Mar 2005 10:54 am
 Sample : 1.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 13:42 2005

Vial: 9
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

MI 3/19/05

*See Grubbs Test
 JG 3/21/05*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	42761	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4961	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0 NT	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 3531 0.11 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 11.00%#

Target Compounds

4) 1,4-DIOXANE 12.43 88 615 1.50 ug/L Qvalue 97

DNU

Q.

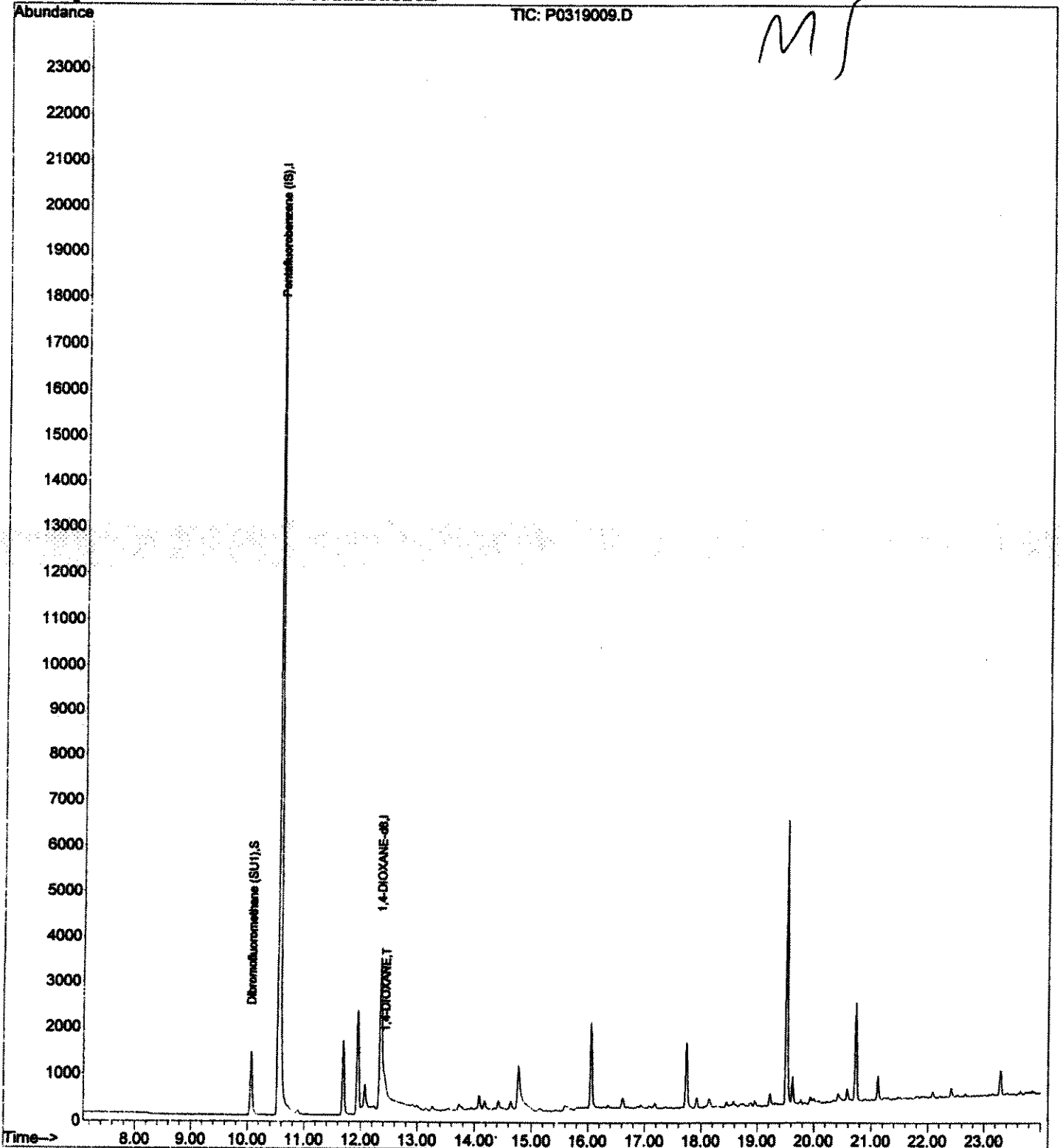
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319009.D
Acq On : 19 Mar 2005 10:54 am
Sample : 1.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:42 2005

Vial: 9
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Grubbs Test for curve		MEAN	STDEV
Response factors		2.186429	0.456975
Grubbs value			
	1.0ppb	2.0ppb	5.0ppb
	3.099	2.478	2.101
	1.99698	0.63805	0.186944
			0.615851
			1.905
			1.822
			1.905
			0.418904
			0.797481
			0.615851
5pts Grubbs values <	1.672		
6pts Grubbs values <	1.822		
7pts Grubbs values <	1.938		
8pts Grubbs values <	2.032		
9pts Grubbs values <	2.11		
10pts Grubbs values <	2.176		

outlier

MS 3/19/05

Handwritten signature

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\PO319010.D
 Acq On : 19 Mar 2005 11:26 am
 Sample : 2.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 13:43 2005

Vial: 10
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

M 3/14/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.57	99	45768	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5185	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0NT	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	7585	0.21	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	21.00%#	
Target Compounds						
4) 1,4-DIOXANE	12.43	88	1028	2.69	ug/L	Qvalue 94

8/21/05

(#) = qualifier out of range (m) = manual integration

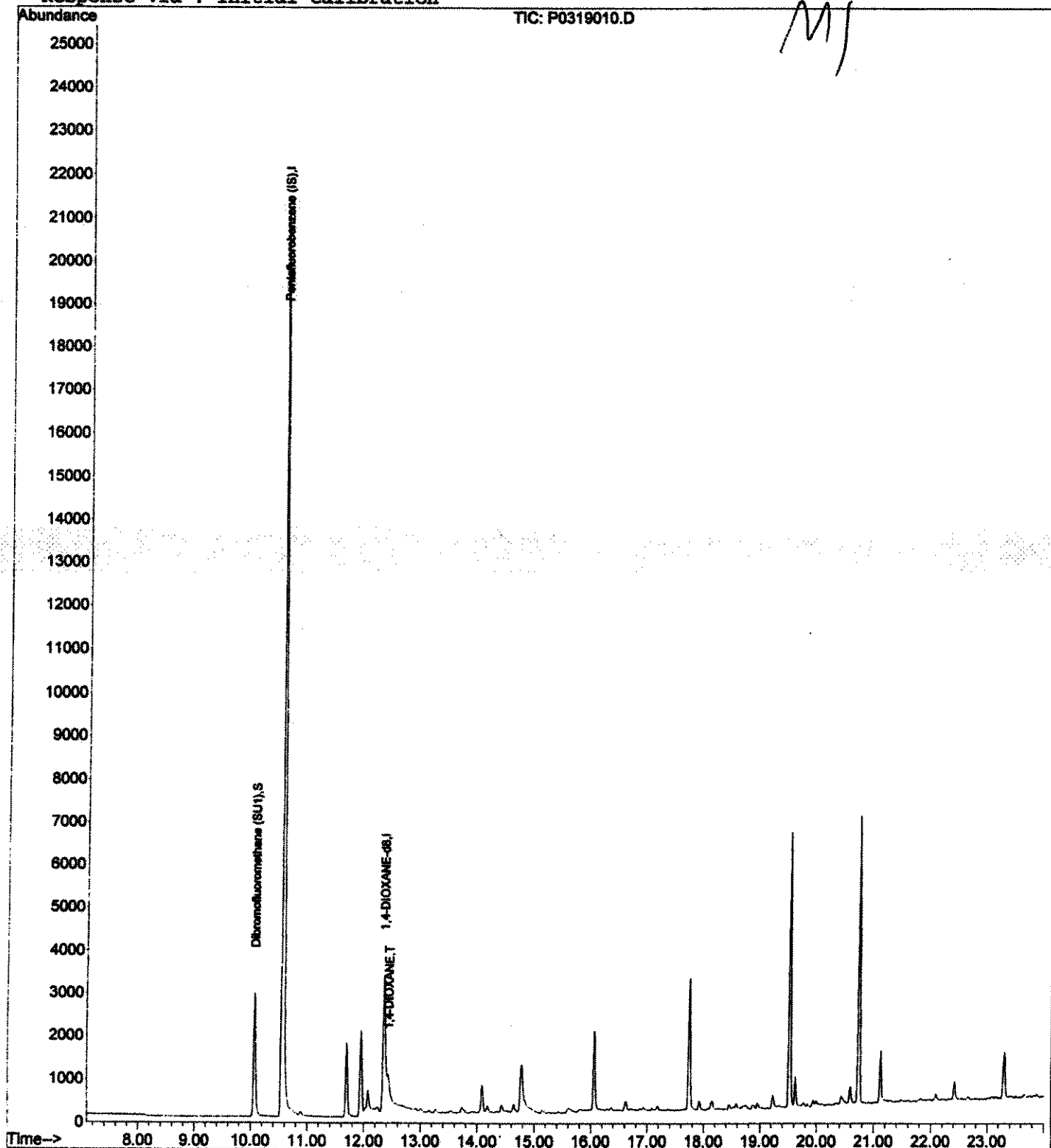
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319010.D
Acq On : 19 Mar 2005 11:26 am
Sample : 2.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:43 2005

Vial: 10
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319011.D
 Acq On : 19 Mar 2005 11:59 am
 Sample : 5.0 PPB CAL
 Misc : 1X 10ML

Vial: 11
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 13:43 2005

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

M (3/19/05)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47558	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5263	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0NT	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.06	113	19072	0.52	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	52.00%#	
Target Compounds						
4) 1,4-DIOXANE	12.43	88	2211	6.25	ug/L	Qvalue 99

3/21/05

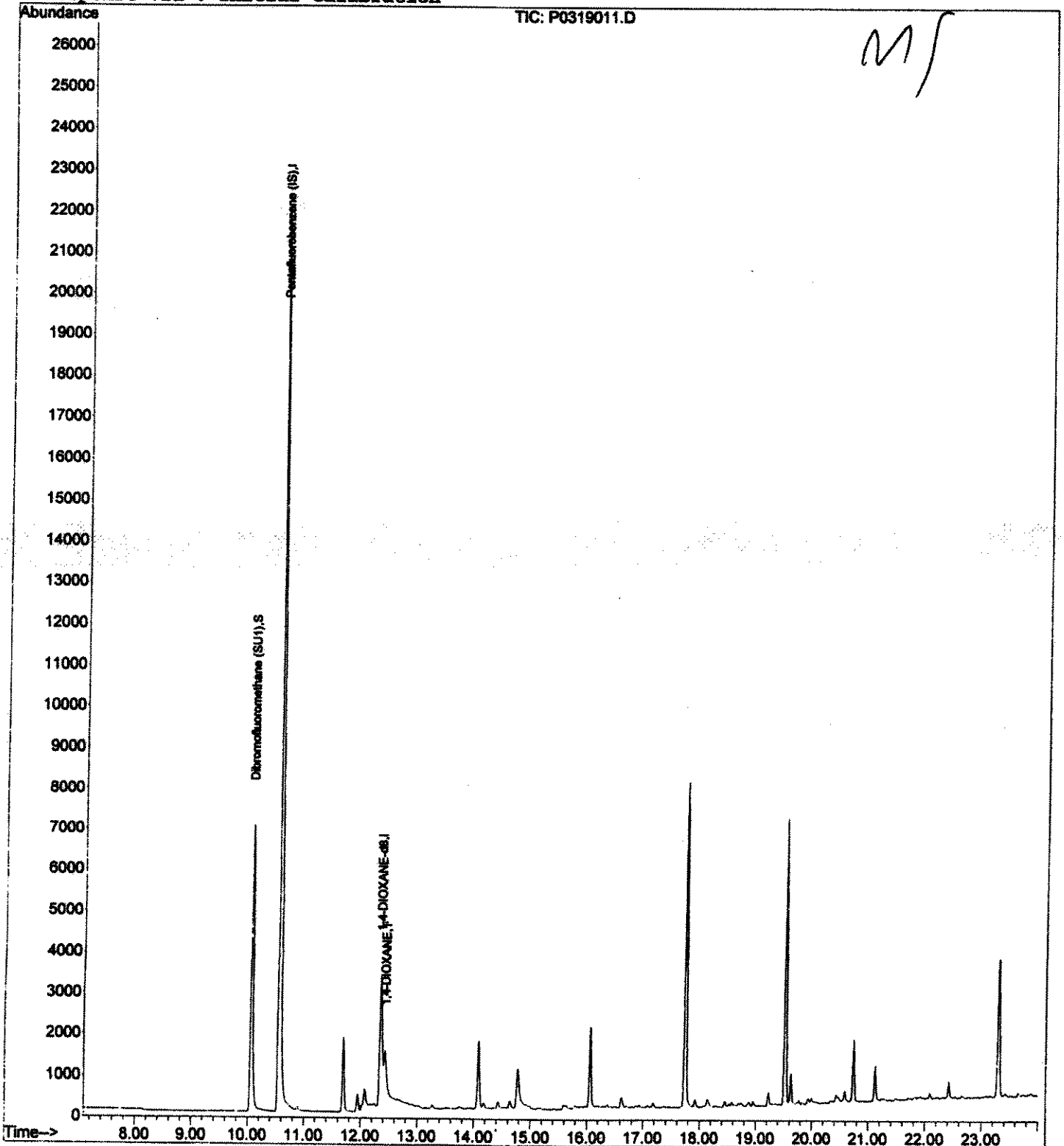
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319011.D
Acq On : 19 Mar 2005 11:59 am
Sample : 5.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:43 2005

Vial: 11
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319012.D
 Acq On : 19 Mar 2005 12:32 pm
 Sample : 10.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE,P
 Quant Time: Mar 19 13:37 2005

Vial: 12
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

M 13/19/05

Internal Standards	R.T.	QION	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.57	99	47071	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5034	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	<i>0.1</i>	0.00	ug/L	-15.08

System Monitoring Compounds
 2) Dibromofluoromethane (SU1) 10.07 113 34373 0.95 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 95.00%

Target Compounds	R.T.	QION	Response	Conc	Units	Qvalue
4) 1,4-DIOXANE	12.43	88	3835	11.74	ug/L	99

3/21/05

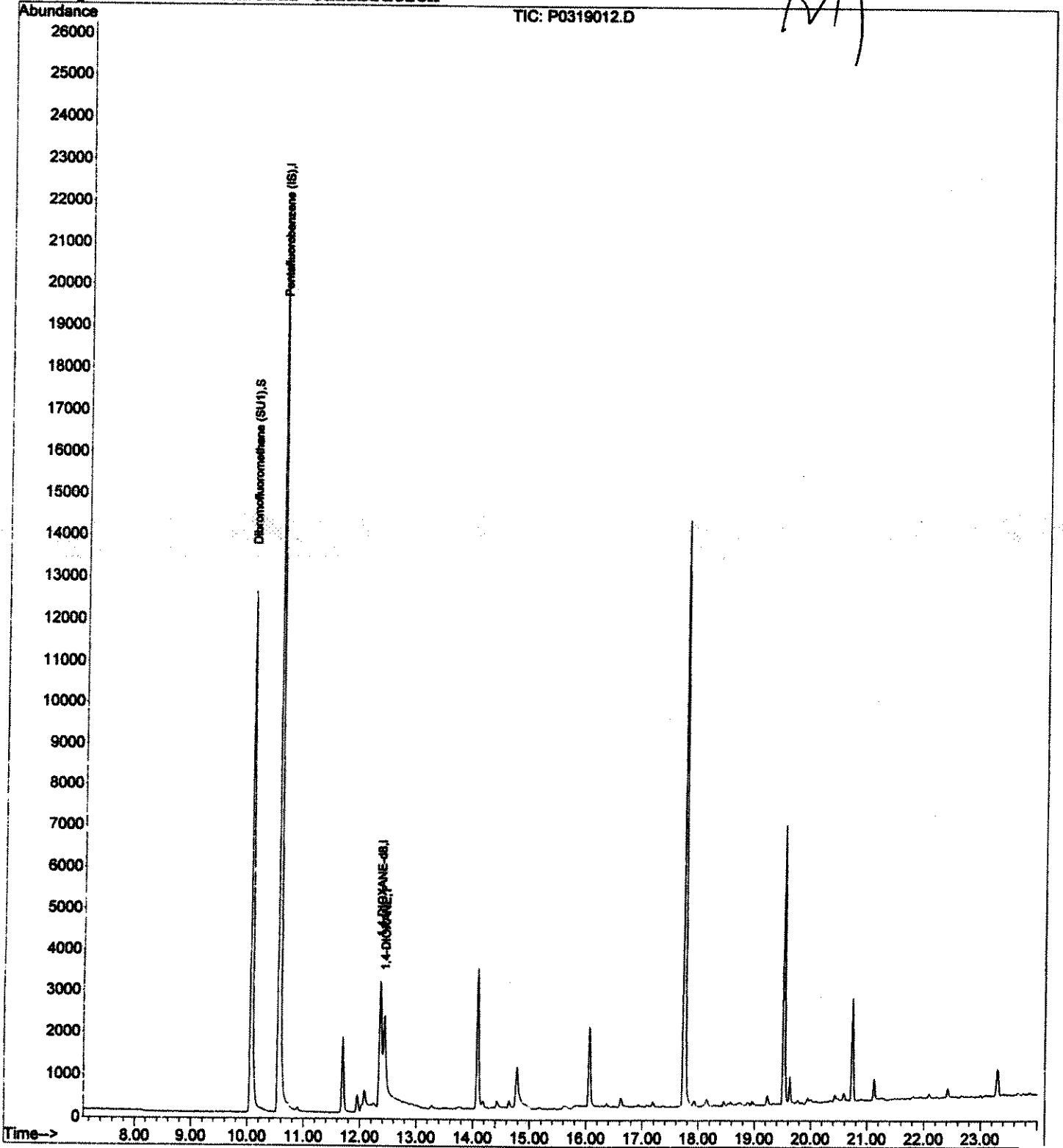
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319012.D
Acq On : 19 Mar 2005 12:32 pm
Sample : 10.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:37 2005

Vial: 12
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319013.D
 Acq On : 19 Mar 2005 1:05 pm
 Sample : 20.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 13:37 2005

Vial: 13
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

MC 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47635	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4790	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0√T	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 68573 1.86 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 186.00%#

Target Compounds

4) 1,4-DIOXANE 12.43 88 7646 25.14 ug/L Qvalue 97

3/21/05

(#) = qualifier out of range (m) = manual integration

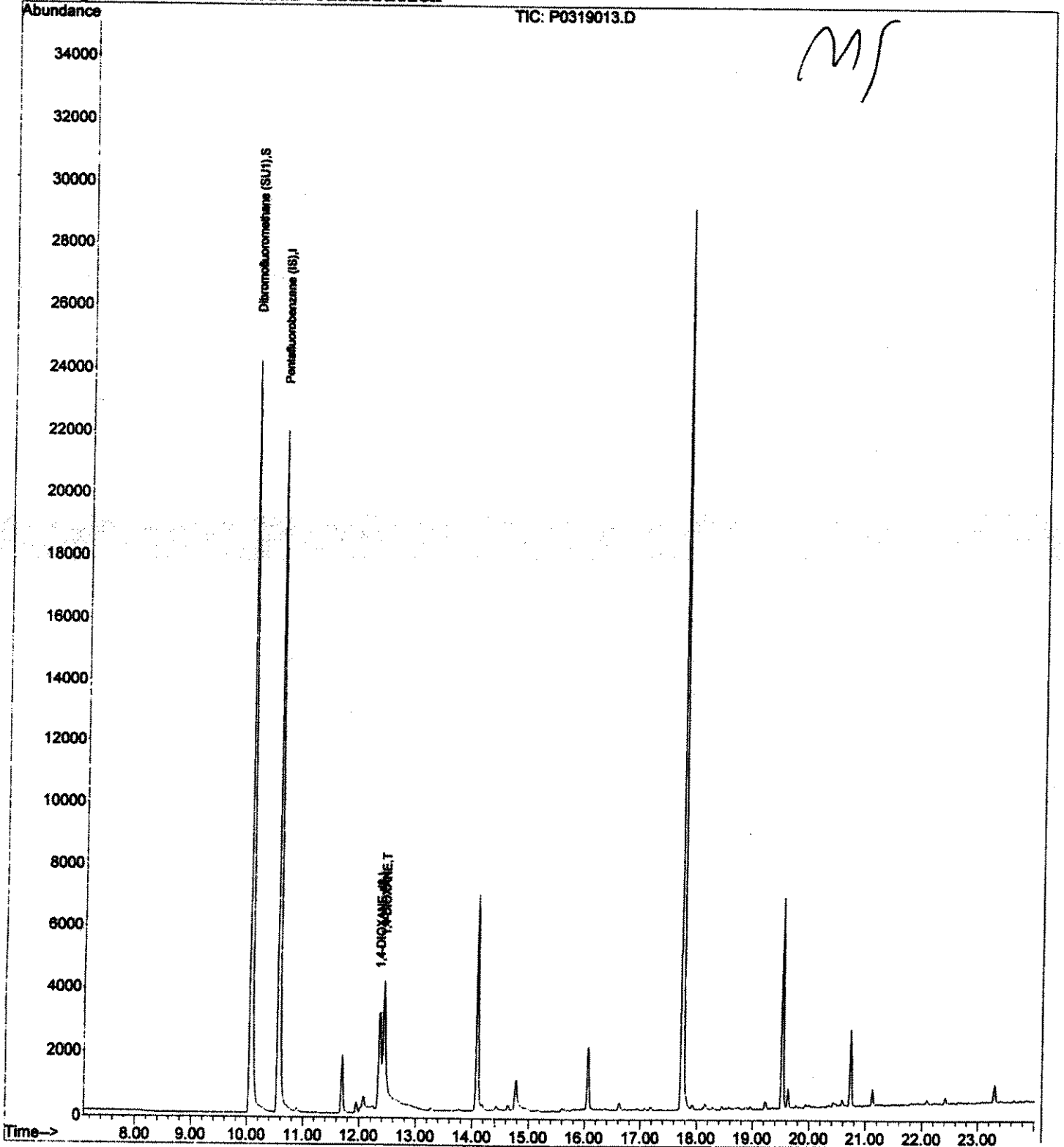
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319013.D
Acq On : 19 Mar 2005 1:05 pm
Sample : 20.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 13:37 2005

Vial: 13
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319014.D
 Acq On : 19 Mar 2005 1:38 pm
 Sample : 50.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 14:18 2005

Vial: 14
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

MS 3/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	47704	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5034	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0NT	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 164450 4.46 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 446.00%#

Target Compounds

4) 1,4-DIOXANE 12.43 88 18344 58.04 ug/L Qvalue 99

gubg.

(#) = qualifier out of range (m) = manual integration

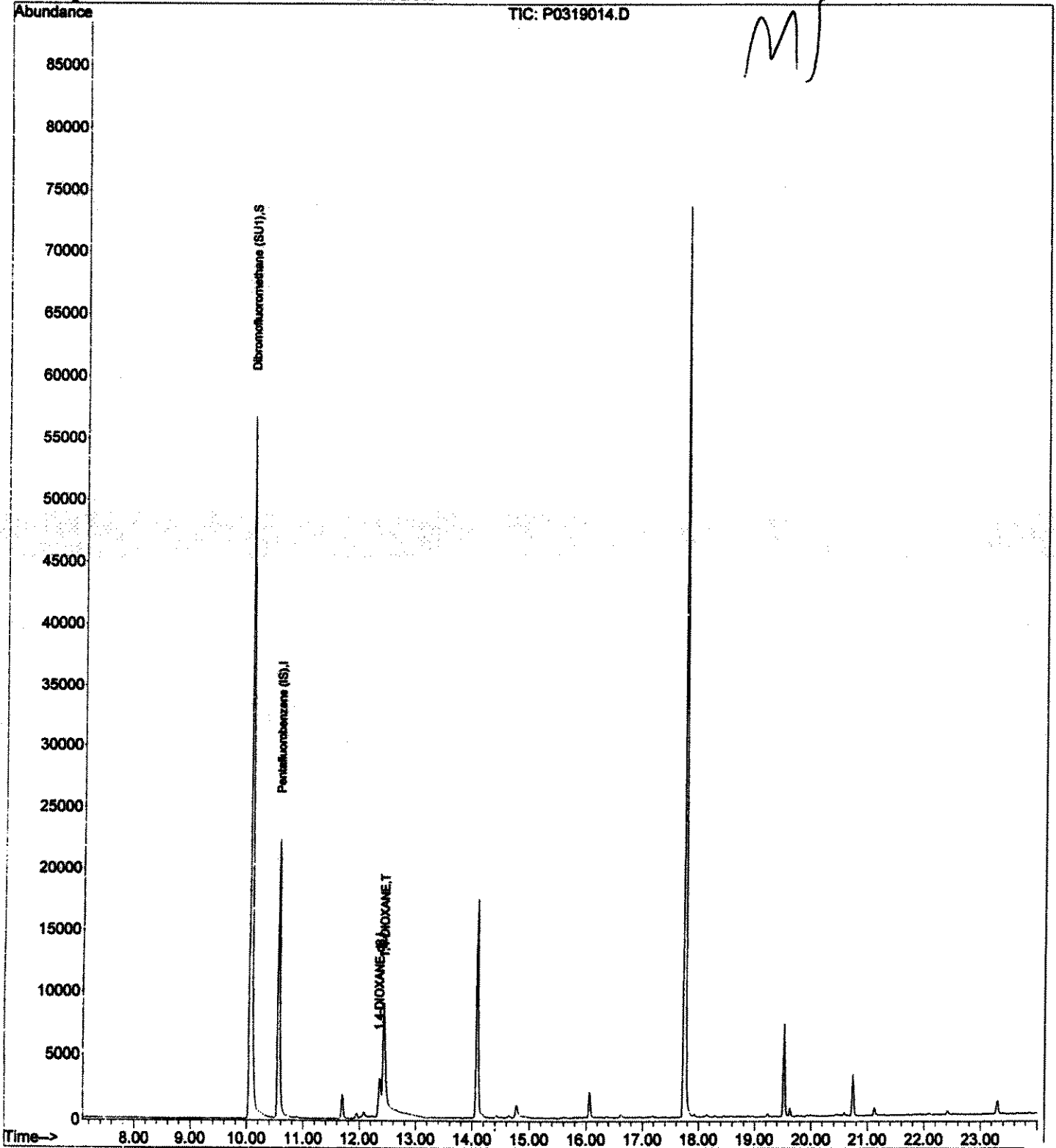
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319014.D
Acq On : 19 Mar 2005 1:38 pm
Sample : 50.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 14:18 2005

Vial: 14
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319015.D
 Acq On : 19 Mar 2005 2:11 pm
 Sample : 100.0 PPB CAL
 Misc : 1X 10ML

Vial: 15
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

MS Integration Params: DIOXANE.P
 Quant Time: Mar 19 14:54 2005

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

M 17/19/05

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	48150	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5834	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0✓	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 307967 8.28 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 828.00%#

Target Compounds

4) 1,4-DIOXANE 12.43 88 44445 121.87 ug/L Qvalue 98

3/21/05

(#) = qualifier out of range (m) = manual integration

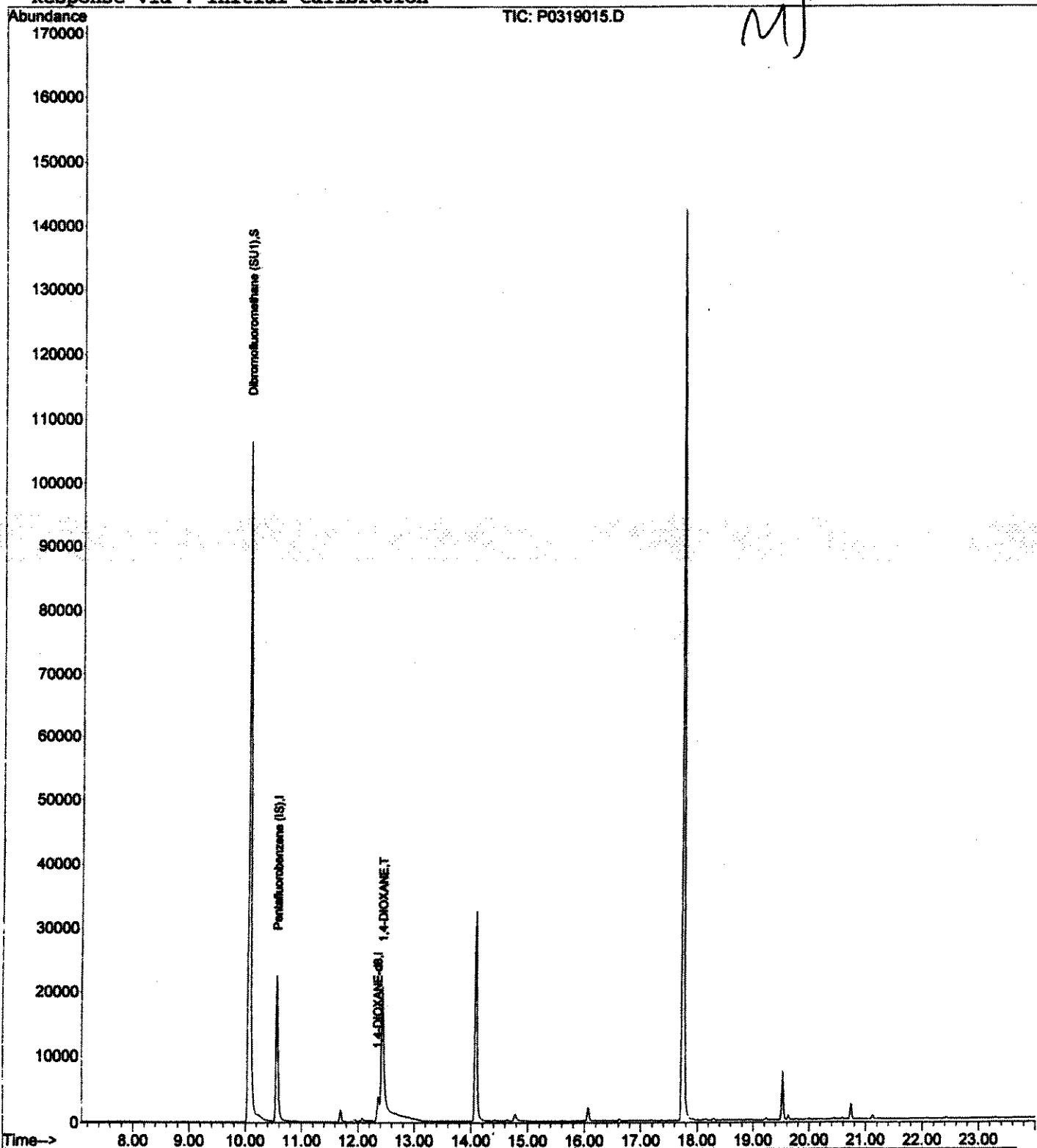
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319015.D
Acq On : 19 Mar 2005 2:11 pm
Sample : 100.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 19 14:54 2005

Vial: 15
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319016.D
Acq On : 19 Mar 2005 2:44 pm
Sample : CLEAN OUT BLANK/TUNE
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 2005

Vial: 16
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration
DataAcq Meth : W072903

3/21/05
JG

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	168438	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.36	64	64	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	15.15	79	57	500.00	ug/L	0.07

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.06 113 129670 1.00 ug/L 0.00
Spiked Amount 1.000 Range 80 - 120 Recovery 100.00%

Target Compounds

Qvalue

DMLU

AS

(#) = qualifier out of range (m) = manual integration

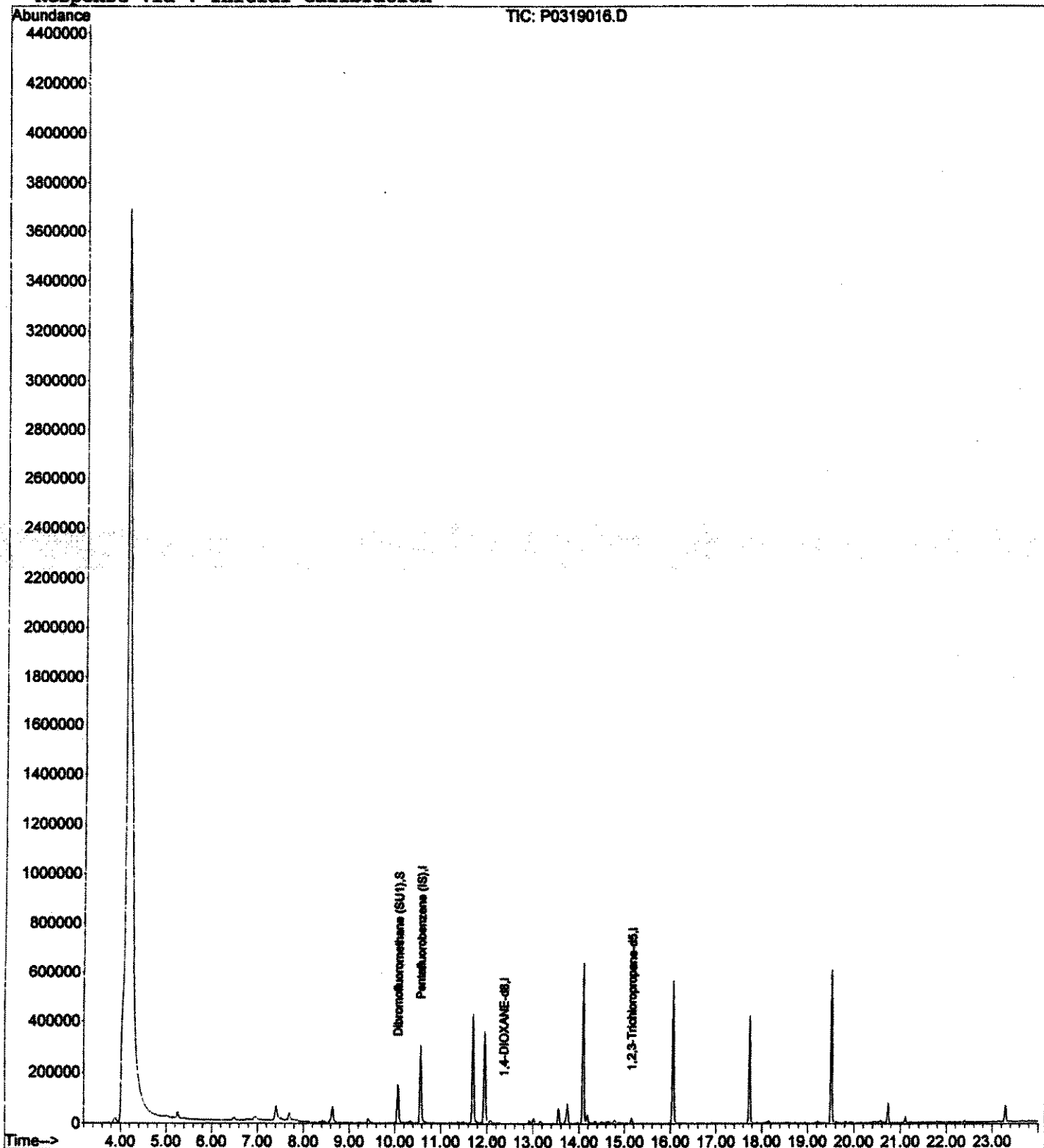
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\P0319016.D
Acq On : 19 Mar 2005 2:44 pm
Sample : CLEAN OUT BLANK/TUNE
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 2005

Vial: 16
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

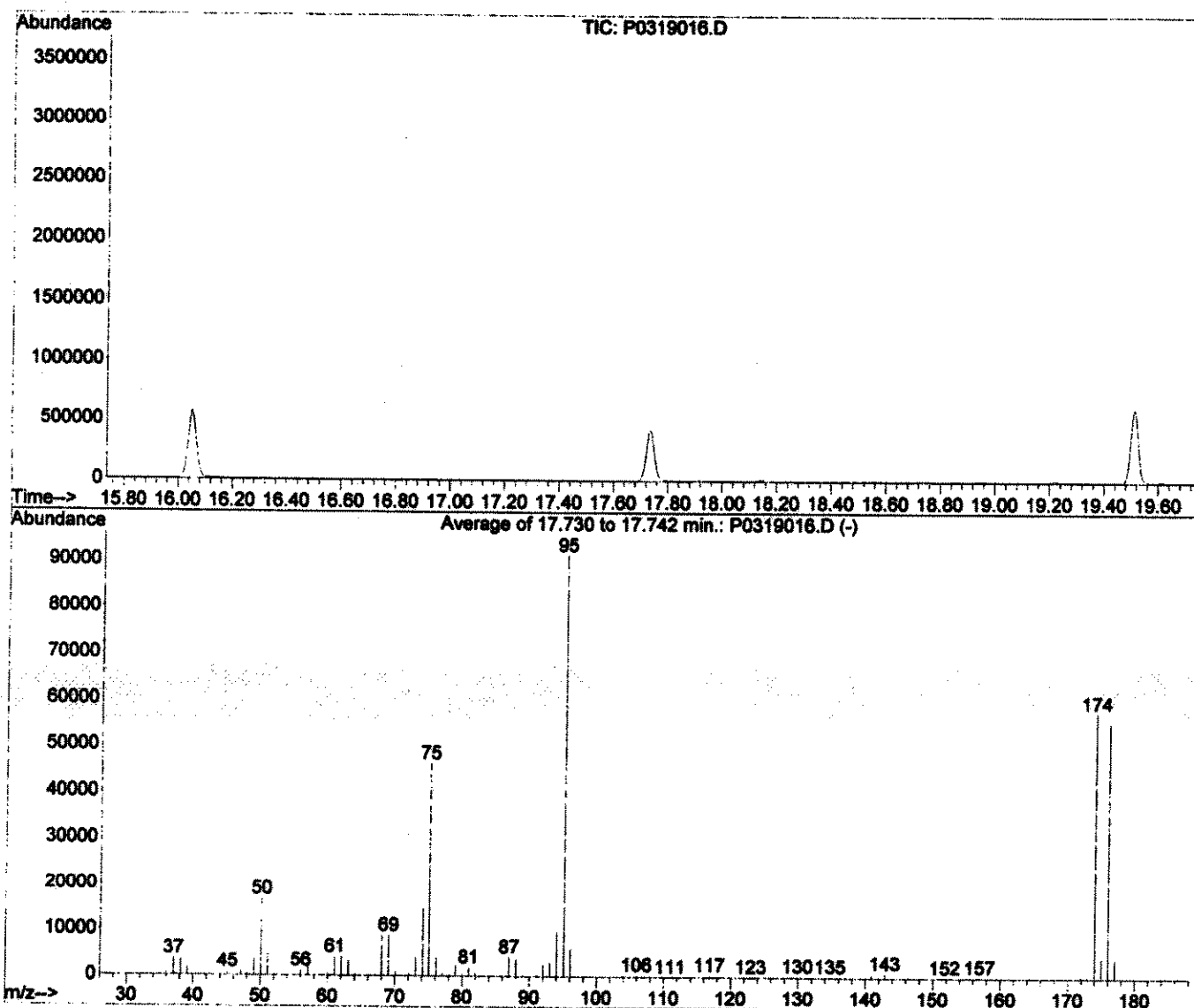
Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



BFB

Data File : D:\HPCHEM\1\DATA\031905\P0319016.D
 Acq On : 19 Mar 2005 2:44 pm
 Sample : CLEAN OUT BLANK/TUNE
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Method : D:\HPCHEM\1\METHODS\TP032905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)

Vial: 16
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00



AutoFind: Scans 2390, 2391, 2392; Background Corrected with Scan 2370

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abnt%	Raw Abn	Result Pass/Fail
50	95	15	40	18.4	16808	PASS
75	95	30	60	50.6	46181	PASS
95	95	100	100	100.0	91312	PASS
96	95	5	9	6.5	5947	PASS
173	174	0.00	2	1.0	550	PASS
174	95	50	100	63.1	57600	PASS
175	174	5	9	7.6	4353	PASS
176	174	95	101	96.4	55517	PASS
177	176	5	9	7.2	4007	PASS

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319017.D
 Acq On : 19 Mar 2005 3:21 pm
 Sample : BLANK
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 21 7:48 2005

Vial: 17
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

*3/21/05
JG*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	41664	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6641	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 34219 1.06 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 106.00%

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
4) 1,4-DIOXANE	12.43	88	233	N.D.		
6) 1,2,3-Trichloropropane	0.00	75	0	N.D.		

sk

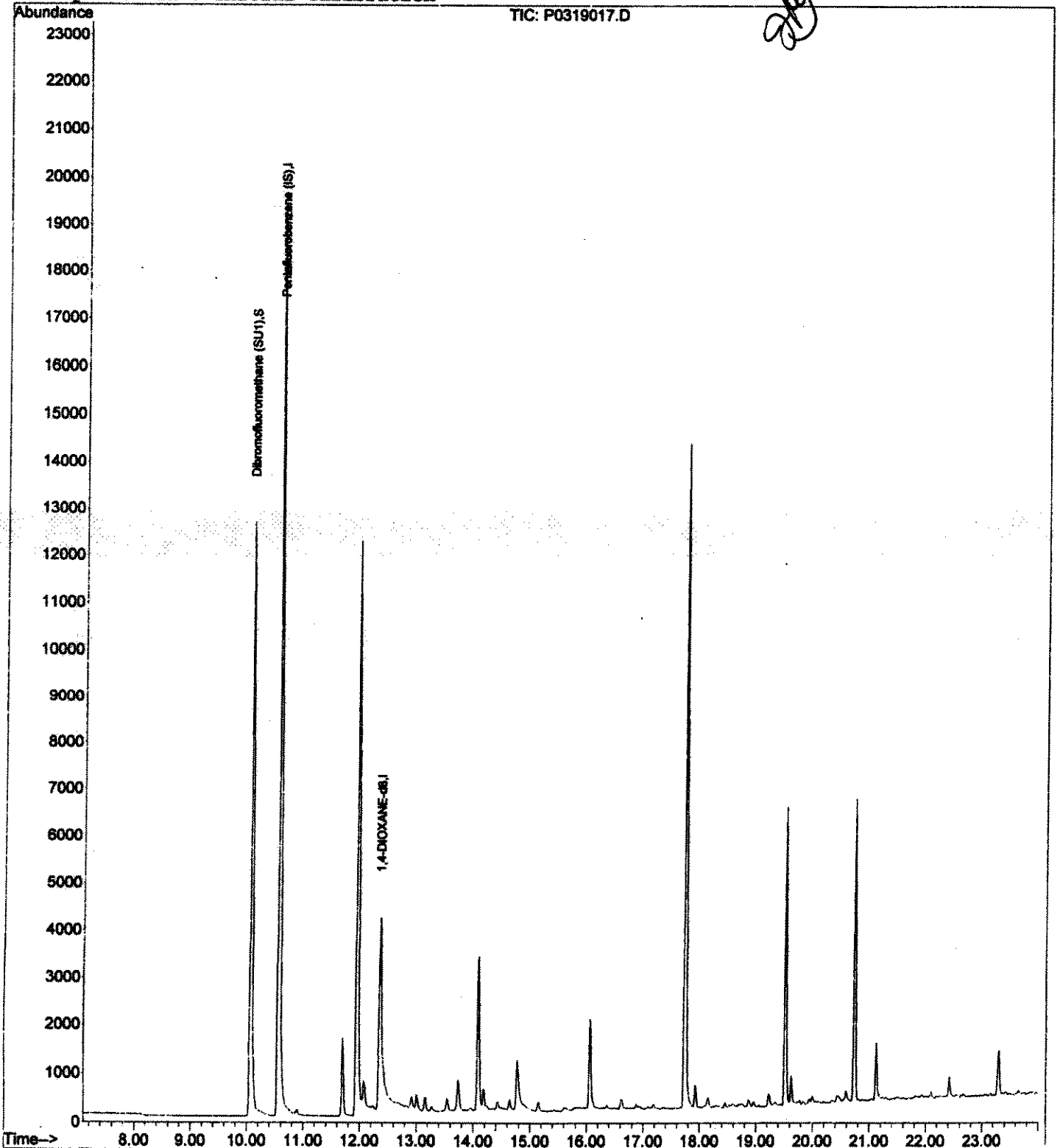
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\0319017.D
Acq On : 19 Mar 2005 3:21 pm
Sample : BLANK
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 2005

Vial: 17
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319018.D
 Acq On : 19 Mar 2005 3:54 pm
 Sample : 1.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 21 7:48 2005

Vial: 18
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX021605.RES

Quant Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Wed Feb 16 15:53:54 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

*3/21/05
Jky*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	42387	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6173	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SU1)	10.07	113	3733	0.11	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	11.00%#	
Target Compounds						
4) 1,4-DIOXANE	12.43	88	668	1.24	ug/L	97
6) 1,2,3-Trichloropropane	0.00	75	0	N.D.		

*3/21/05
J*

(#) = qualifier out of range (m) = manual integration

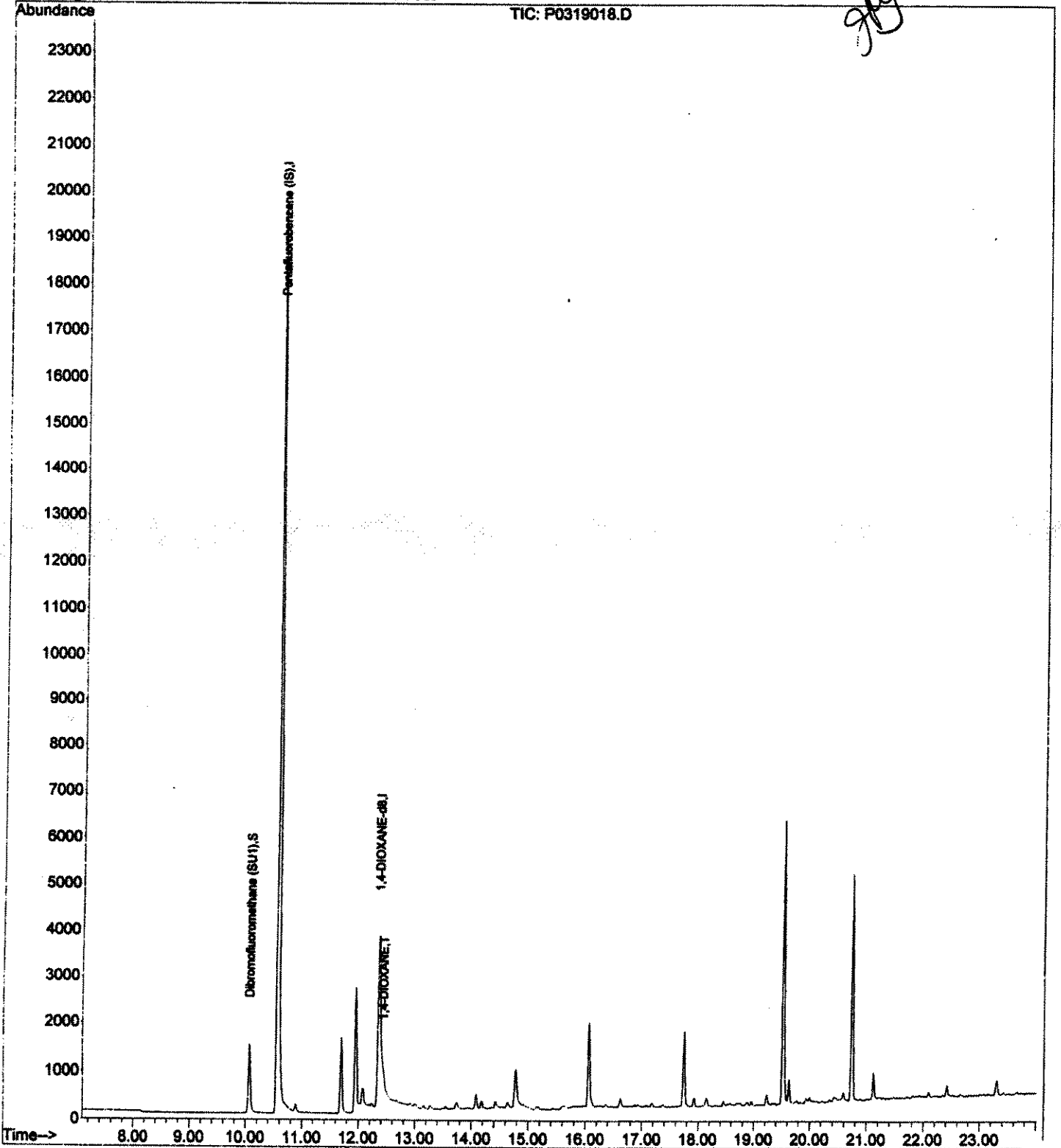
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\0319018.D
Acq On : 19 Mar 2005 3:54 pm
Sample : 1.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 7:48 2005

Vial: 18
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX021605.RES

Method : D:\HPCHEM\1\METHODS\DX021605.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Wed Feb 16 15:53:54 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\0319018.D
 Acq On : 19 Mar 2005 3:54 pm
 Sample : 1.0 PPB CAL
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 21 12:54 2005

Vial: 18
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Int. Cal (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

Re-Calc.

*3/21/05
JG*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Pentafluorobenzene (IS)	10.56	99	42387	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6173	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08
System Monitoring Compounds						
2) Dibromofluoromethane (SUL)	10.07	113	3733	0.12	ug/L	0.00
Spiked Amount	1.000	Range 80 - 120	Recovery	=	12.00%	
Target Compounds						
4) 1,4-DIOXANE	12.43	88	668	1.07	ug/L	96
6) 1,2,3-Trichloropropane	0.00	75	0	N.D.		

5-1.5

3/21/05 JG

(#) = qualifier out of range (m) = manual integration

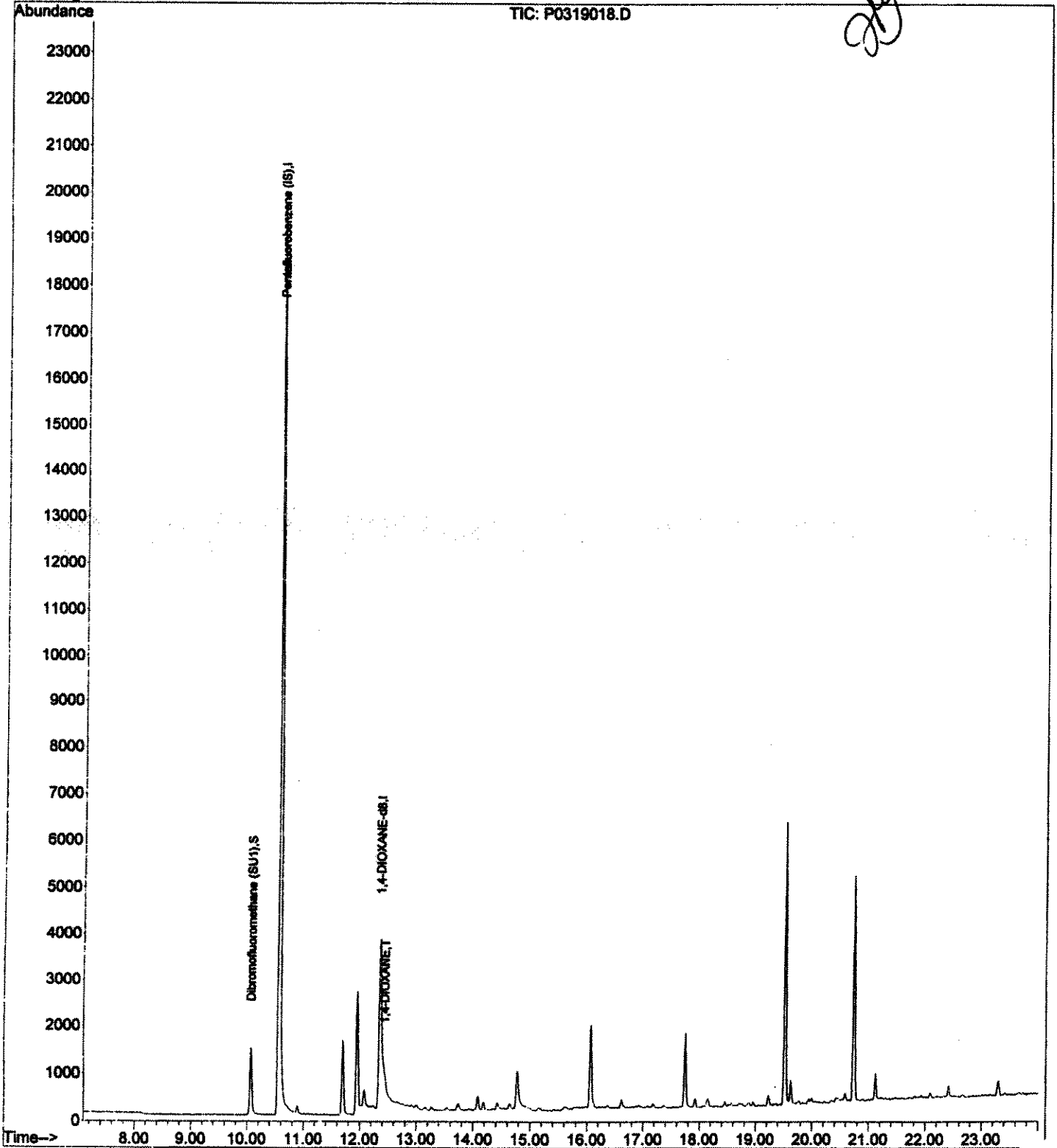
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\0319018.D
Acq On : 19 Mar 2005 3:54 pm
Sample : 1.0 PPB CAL
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 12:54 2005

Vial: 18
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 12:54:07 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\031905\P0319019.D
 Acq On : 19 Mar 2005 4:27 pm
 Sample : SS/CCV
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Mar 21 12:54 2005

Vial: 19
 Operator: JG/MS/CLS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 12:54:07 2005
 Response via : Initial Calibration
 DataAcq Meth : DX021605

*3/21/05
JG*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	46539 ✓	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4918 ✓	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 37865 1.08 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 108.00% ✓

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
4) 1,4-DIOXANE	12.43	88	3745	9.75	ug/L /	93
6) 1,2,3-Trichloropropane	0.00	75	0		N.D.	

3/22/05

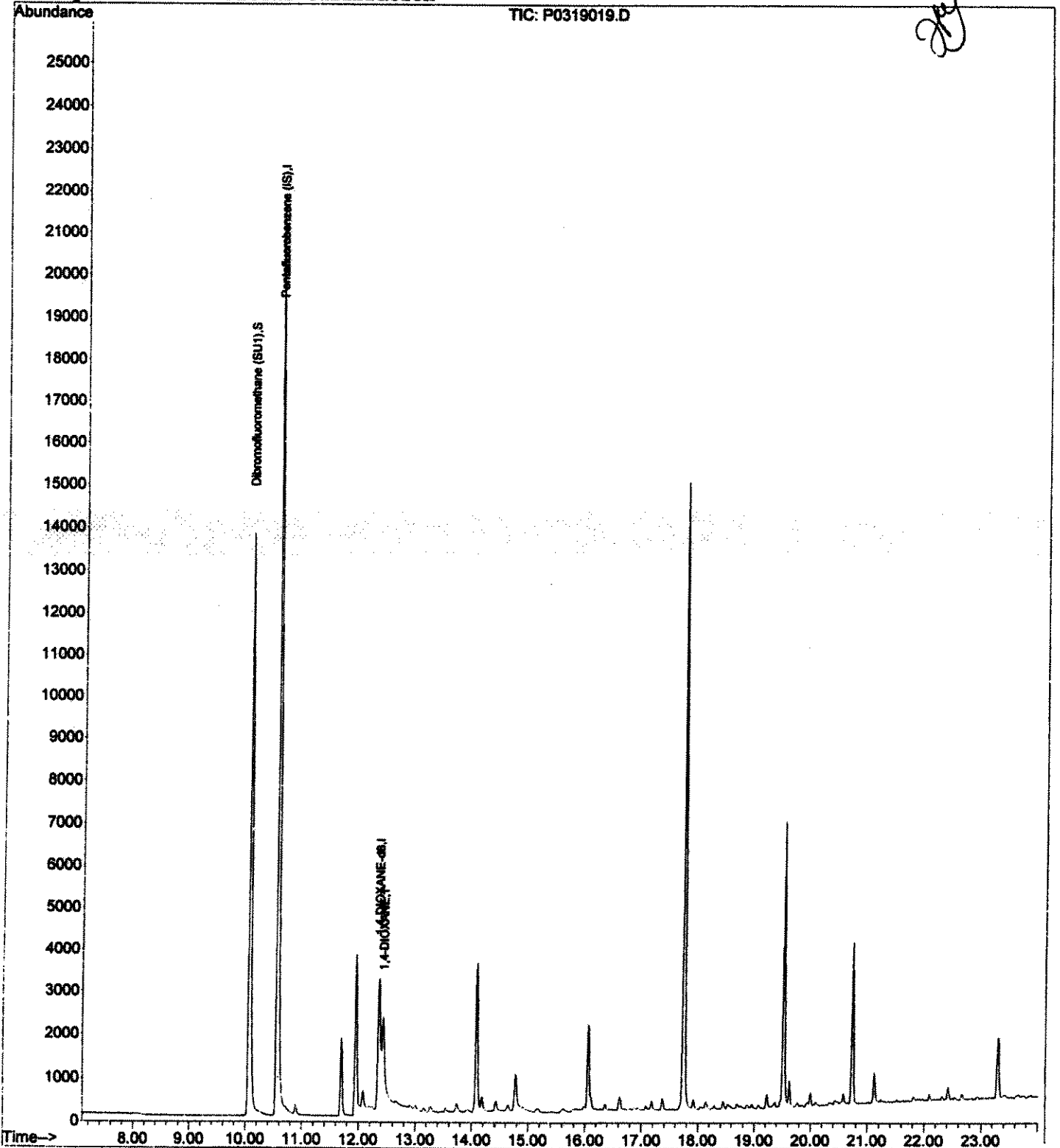
Quantitation Report

Data File : D:\HPCHEM\1\DATA\031905\0319019.D
Acq On : 19 Mar 2005 4:27 pm
Sample : SS/CCV
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Mar 21 12:54 2005

Vial: 19
Operator: JG/MS/CLS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 12:54:07 2005
Response via : Initial Calibration



1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0319019.D
 Data File Path D:\HPCHEM1\DATA\031905\
 Sample Name SS/CCV

Date Acquired 3/19/2005 4:27
 Operator JG/MS/CLS
 Acq. Method File DX021605
 GCMS1

*3/21/05
JG*

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	47071	46539	23536	94142	TRUE
1,4-DIOXANE-d8	5034	4918	2517	10068	TRUE

SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	1.08	107.7	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	9.75	10.00	97.48	70	130	TRUE

*3/21/05
JG*

Injection Log

04/04/05

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	P0402001.D	1.	TUNE/BLANK	1X 10ML	2 Apr 2005 07:12
2	2	P0402002.D	1.	P5D0201-BS1	1X 10ML	2 Apr 2005 07:48
3	3	P0402003.D	1.	P5D0201-BSD1	1X 10ML	2 Apr 2005 08:21
4	4	P0402004.D	1.	P5D0201-BLK1	1X 10ML	2 Apr 2005 08:54
5	5	P0402005.D	1.	POC0786-05	10X 10ML	2 Apr 2005 09:27
6	6	P0402006.D	1.	POD0005-01	1X 10ML	2 Apr 2005 10:00
7	7	P0402007.D	1.	POC0786-06	1X 10ML	2 Apr 2005 10:33
8	8	P0402008.D	1.	P5D0201-MS1	1X 10ML	2 Apr 2005 11:05
9	9	P0402009.D	1.	P5D0201-MSD1	1X 10ML	2 Apr 2005 11:38
10	10	P0402010.D	1.	POC0786-07	1X 10ML	2 Apr 2005 12:11
11	11	P0402011.D	1.	POC0786-08	1X 10ML	2 Apr 2005 12:44
12	12	P0402012.D	1.	POC0786-09	1X 10ML	2 Apr 2005 13:17
13	13	P0402013.D	1.	POC0891-01	1X 10ML	2 Apr 2005 13:49
14	14	P0402014.D	1.	POC0892-01	1X 10ML	2 Apr 2005 14:22
15	15	P0402015.D	1.	POC0892-02	1X 10ML	2 Apr 2005 14:55
16	16	P0402016.D	1.	POC0892-03	1X 10ML	2 Apr 2005 15:28
17	17	P0402017.D	1.	POC0892-04	1X 10ML	2 Apr 2005 16:01
18	18	P0402018.D	1.	POD0006-01	1X 10ML	2 Apr 2005 16:33
19	19	P0402019.D	1.	POD0006-02	1X 10ML	2 Apr 2005 17:06
20	20	P0402020.D	1.	POD0006-03	1X 10ML	2 Apr 2005 17:39
21	21	P0402021.D	1.	POD0006-04	1X 10ML	2 Apr 2005 18:11
22	22	P0402022.D	1.	POD0015-01	1X 10ML	2 Apr 2005 18:44
23	23	P0402023.D	1.	POC0786-09	10X 10ML	2 Apr 2005 19:17

BZ60
 1CCV
 POC0786-09 DNI
 POC0786-06
 DNI
 7:12 AM
 CLOCK

4/05/05
 JBY

DMAP GC/MS 1 DAILY LOG SUMMARY

DATE: 4-2-05

QC BATCH # (s): 1194-205
P04P0201

ANALYST: CLG

SEQUENCE FILE: C:\GCMS1\DATA\040205.S

CALIBRATION METHOD(S): DX031905.M

POS #	FILENAME	SAMPLE ID.CLIENT	SAMPLE VOL.	pH	EPA METHOD	MATRIX	COMMENTS
1	P040201	tune	1ul	NA	826	H2O	
2	02	CV	1X0ul				P000201-BSD
3	03	LL9					BSD
4	04	Blank					BSD
5	05	P000201 P000205	1X0ul	6.2			BIU
6	06	P000205-01 A	1X0ul				
7	07	P000786-06 A					
8	08	P000201-09.1					P000786-06A
9	09	L UGA1					
10	10	P000786-07.1					
11	11	08.1					
12	12	09.1					
13	13	P000891-01 A					DNA - Spike
14	14	P000892-01 A					
15	15	02.1					
16	16	03.1					
17	17	04.1					
18	18	P000 P000201-01 A					
19	19	1194-205 02.1 A					
20	20	03.1 A					
21	21	04.1 A					
22	22	P000005-01 A					
23	23	P000786-09 A	10X1ul				DNA 7/2 hrclock

CCV / H₂O LCS / H₂O SPIKE: 5040730 04040405

STANDARD ID NUMBERS

Internal Std: NA

CALIBRATION STD: NA

IS / Surrogate / BFB: 5040721

REVIEWER / DATE: JY 4/10/05

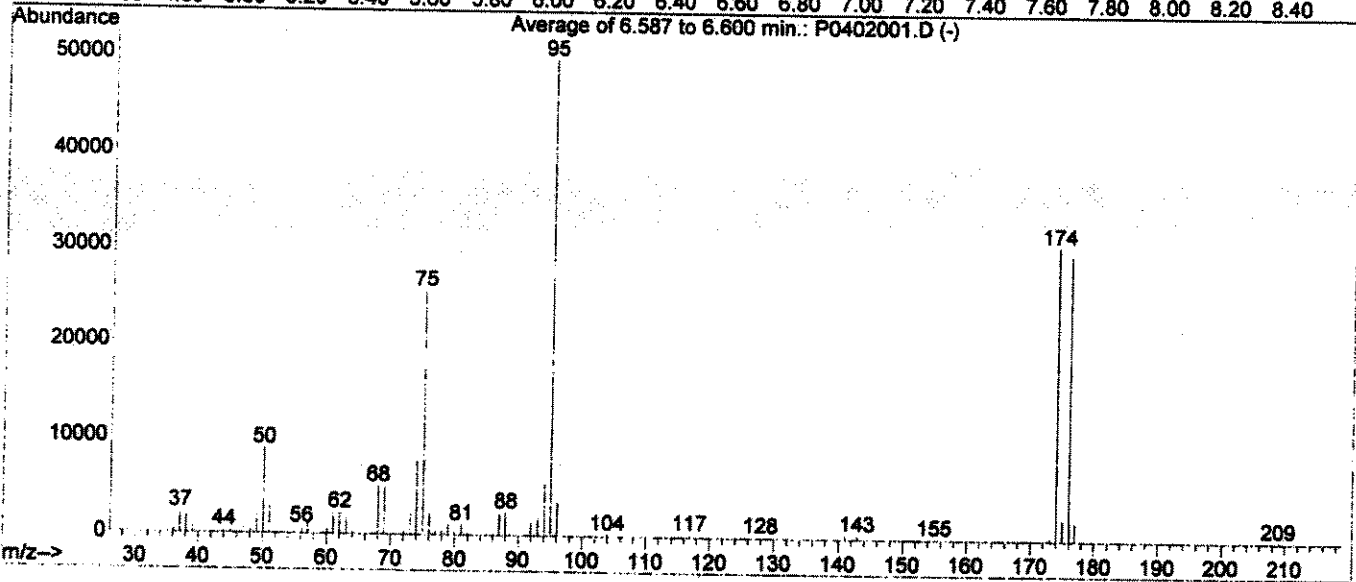
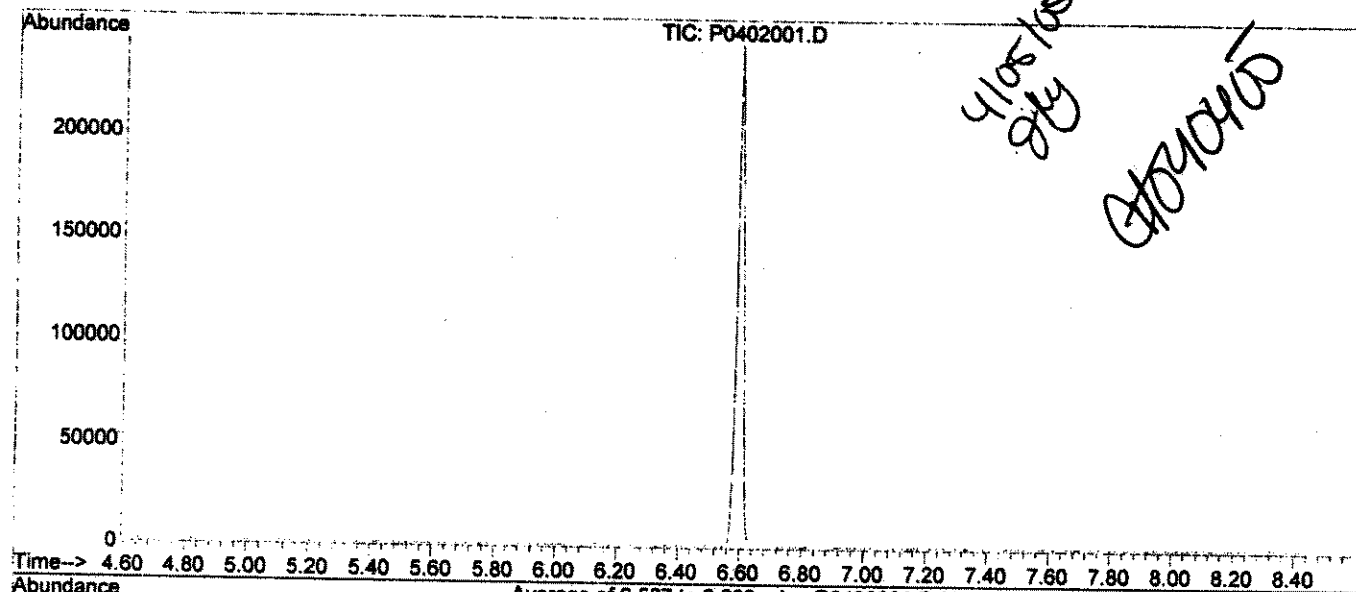
June 2005

BFB

Data File : D:\HPCHEM\1\DATA\040205\0402001.D
Acq On : 2 Apr 2005 7:12 am
Sample : TUNE/BLANK
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)

Vial: 1
Operator: CS
Inst : GCMS1
Multiplr: 1.00

*4/05/05
gdy
0402001.D*



AutoFind: Scans 411, 412, 413; Background Corrected with Scan 396

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.8	8831	PASS
75	95	30	60	51.3	25437	PASS
95	95	100	100	100.0	49600	PASS
96	95	5	9	6.9	3434	PASS
173	174	0.00	2	0.9	291	PASS
174	95	50	100	61.8	30648	PASS
175	174	5	9	7.0	2141	PASS
176	174	95	101	97.1	29773	PASS
177	176	5	9	6.3	1882	PASS

✓

Evaluate Continuing Calibration Report

Data File : D:\HPCHEM\1\DATA\040205\0402002.D
 Acq On : 2 Apr 2005 7:48 am
 Sample : P5D0201-BS1 /CCV
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P

Vial: 2
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Multiple Level Calibration

*4/05/05
 JY
 040205*

Min. RRF : 0.100 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area	% Dev (min)
1 I Pentafluorobenzene (IS)	1.000	1.000	0.0	73	0.00
2 S Dibromofluoromethane (SU1)	0.756	0.864	-14.3	86	0.00
3 I 1,4-DIOXANE-d8	1.000	1.000	0.0	144	0.00
4 T 1,4-DIOXANE	2.130	1.626	23.7	123	0.00
5 I 1,2,3-Trichloropropane-d5	1.000	1.000	0.0	0#	-15.08#
6 T 1,2,3-Trichloropropane	0.000	0.000#	0.0	0#	-15.08#

1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0402002.D
 Data File Path D:\HPCHEM1\DATA\040205\
 Sample Name P5D0201-BS1 /COV

Date Acquired 4/2/2005 7:48
 Operator CS
 Acq. Method File DX031905
 GCMS1

*4/15/05
 gfy*

0402002

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F	
Pentafluorobenzene (IS)	47071	34208	23336	94142	TRUE	
1,4-DIOXANE-d8	5034	7259	2517	10068	TRUE	
SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F	
Dibromofluoromethane (SU1)	1.14	114.3	80	125	TRUE	
TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	8.59	10.00	85.95	70	130	TRUE

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\0402002.D
 Acq On : 2 Apr 2005 7:48 am
 Sample : P5D0201-BS1 / *CON*
 Misc : 1X 10ML

Vial: 2
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:21 2005

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

*4/10/05
 JY*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	34208 ✓	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	7259 ✓	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SUI) 10.07 113 29546 1.14 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 114.00% ✓

Target Compounds

4) 1,4-DIOXANE 12.43 88 4722 8.59 ug/L Qvalue ✓ 93

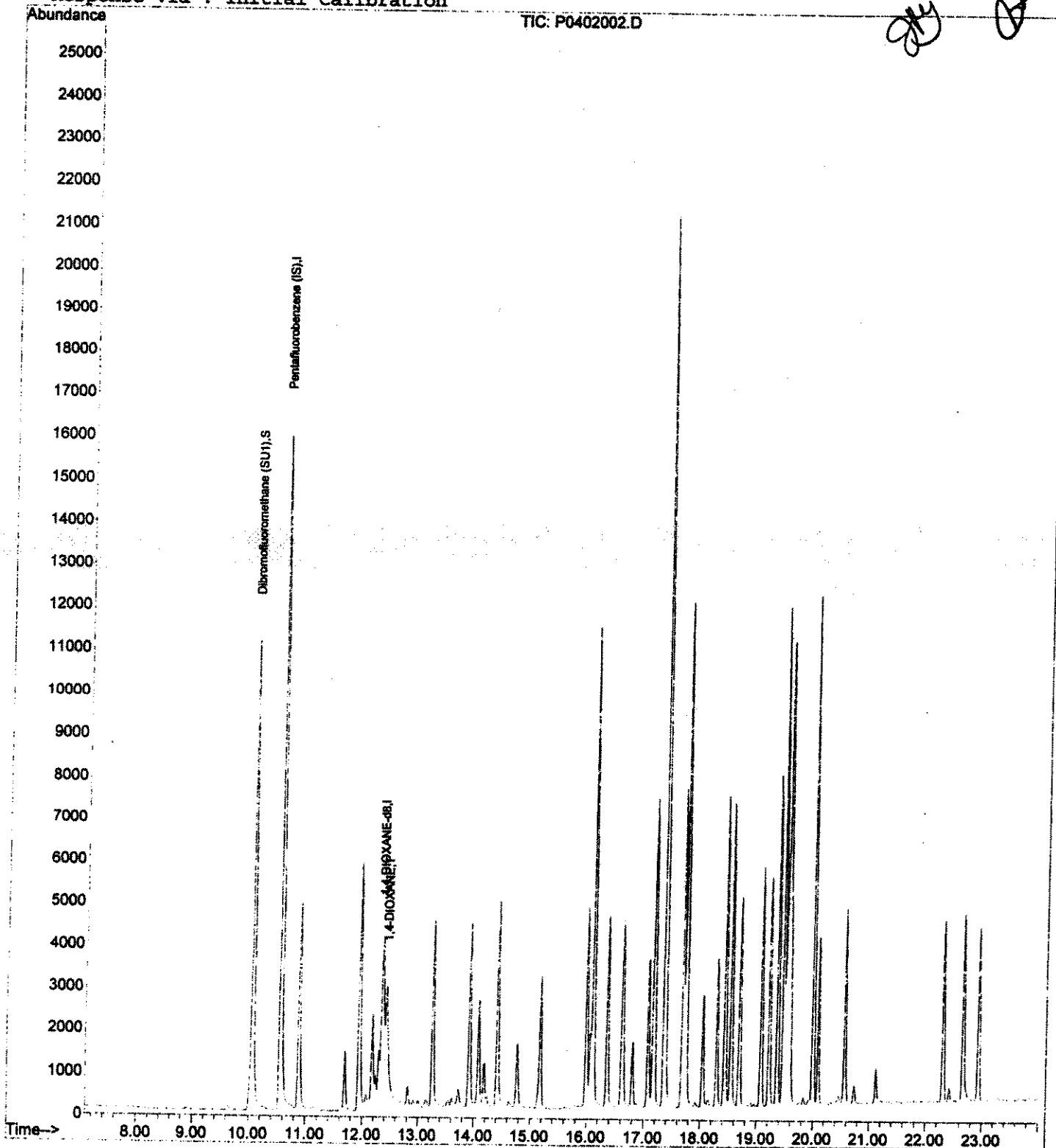
Quantitation Report

Data File : D:\HPCHEM\1\DATA\040205\P0402002.D
Acq On : 2 Apr 2005 7:48 am
Sample : PSD0201-BS1
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Apr 4 11:21 2005

Vial: 2
Operator: CS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



1,4-DIOXANE BY METHOD 8260B SIM

Data File Name P0402003.D

Data File Path D:\HPCHEM\1\DATA\040205\

Sample Name P5D0201-BSD1 / LCS DUP

Date Acquired 4/2/2005 8:21

Operator CS

Acq. Method File DX031905

GCMS1

*4/05/05
gly*

04020905

INTERNAL STANDARDS	CAL RESPONSE	TARGET RESPONSE	LOW LIMIT	HIGH LIMIT	T/F
Pentafluorobenzene (IS)	47071	35711	23536	94142	TRUE
1,4-DIOXANE-d8	5034	4308	2517	10068	TRUE

SURROGATE	AMOUNT	% RECOVERY	Low	High	T/F
Dibromofluoromethane (SU1)	1.14	113.8	80	125	TRUE

TARGET ANALYTE	AMOUNT	TRUE VALUE	RECOVER	Low	High	T/F
1,4-DIOXANE	9.04	10.00	90.38	70	130	TRUE

Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\0402003.D Vial: 3
 Acq On : 2 Apr 2005 8:21 am Operator: CS
 Sample : P5D0201-BSD1 Inst : GCMS1
 Misc : 1X 10ML Multiplr: 1.00
 MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:21 2005 Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	35711	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	4308	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 30707 1.14 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 114.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 2947 9.04 ug/L Qvalue 96

Quantitation Report

Data File : D:\HPCHEM\1\DATA\040205\P0402003.D

Acq On : 2 Apr 2005 8:21 am

Sample : PSD0201-BSD1

Misc : 1X 10ML

MS Integration Params: DIOXANE.P

Quant Time: Apr 4 11:21 2005

Vial: 3

Operator: CS

Inst : GCMS1

Multiplr: 1.00

Quant Results File: DX031905.RES

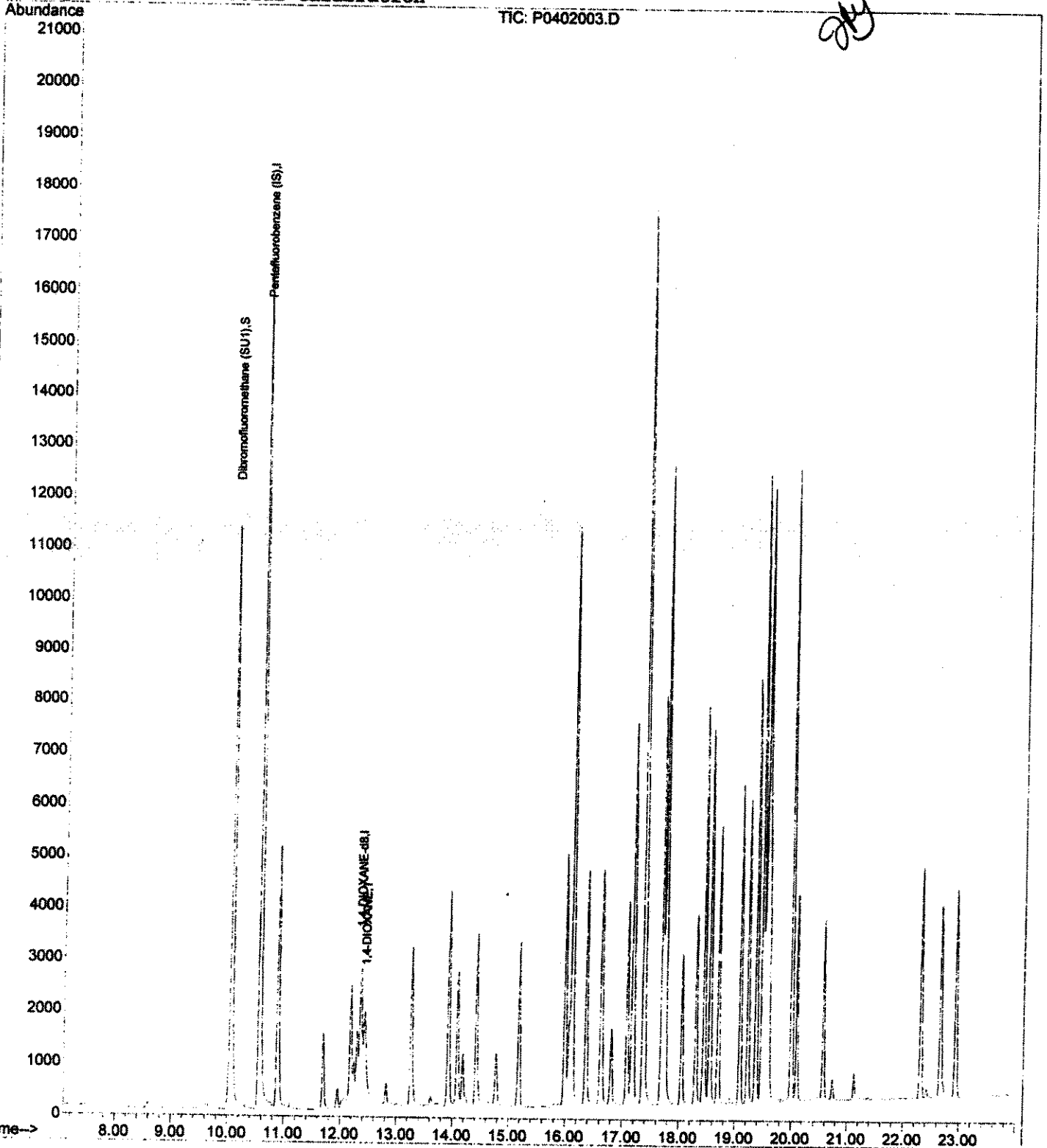
OX

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)

Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)

Last Update : Mon Mar 21 07:49:30 2005

Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\P0402004.D
 Acq On : 2 Apr 2005 8:54 am
 Sample : P5D0201-BLK1 / *Blank*
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:22 2005

Vial: 4
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

4/05/05
guy
04020405

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	36727	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6531	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SUL) 10.07 113 31451 1.13 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 113.00% ✓

Target Compounds

4) 1,4-DIOXANE 12.43 88 153 0.31 ug/L Qvalue 91

LM

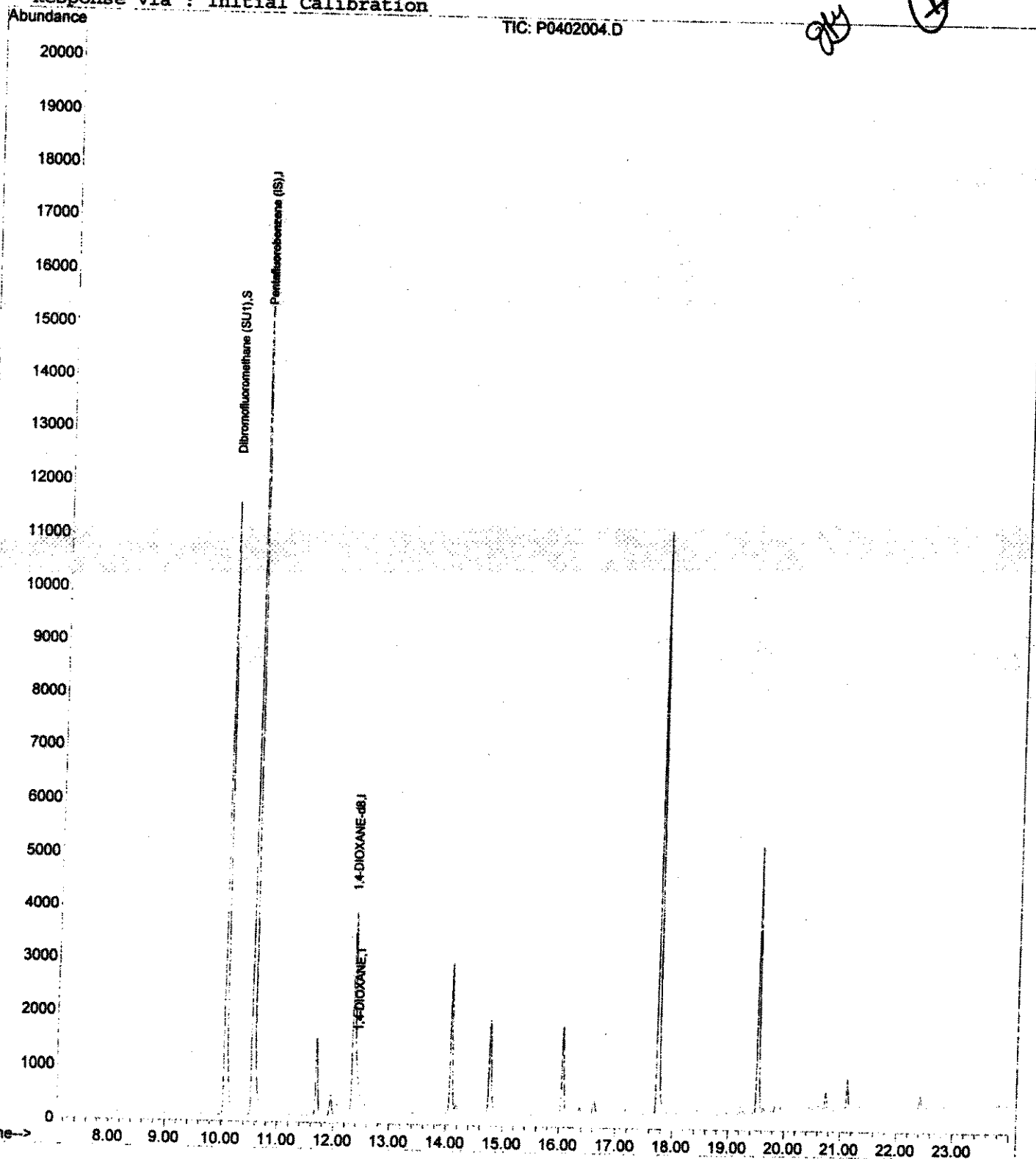
Quantitation Report

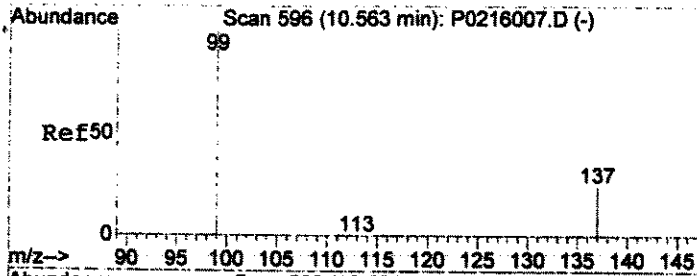
Data File : D:\HPCHEM\1\DATA\040205\P0402004.D
Acq On : 2 Apr 2005 8:54 am
Sample : P5D0201-BLK1
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Apr 4 11:22 2005

Vial: 4
Operator: CS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration

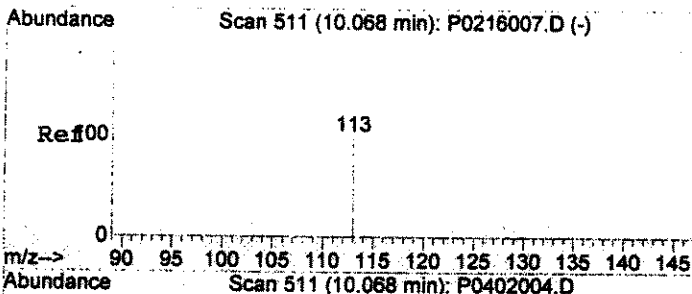
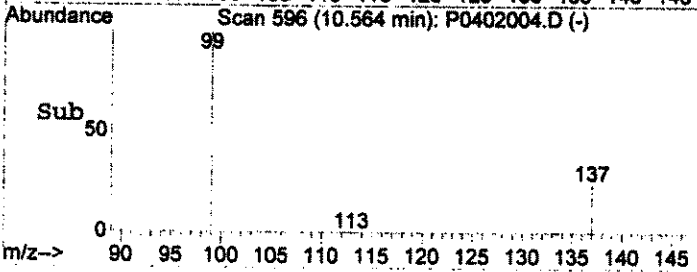
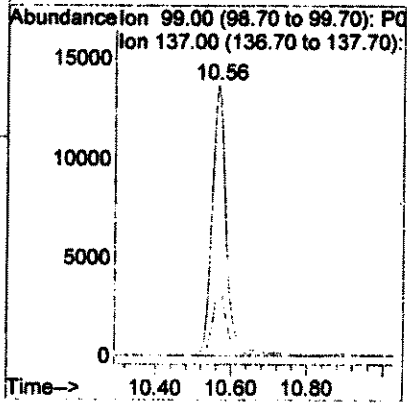
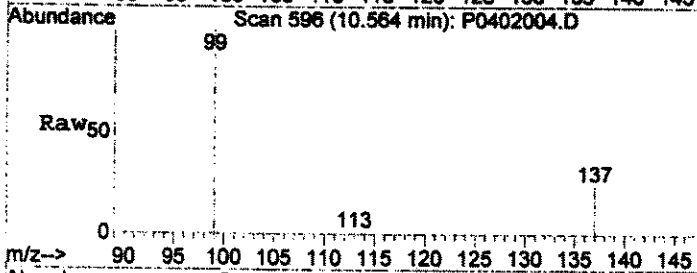




#1
 Pentafluorobenzene (IS)
 Concen: 1.00 ug/L
 RT: 10.56 min Scan# 596
 Delta R.T. -0.00 min
 Lab File: P0402004.D
 Acq: 2 Apr 2005 8:54 am

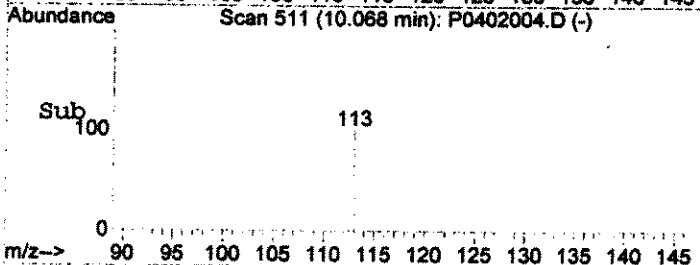
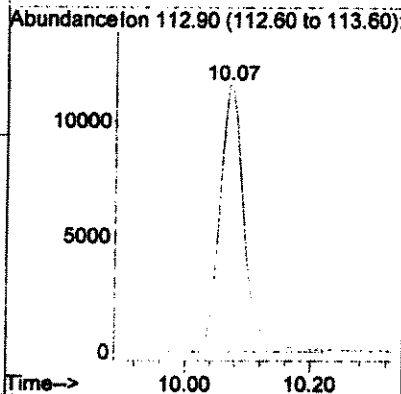
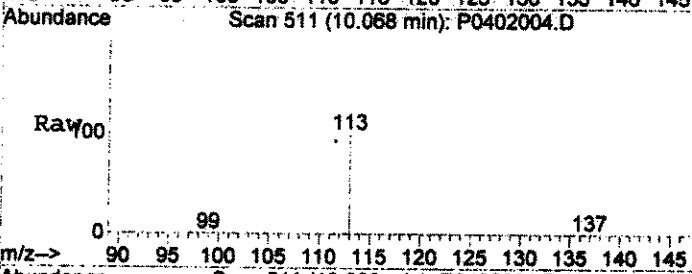
Tgt Ion: 99 Resp: 36727
 Ion Ratio Lower Upper
 99 100
 137 24.3 3.8 43.8

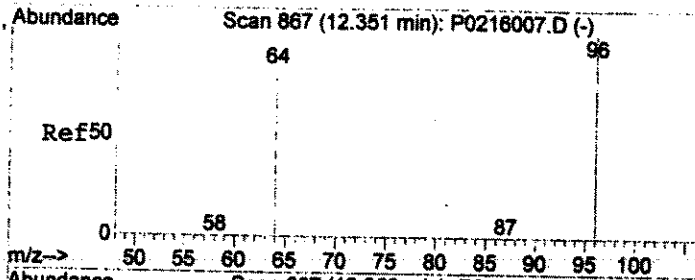
dy *AK*



#2
 Dibromofluoromethane (SU1)
 Concen: 1.00 ug/L
 RT: 10.07 min Scan# 511
 Delta R.T. -0.00 min
 Lab File: P0402004.D
 Acq: 2 Apr 2005 8:54 am

Tgt Ion: 113 Resp: 31451

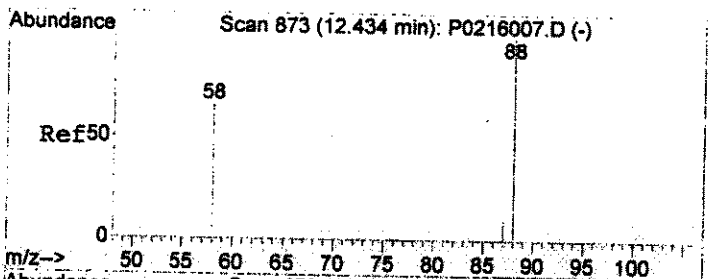
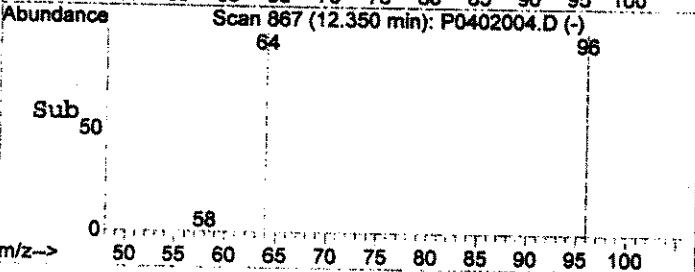
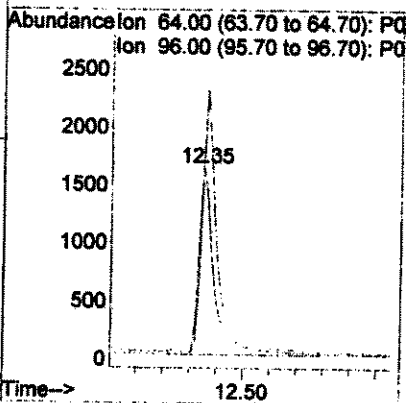
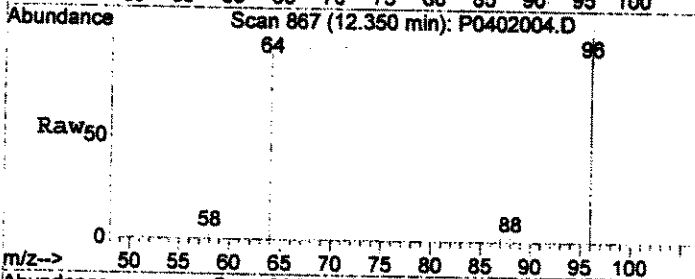




#3
 1,4-DIOXANE-d8
 Concen: 25.00 ug/L
 RT: 12.35 min Scan# 867
 Delta R.T. -0.00 min
 Lab File: P0402004.D
 Acq: 2 Apr 2005 8:54 am

Tgt Ion: 64 Resp: 6531
 Ion Ratio Lower Upper
 64 100
 96 101.3 72.7 172.7

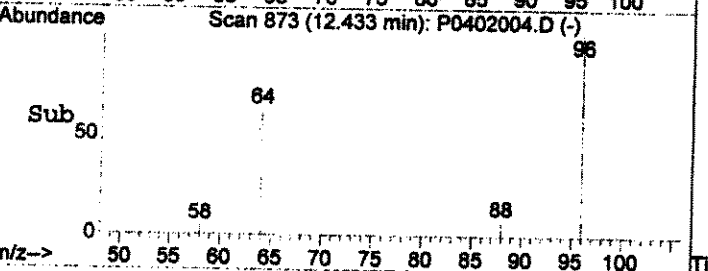
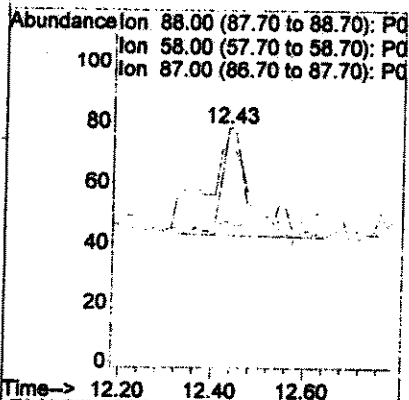
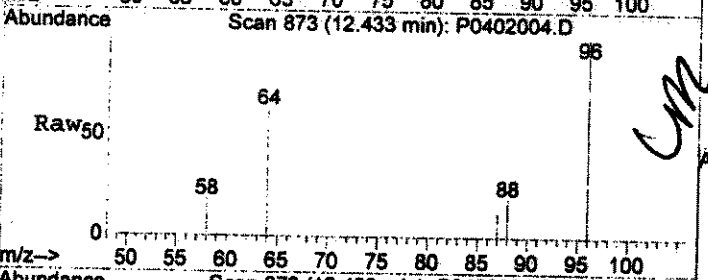
Handwritten initials

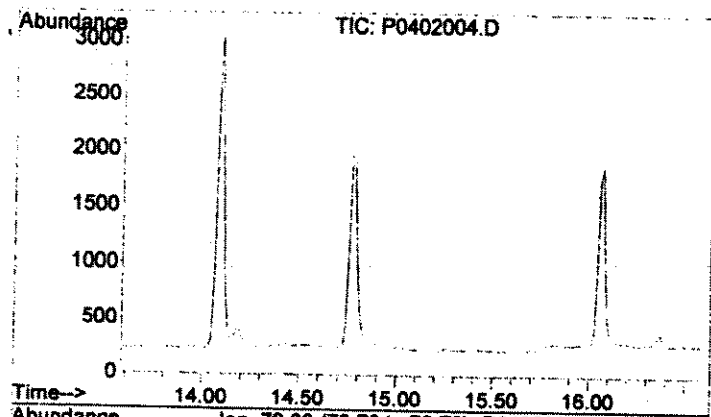


#4
 1,4-DIOXANE
 Concen: 0.31 ug/L
 RT: 12.43 min Scan# 873
 Delta R.T. -0.00 min
 Lab File: P0402004.D
 Acq: 2 Apr 2005 8:54 am

Tgt Ion: 88 Resp: 153
 Ion Ratio Lower Upper
 88 100
 58 72.2 15.8 115.8
 87 13.9 0.0 59.5

Handwritten initials



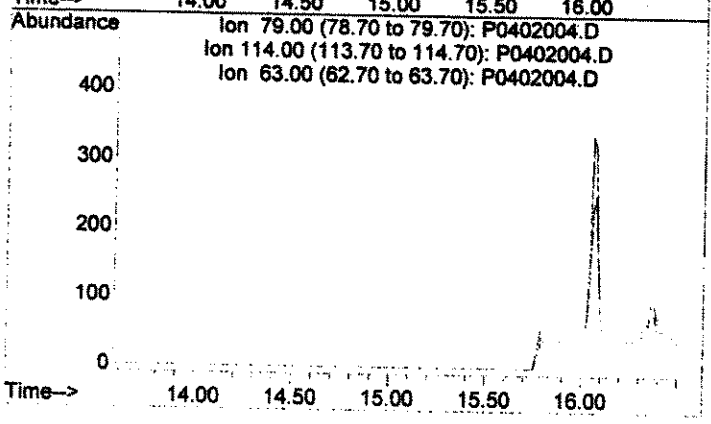


#5
 1,2,3-Trichloropropane-d5
 Concen: 0.00 ug/L
 Expected RT: 15.08 min

Lab File: P0402004.D
 Acq: 2 Apr 2005 8:54 am

Tgt Ion:	79
Sig	Exp Ratio
79	100
114	0.0
63	98.0

Handwritten signature/initials



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\PO402006.D
 Acq On : 2 Apr 2005 10:00 am
 Sample : POD0005-01
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:23 2005

Vial: 6
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

*4/10/05
 gty
 Oxygens*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.57	99	34198 ✓	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	5751 ✓	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 29965 1.16 ug/L 0.00 ✓
 Spiked Amount 1.000 Range 80 - 120 Recovery = 116.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 123 0.28 ug/L Qvalue 60

CM

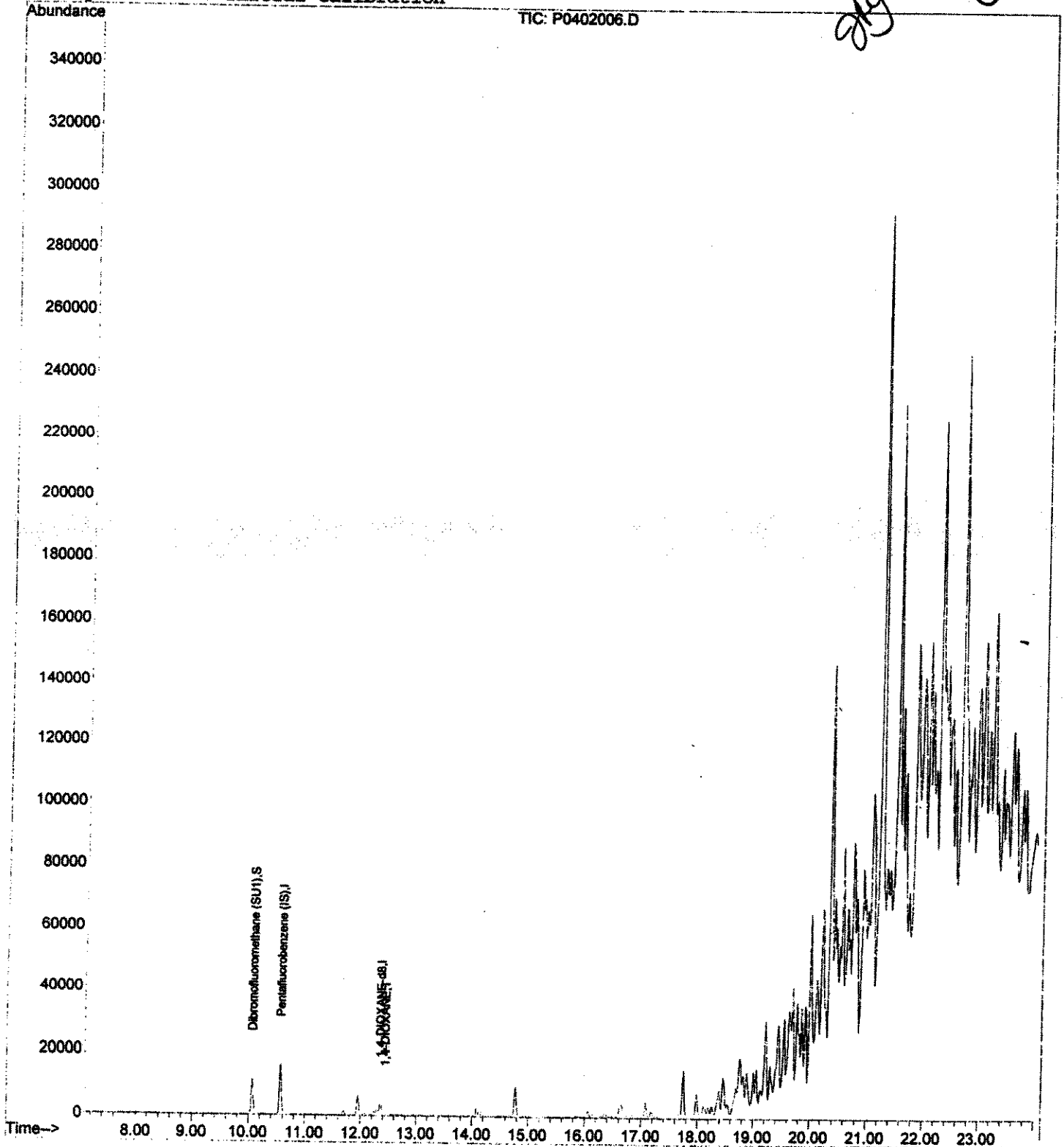
Quantitation Report

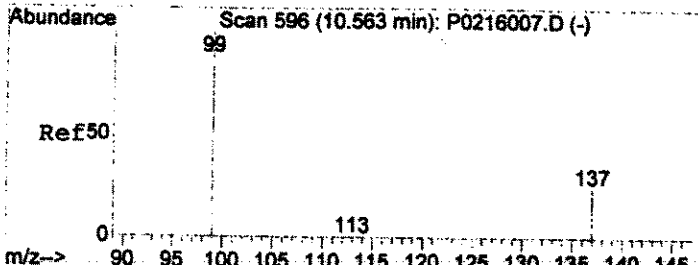
Data File : D:\HPCHEM\1\DATA\040205\PO402006.D
Acq On : 2 Apr 2005 10:00 am
Sample : POD0005-01
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Apr 4 11:23 2005

Vial: 6
Operator: CS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



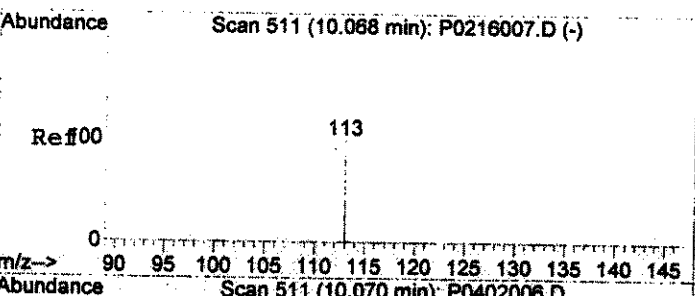
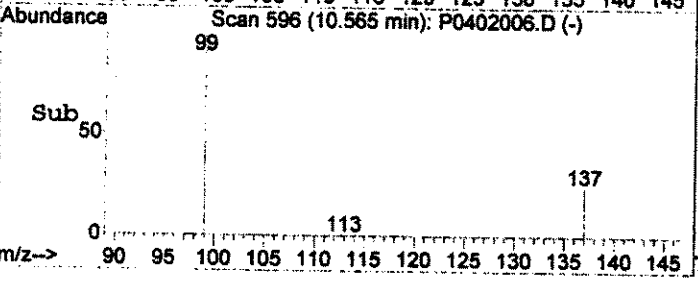
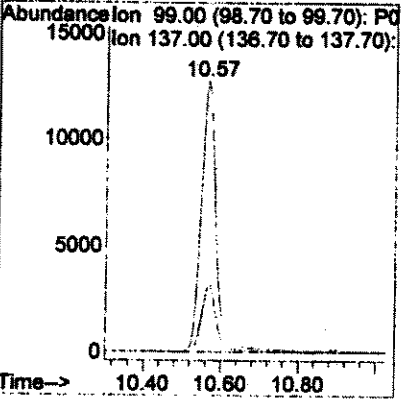
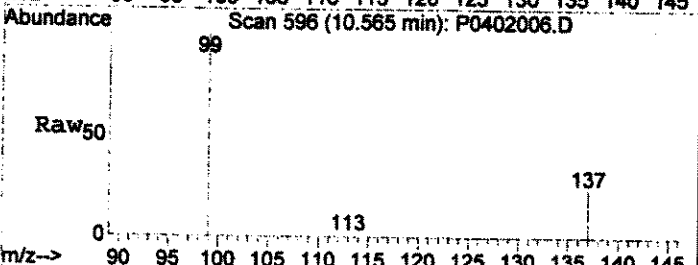


#1
 Pentafluorobenzene (IS)
 Concen: 1.00 ug/L
 RT: 10.57 min Scan# 596
 Delta R.T. -0.00 min
 Lab File: P0402006.D
 Acq: 2 Apr 2005 10:00 am

Tgt Ion: 99 Resp: 34198

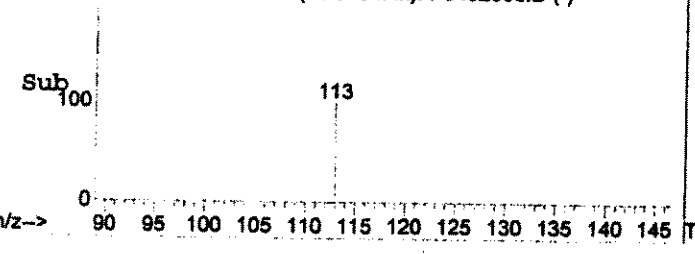
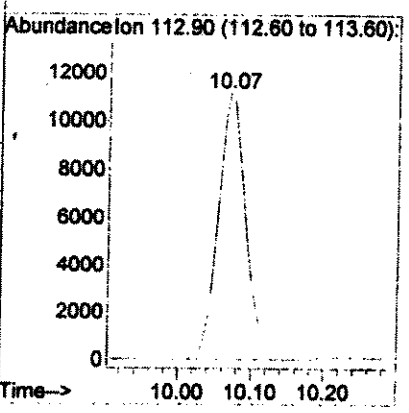
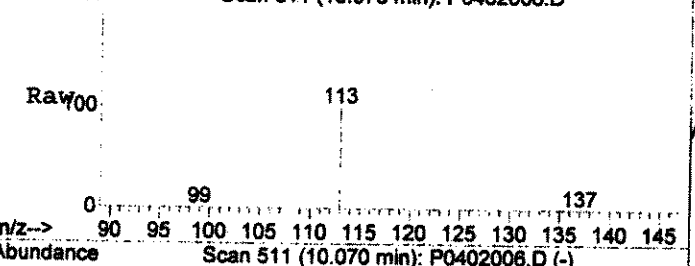
Ion	Ratio	Lower	Upper
99	100		
137	24.1	3.8	43.8

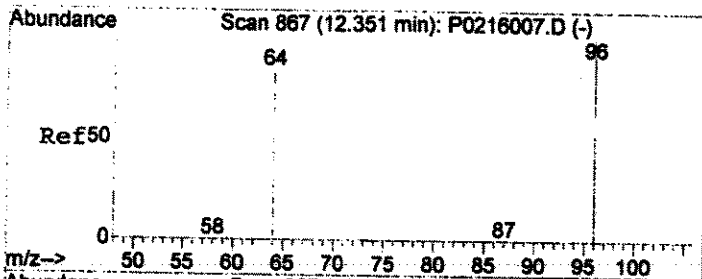
Handwritten initials: JY and CL



#2
 Dibromofluoromethane (SU1)
 Concen: 1.00 ug/L
 RT: 10.07 min Scan# 511
 Delta R.T. -0.00 min
 Lab File: P0402006.D
 Acq: 2 Apr 2005 10:00 am

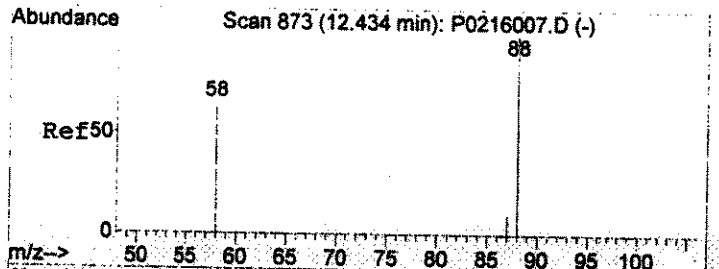
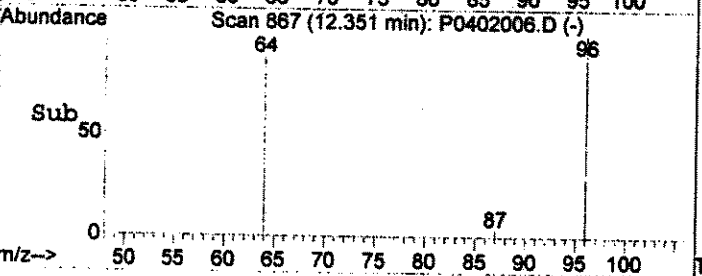
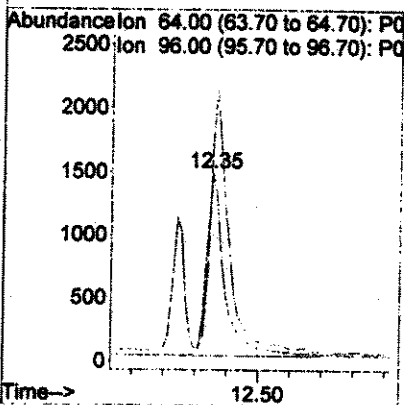
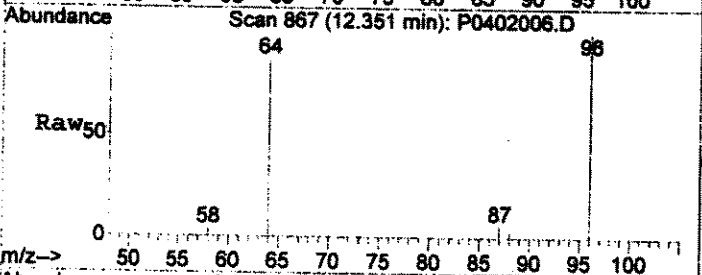
Tgt Ion: 113 Resp: 29965





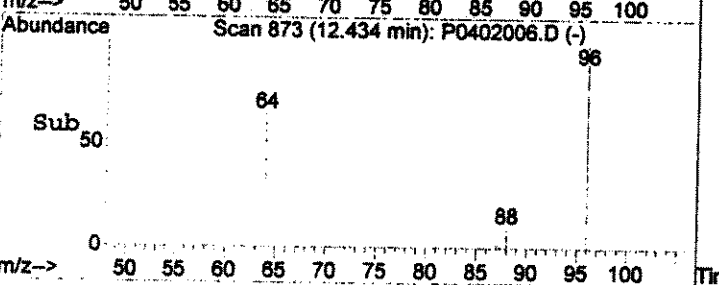
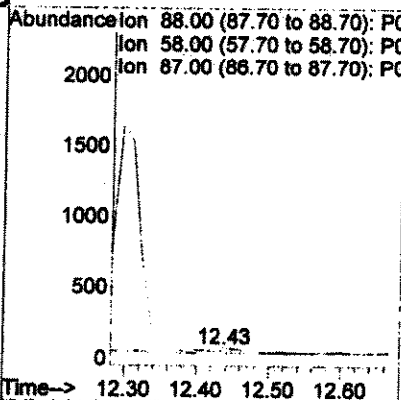
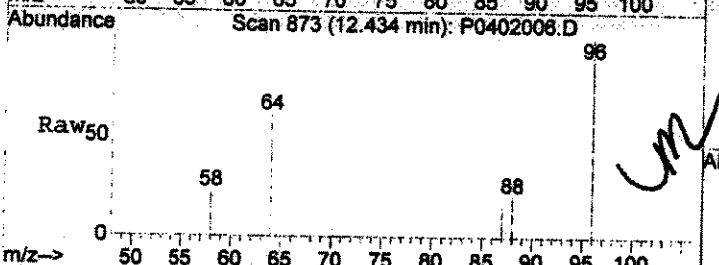
#3
 1,4-DIOXANE-d8
 Concen: 25.00 ug/L
 RT: 12.35 min Scan# 867
 Delta R.T. 0.00 min
 Lab File: P0402006.D
 Acq: 2 Apr 2005 10:00 am

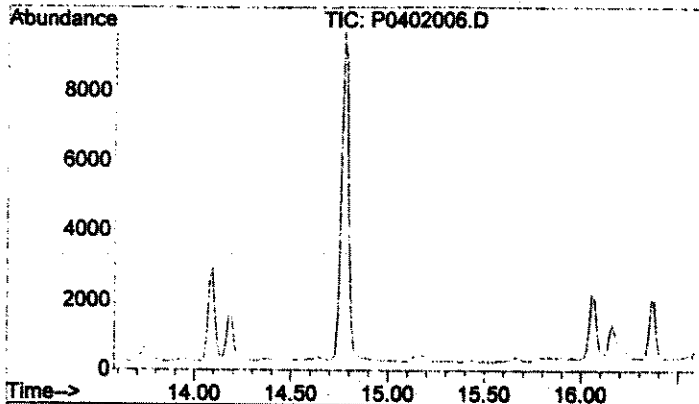
Tgt Ion: 64 Resp: 5751
 Ion Ratio Lower Upper
 64 100
 96 113.2 72.7 172.7



#4
 1,4-DIOXANE
 Concen: 0.28 ug/L
 RT: 12.43 min Scan# 873
 Delta R.T. 0.00 min
 Lab File: P0402006.D
 Acq: 2 Apr 2005 10:00 am

Tgt Ion: 88 Resp: 123
 Ion Ratio Lower Upper
 88 100
 58 93.8 15.8 115.8
 87 37.5 0.0 59.5



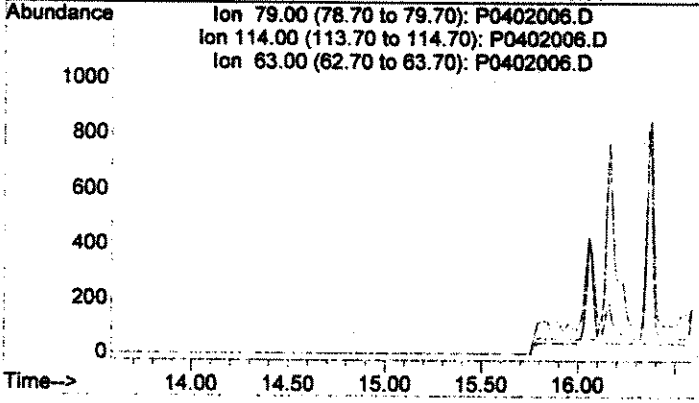


#5
 1,2,3-Trichloropropane-d5
 Concen: 0.00 ug/L
 Expected RT: 15.08 min

Lab File: P0402006.D
 Acq: 2 Apr 2005 10:00 am

Tgt Ion:	79
Sig	Exp Ratio
79	100
114	0.0
63	98.0

Handwritten signature



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\PO402007.D
 Acq On : 2 Apr 2005 10:33 am
 Sample : POC0786-06
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:23 2005

Vial: 7
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

*4/05/05
 gty*

*OK
 4/05/05*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	42954	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	9166	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 29832 0.92 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 92.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 172 0.25 ug/L # 1

CM

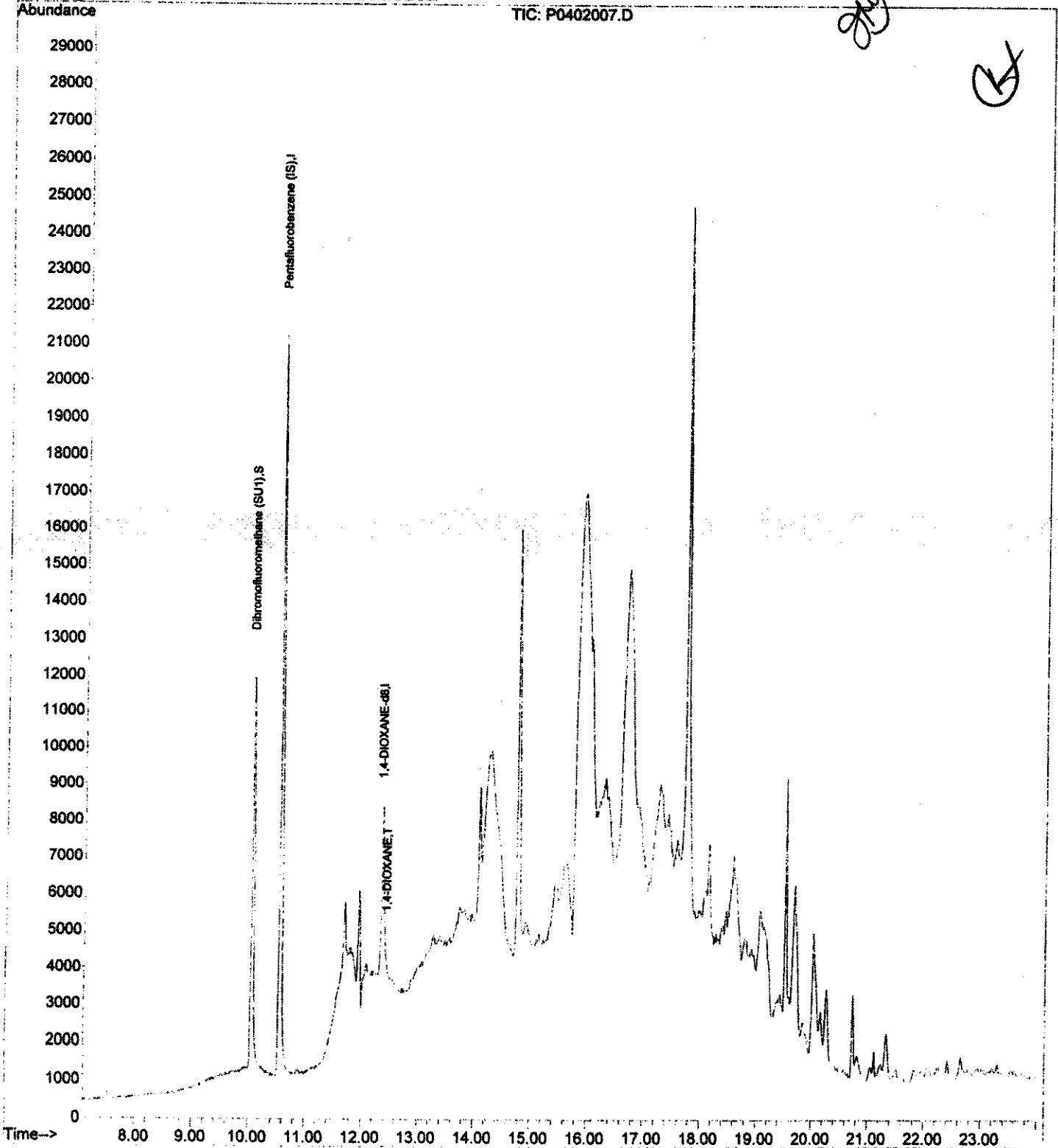
Quantitation Report

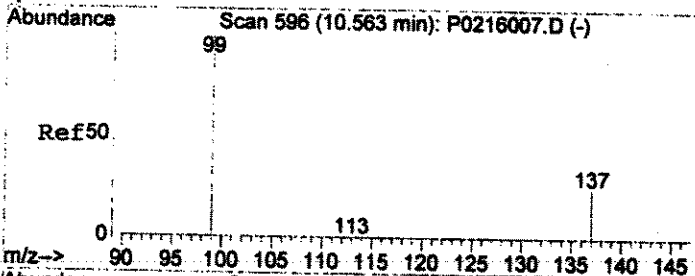
Data File : D:\HPCHEM\1\DATA\040205\PO402007.D
Acq On : 2 Apr 2005 10:33 am
Sample : POC0786-06
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Apr 4 11:23 2005

Vial: 7
Operator: CS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



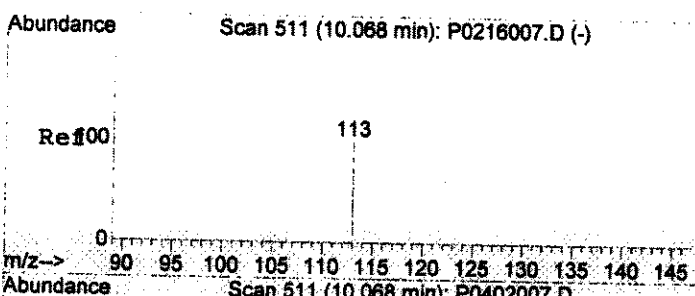
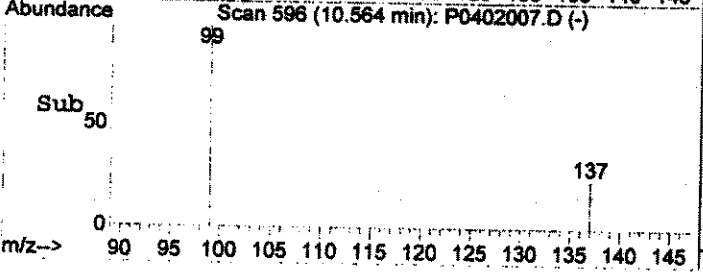
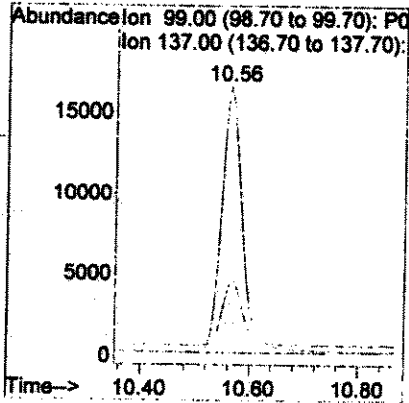
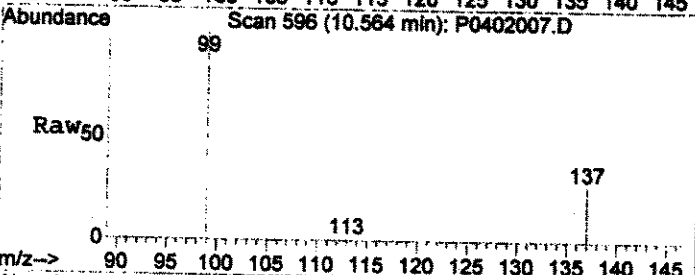


#1
 Pentafluorobenzene (IS)
 Concen: 1.00 ug/L
 RT: 10.56 min Scan# 596
 Delta R.T. -0.00 min
 Lab File: P0402007.D
 Acq: 2 Apr 2005 10:33 am

Tgt Ion: 99 Resp: 42954
 Ion Ratio Lower Upper
 99 100
 137 24.0 3.8 43.8

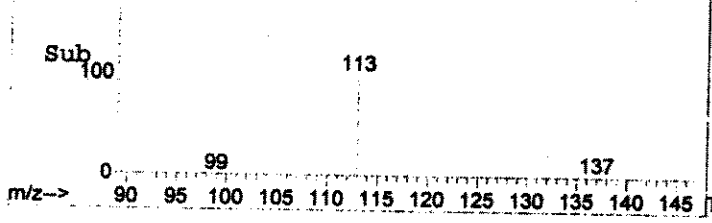
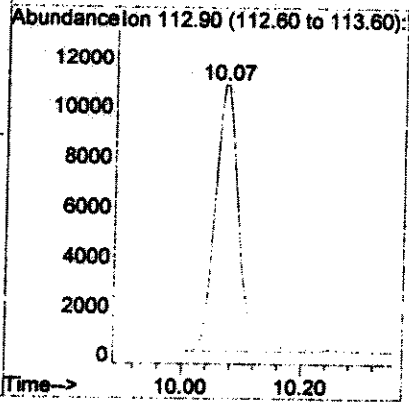
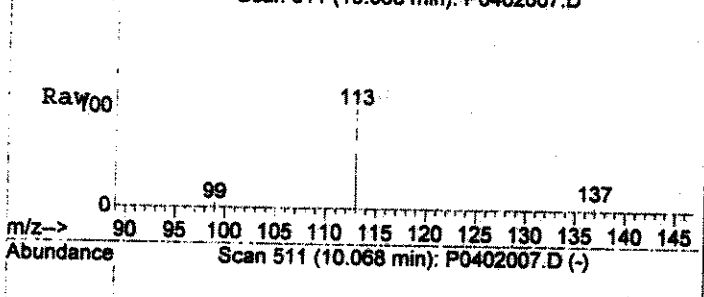
Jay

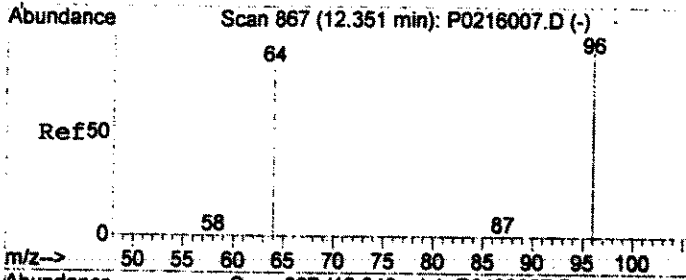
OK



#2
 Dibromofluoromethane (SU1)
 Concen: 1.00 ug/L
 RT: 10.07 min Scan# 511
 Delta R.T. -0.00 min
 Lab File: P0402007.D
 Acq: 2 Apr 2005 10:33 am

Tgt Ion: 113 Resp: 29832

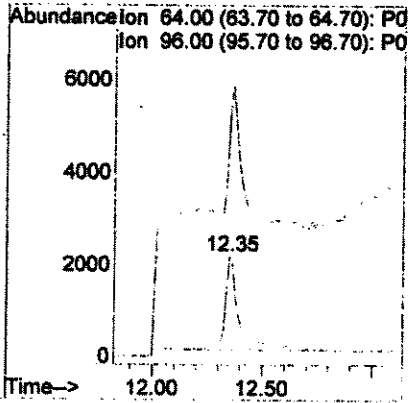
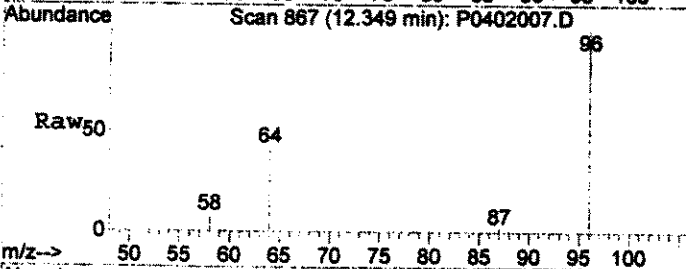




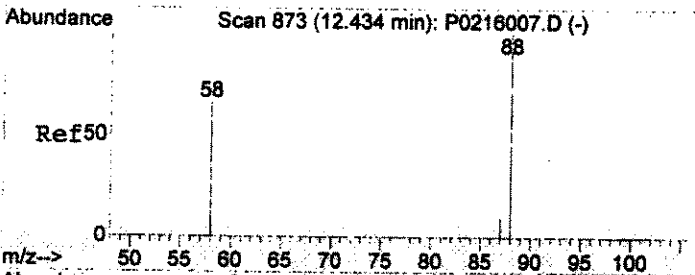
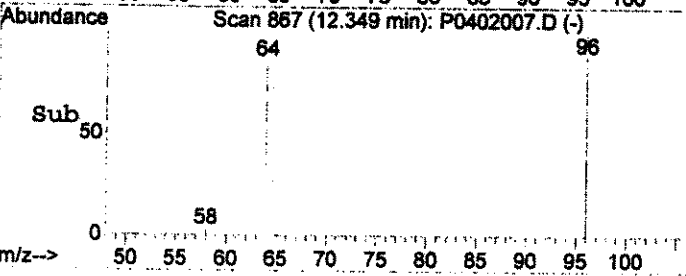
#3
 1,4-DIOXANE-d8
 Concen: 25.00 ug/L
 RT: 12.35 min Scan# 867
 Delta R.T. -0.00 min
 Lab File: P0402007.D
 Acq: 2 Apr 2005 10:33 am

Tgt Ion: 64 Resp: 9166
 Ion Ratio Lower Upper
 64 100
 96 112.3 72.7 172.7

Handwritten initials: JLY



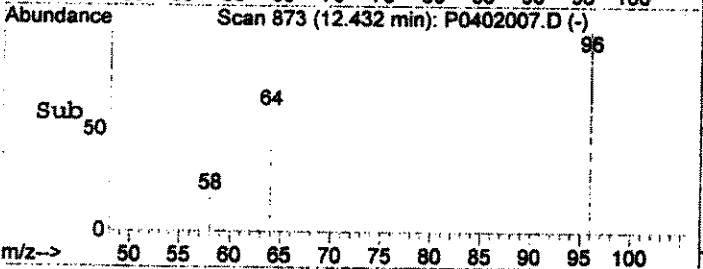
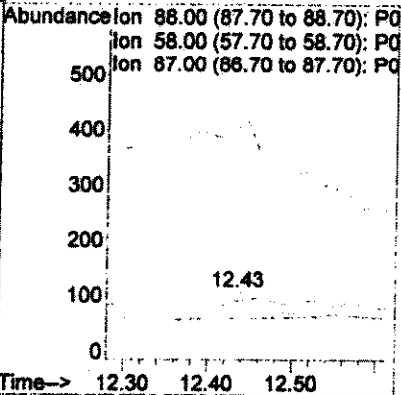
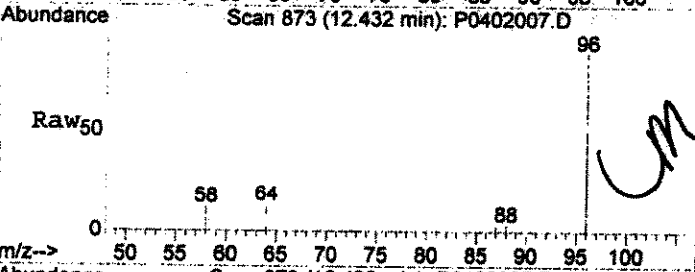
Handwritten checkmark

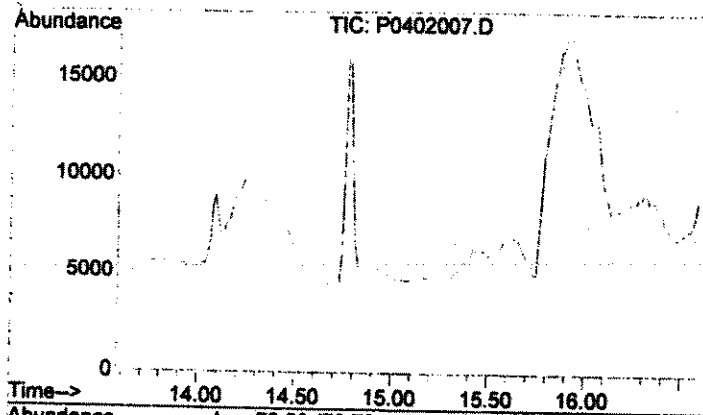


#4
 1,4-DIOXANE
 Concen: 0.25 ug/L
 RT: 12.43 min Scan# 873
 Delta R.T. -0.00 min
 Lab File: P0402007.D
 Acq: 2 Apr 2005 10:33 am

Tgt Ion: 88 Resp: 172
 Ion Ratio Lower Upper
 88 100
 58 202.0 15.8 115.8#
 87 18.0 0.0 59.5

Handwritten initials: LM





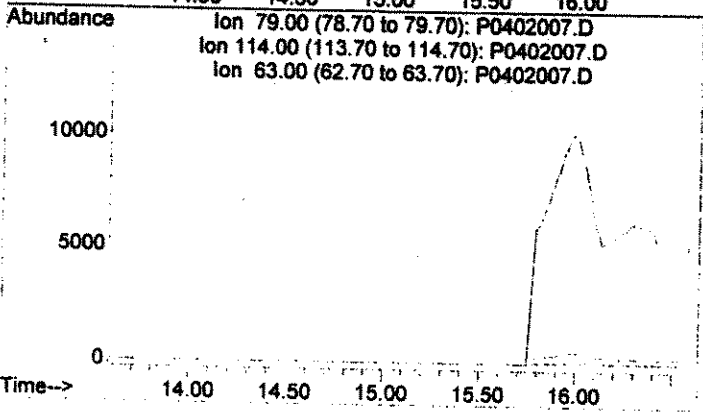
#5
 1,2,3-Trichloropropane-d5
 Concen: 0.00 ug/L
 Expected RT: 15.08 min

Lab File: P0402007.D
 Acq: 2 Apr 2005 10:33 am

Tgt Ion:	79
Sig	Exp Ratio
79	100
114	0.0
63	98.0

(Handwritten mark)

(Handwritten signature)



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\P0402008.D
 Acq On : 2 Apr 2005 11:05 am
 Sample : P5D0201-MS1
 Misc : 1X 10ML

Vial: 8
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:24 2005

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

*4/10/05
gdy*

ADZKANT

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	42443	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6479	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 32423 1.01 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 101.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 4210 8.59 ug/L Qvalue 91

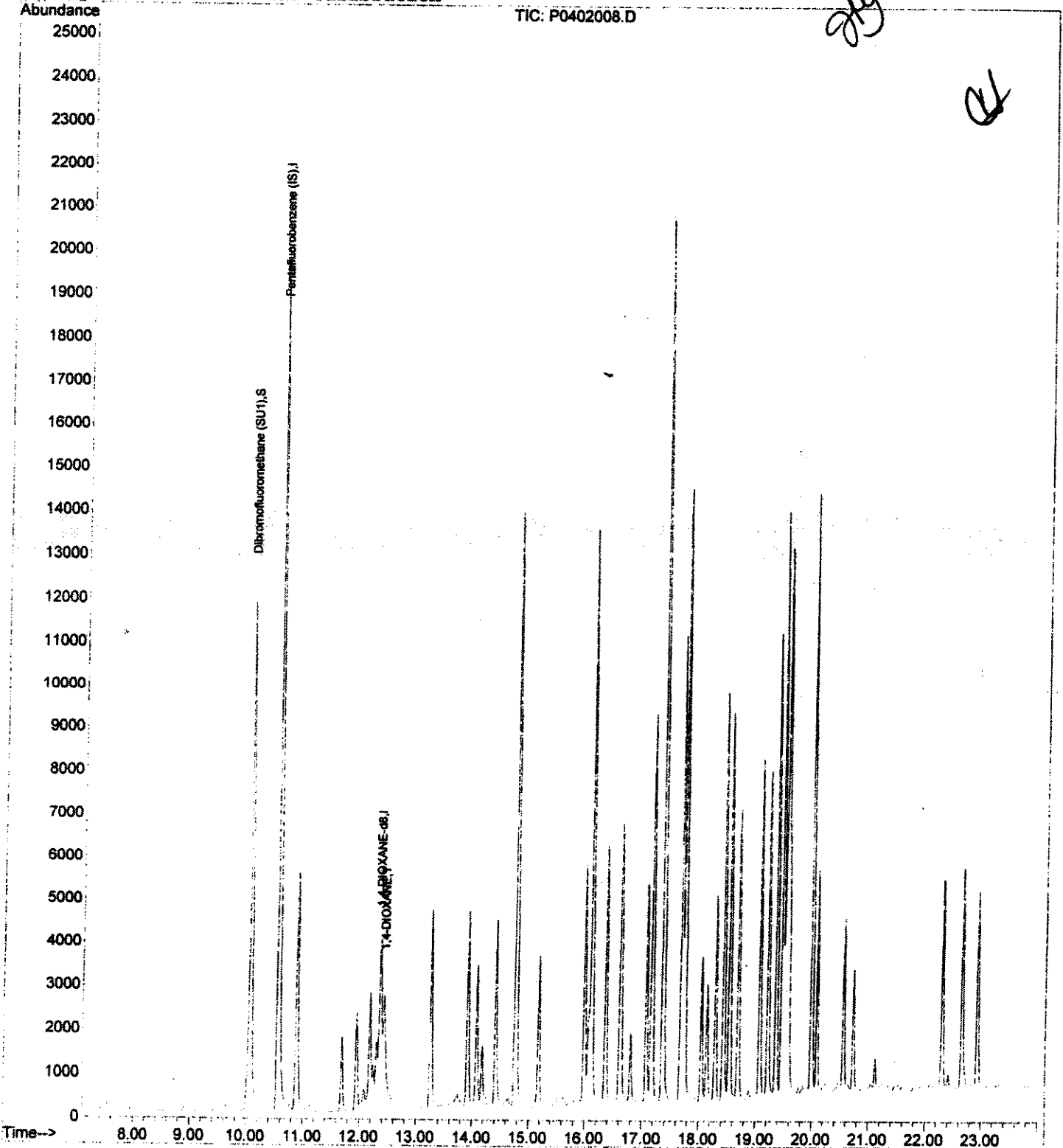
Quantitation Report

Data File : D:\HPCHEM\1\DATA\040205\0402008.D
Acq On : 2 Apr 2005 11:05 am
Sample : P5D0201-MS1
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Apr 4 11:24 2005

Vial: 8
Operator: CS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\HPCHEM\1\DATA\040205\0402009.D
 Acq On : 2 Apr 2005 11:38 am
 Sample : PSD0201-MSD1
 Misc : 1X 10ML
 MS Integration Params: DIOXANE.P
 Quant Time: Apr 4 11:24 2005

Vial: 9
 Operator: CS
 Inst : GCMS1
 Multiplr: 1.00

Quant Results File: DX031905.RES

Quant Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
 Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
 Last Update : Mon Mar 21 07:49:30 2005
 Response via : Initial Calibration
 DataAcq Meth : DX031905

*4/05/05
 gky*

*GA
 04/05/05*

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene (IS)	10.56	99	38636	1.00	ug/L	0.00
3) 1,4-DIOXANE-d8	12.35	64	6270	25.00	ug/L	0.00
5) 1,2,3-Trichloropropane-d5	0.00	79	0	0.00	ug/L	-15.08

System Monitoring Compounds

2) Dibromofluoromethane (SU1) 10.07 113 30203 1.03 ug/L 0.00
 Spiked Amount 1.000 Range 80 - 120 Recovery = 103.00%

Target Compounds

4) 1,4-DIOXANE 12.43 88 4228 8.91 ug/L Qvalue 91

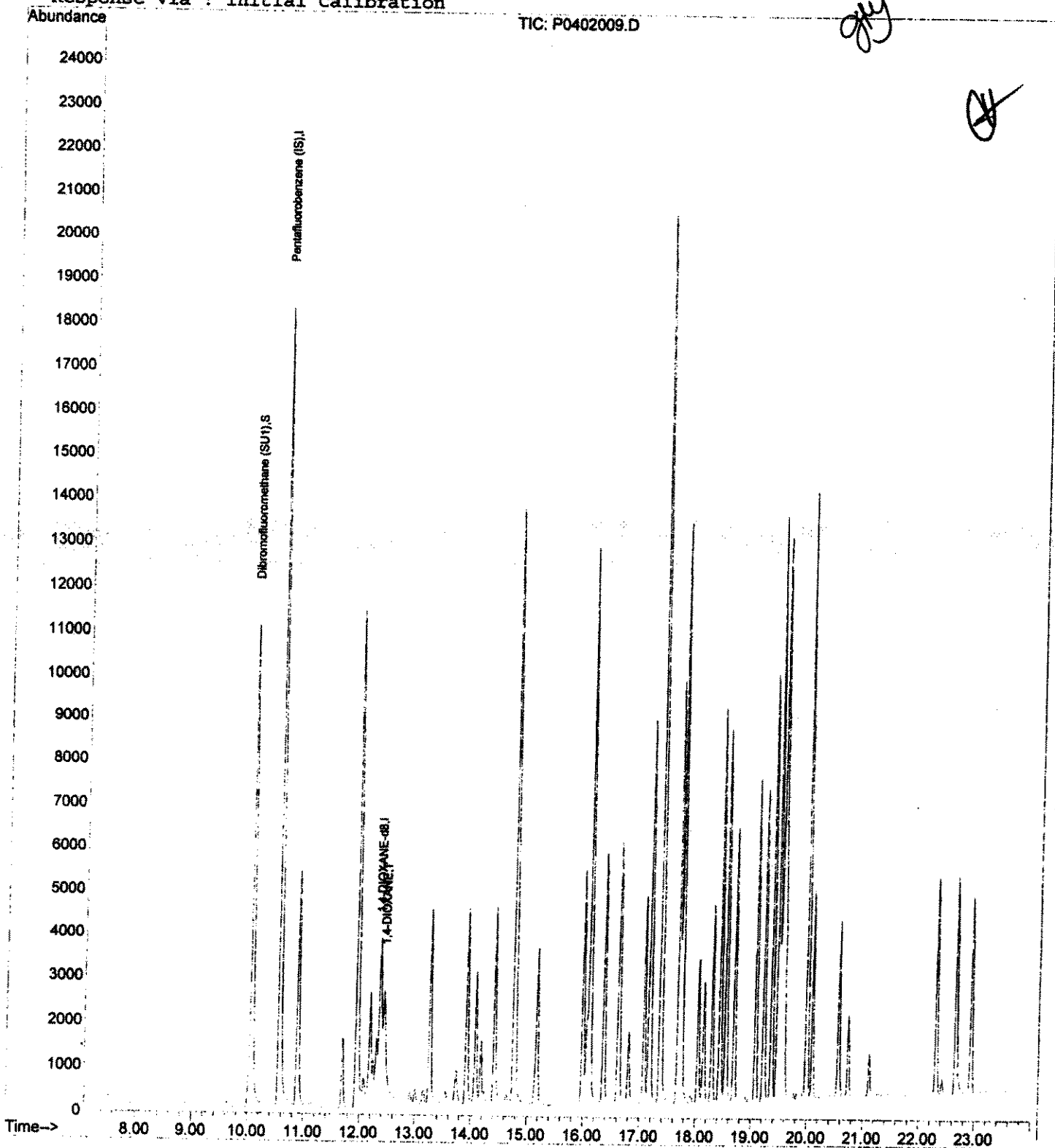
Quantitation Report

Data File : D:\HPCHEM\1\DATA\040205\P0402009.D
Acq On : 2 Apr 2005 11:38 am
Sample : PSD0201-MSD1
Misc : 1X 10ML
MS Integration Params: DIOXANE.P
Quant Time: Apr 4 11:24 2005

Vial: 9
Operator: CS
Inst : GCMS1
Multiplr: 1.00

Quant Results File: DX031905.RES

Method : D:\HPCHEM\1\METHODS\DX031905.M (RTE Integrator)
Title : 8260 1,4-Dioxane Ini. Cal. (05/02/02)
Last Update : Mon Mar 21 07:49:30 2005
Response via : Initial Calibration



PREPARATION BENCH SHEET

P5D0201

Del Mar Analytical - Phoenix

Printed: 4/4/05 11:47:25AM

Surrogate used: 5040021

Prepared using: GCMS - EPA 5030 GCMS

Matrix: Water

Lab Number	C	Analysis	Prepared	Initial (ml)	Final (ml)	Spike ID	Source ID	ul Spike	ul Surrogate	Initials	Extraction Comments
P5D0201-BLK1		QC	04/02/05 00:00	10	10				1		
P5D0201-BS1		QC	04/02/05 00:00	10	10	5040022		10	1		
P5D0201-BSD1		QC	04/02/05 00:00	10	10	5040022		10	1		
P5D0201-MS1		QC	04/02/05 00:00	10	10	5040022	POC0786-06	10	1		
P5D0201-MSD1		QC	04/02/05 00:00	10	10	5040022	POC0786-06	10	1		
POC0786-05	B	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		
POC0786-06	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		
POC0786-07	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		
POC0786-08	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		
POC0891-01	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J flag to MDL; monthly
POC0892-01	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J Flags, 2 ppb RL
POC0892-02	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J Flags, 2 ppb RL
POC0892-03	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J Flags, 2 ppb RL
POC0892-04	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J Flags, 2 ppb RL
POD0005-01	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		Boeing-permit, sub DMAP, J flags
POD0006-01	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J&B flags
POD0006-02	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J&B flags
POD0006-03	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J&B flags
POD0006-04	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J&B flags
POD0015-01	A	8260B (1,4-Dioxane)	04/02/05 00:00	10	10				1		J&B flags

04/15/05

NA

NA

Witnessed By

Date

Preparation Reviewed By

Date

Extracts Received By

Date

**Analytical Standard Record
Del Mar Analytical - Phoenix
5030018**

Description:	1,4-Dioxane SSC 10 ppm	Expires:	04/01/05
Standard Type:	Analyte Spike	Prepared:	03/01/05
Solvent:	MeOH #44337	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/01/05 12:38 by MS

1,4-Dioxane SSC 10ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030017	1,4-Dioxane SS 2000 ppm STOCK	03/01/05	Melissa Spencer	04/01/05	03/01/05 12:38 by MS	0.005

Brenda Steffy
Reviewed By

03-08-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030017

Description:	1,4-Dioxane SS 2000 ppm STOCK	Expires:	04/01/05
Standard Type:	Other Solution	Prepared:	03/01/05
Solvent:	MeOH	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/01/05 12:38 by MS

O2SI, 1,4-Dioxane 2000 ppm in Methanol PART#020223-01 LOT#109885
CRACKED NEW AMPULE -- original log in #4120027

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	2000

Brenda Steffy
Reviewed By

03-08-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030321

Description:	IS/SURR MIX DIOXANE250/10/10PPM	Expires:	04/01/05
Standard Type:	Surrogate Spike	Prepared:	03/18/05
Solvent:	MeOH/EMD#44337	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/18/05 11:10 by cs

IS/SURR MIX for 1,4-Dioxane:1,4-Dioxane-d8 at 250 ppm,Pentafluorobenzene at 10 ppm,Dibromofluoromethane at 10 ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	10
1,4-Difluorobenzene	540-36-3	10
1,4-Dioxane-d8	17647-74-4	250
4-Bromofluorobenzene	460-00-4	10
Chlorobenzene-d5	3114-55-4	10
Dibromofluoromethane	1868-53-7	10
Pentafluorobenzene	NA	10
Toluene-d8	2037-26-5	10

Parent Standards used in this standard:						
Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030019	1,4-Dioxane-d8 10000 PPB	03/01/05	Melissa Spencer	04/01/05	03/01/05 12:03 by l	0.025
5030256	8260 INTERNAL STANDARD	03/15/05	Jody Galassi	04/15/05	03/15/05 10:23 by J	0.005
5030320	8260 SURR,2000PPM	03/18/05	Corey Schrader	04/18/05	03/18/05 11:08 by c	0.005

Melissa Spencer
 Reviewed By

03-18-2005
 Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030320

Description:	8260 SURR,2000PPM	Expires:	04/18/05
Standard Type:	Surrogate Spike	Prepared:	03/18/05
Solvent:	MEOH	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/18/05 11:08 by cs

ABSOLUTE, PART#21002, LOT#060304, 3 COMP @ 2000ug/mL
CRACKED NEW AMPULE--original log in #5010497

Analyte	CAS Number	Concentration (ppm)
4-Bromofluorobenzene	460-00-4	2000
Dibromofluoromethane	1868-53-7	2000
Toluene-d8	2037-26-5	2000

Melissa Spencer
Reviewed By

03-18-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030256

Description:	8260 INTERNAL STANDARD	Expires:	04/15/05
Standard Type:	Other Solution	Prepared:	03/15/05
Solvent:	N/A	Prepared By:	Jody Galassi
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/15/05 10:23 by JG

Absolute PART#20013, LOT#122104, 2000PPM
CRACKED NEW AMPULE--ORIGINAL LOG-IN ID#5010496

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	2000
1,4-Difluorobenzene	540-36-3	2000
Chlorobenzene-d5	3114-55-4	2000
Pentafluorobenzene	NA	2000

Melissa Spencer
Reviewed By

03-18-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030019

Description:	1,4-Dioxane-d8 10000 PPB	Expires:	04/01/05
Standard Type:	Other Solution	Prepared:	03/01/05
Solvent:	MeOH	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/01/05 12:03 by MS

Absolute Part# 92785, Lot# 022301, 1,4-Dioxane-d8, 10mg/mL in methanol
ORIGINAL LOG-IN ID#5010501

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane-d8	17647-74-4	10000

Brenda Steffy
Reviewed By

03-08-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5040022

Description:	1,4-Dioxane SSC 10 ppm	Expires:	05/01/05
Standard Type:	Analyte Spike	Prepared:	04/01/05
Solvent:	MeOH #44337	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	04/01/05 14:57 by cs

1,4-Dioxane SSC 10ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5040018	1,4-Dioxane SS 2000 ppm STOCK	04/01/05	Corey Schrader	05/01/05	04/01/05 14:26 by c	0.005

Reviewed By _____

Date _____

Analytical Standard Record
Del Mar Analytical - Phoenix
5040018

Description:	1,4-Dioxane SS 2000 ppm STOCK	Expires:	05/01/05
Standard Type:	Other Solution	Prepared:	04/01/05
Solvent:	MeOH	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	04/01/05 14:26 by cs

O2SI, 1,4-Dioxane 2000 ppm in Methanol PART#020223-01 LOT#109885
CRACKED NEW AMPULE -- original log in #4120027

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	2000

Reviewed By _____

Date _____

Analytical Standard Record
Del Mar Analytical - Phoenix
5040021

Description:	IS/SURR MIX DIOXANE250/10/10PPM	Expires:	04/15/05
Standard Type:	Surrogate Spike	Prepared:	04/01/05
Solvent:	MeOH/EMD#44337	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	04/01/05 14:56 by cs

IS/SURR MIX for 1,4-Dioxane:1,4-Dioxane-d8 at 250 ppm,Pentafluorobenzene at 10 ppm,Dibromofluoromethane at 10 ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	10
1,4-Difluorobenzene	540-36-3	10
1,4-Dioxane-d8	17647-74-4	250
4-Bromofluorobenzene	460-00-4	10
Chlorobenzene-d5	3114-55-4	10
Dibromofluoromethane	1868-53-7	10
Pentafluorobenzene	NA	10
Toluene-d8	2037-26-5	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030256	8260 INTERNAL STANDARD	03/15/05	Jody Galassi	04/15/05	03/15/05 10:23 by J	0.005
5030320	8260 SURR,2000PPM	03/18/05	Corey Schrader	04/18/05	03/18/05 11:08 by c	0.005
5040020	1,4-Dioxane-d8 10000 PPB	04/01/05	Corey Schrader	04/01/06	04/01/05 14:29 by c	0.025

Reviewed By

Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5040020

Description:	1,4-Dioxane-d8 10000 PPB	Expires:	04/01/06
Standard Type:	Other Solution	Prepared:	04/01/05
Solvent:	MeOH	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	04/01/05 14:29 by cs

Absolute Part# 92785, Lot# 022301, 1,4-Dioxane-d8, 10mg/mL in methanol
ORIGINAL LOG-IN ID#5010501

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane-d8	17647-74-4	10000

Reviewed By

Date

**Analytical Standard Record
Del Mar Analytical - Phoenix
5030018**

Description:	1,4-Dioxane SSC 10 ppm	Expires:	04/01/05
Standard Type:	Analyte Spike	Prepared:	03/01/05
Solvent:	MeOH #44337	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/01/05 12:38 by MS

1,4-Dioxane SSC 10ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	10

Parent Standards used in this standard						
Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030017	1,4-Dioxane SS 2000 ppm STOCK	03/01/05	Melissa Spencer	04/01/05	03/01/05 12:38 by MS	0.005

Brenda Steffy
Reviewed By

03-08-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030017

Description:	1,4-Dioxane SS 2000 ppm STOCK	Expires:	04/01/05
Standard Type:	Other Solution	Prepared:	03/01/05
Solvent:	MeOH	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/01/05 12:38 by MS

O2SI, 1,4-Dioxane 2000 ppm in Methanol PART#020223-01 LOT#109885
CRACKED NEW AMPULE -- original log in #4120027

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	2000

Brenda Steffy
Reviewed By

03-08-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030349

Description:	1,4-Dioxane/Surr CAL Dil 10/1ppm	Expires:	04/18/05
Standard Type:	Other Solution	Prepared:	03/19/05
Solvent:	MeOH/EMD#44337	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/19/05 09:37 by MS

1,4-Dioxane/Surr CAL DIL 100/1ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	10
4-Bromofluorobenzene	460-00-4	1
Dibromofluoromethane	1868-53-7	1
Toluene-d8	2037-26-5	1

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030348	1,4-Dioxane/Surr CAL Dil 100/10ppm	03/19/05	Melissa Spencer	04/18/05	03/19/05 09:36 by M	0.1

Reviewed By _____

Date _____

Analytical Standard Record
Del Mar Analytical - Phoenix
5030348

Description:	1,4-Dioxane/Surr CAL Dil 100/10ppm	Expires:	04/18/05
Standard Type:	Other Solution	Prepared:	03/19/05
Solvent:	MeOH/EMD#44337	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/19/05 09:36 by MS

1,4-Dioxane/Surr CAL DIL 100/10ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	100
4-Bromofluorobenzene	460-00-4	10
Dibromofluoromethane	1868-53-7	10
Toluene-d8	2037-26-5	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030320	8260 SURR_2000PPM	03/18/05	Corey Schrader	04/18/05	03/18/05 11:08 by c	0.005
5030347	1,4-Dioxane ps 2000 ppm	03/19/05	Melissa Spencer	04/19/05	03/19/05 09:34 by M	0.05

Reviewed By _____

Date _____

Analytical Standard Record
Del Mar Analytical - Phoenix
5030320

Description:	8260 SURR,2000PPM	Expires:	04/18/05
Standard Type:	Surrogate Spike	Prepared:	03/18/05
Solvent:	MEOH	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/18/05 11:08 by cs

ABSOLUTE, PART#21002, LOT#060304, 3 COMP @ 2000ug/mL
CRACKED NEW AMPULE--original log in #5010497

Analyte	CAS Number	Concentration (ppm)
4-Bromofluorobenzene	460-00-4	2000
Dibromofluoromethane	1868-53-7	2000
Toluene-d8	2037-26-5	2000

Melissa Spencer
Reviewed By

03-18-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030347

Description:	1,4-Dioxane ps 2000 ppm	Expires:	04/19/05
Standard Type:	Analyte Spike	Prepared:	03/19/05
Solvent:	METHANOL	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/19/05 09:34 by MS

CRESCENT PART #3195M.20 LOT #12DD087 ; 1,4-DIOXANE 2000 PPM IN MEOH
original log-in ID#-5010041

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane	123-91-1	2000

Reviewed By _____

Date _____

Analytical Standard Record
Del Mar Analytical - Phoenix
5030353

Description:	IS ONLY MIX DIOXANE250/10PPM	Expires:	04/01/05
Standard Type:	Surrogate Spike	Prepared:	03/19/05
Solvent:	MeOH/EMD#44337	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/19/05 10:34 by MS

IS ONLY MIX for 1,4-Dioxane:1,4-Dioxane-d8 at 250 ppm,Pentafluorobenzene at 10 ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	10
1,4-Difluorobenzene	540-36-3	10
1,4-Dioxane-d8	17647-74-4	250
Chlorobenzene-d5	3114-55-4	10
Pentafluorobenzene	NA	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030019	1,4-Dioxane-d8 10000 PPB	03/01/05	Melissa Spencer	04/01/05	03/01/05 12:03 by M	0.025
5030256	8260 INTERNAL STANDARD	03/15/05	Jody Galassi	04/15/05	03/15/05 10:23 by J	0.005

Reviewed By

Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030019

Description:	1,4-Dioxane-d8 10000 PPB	Expires:	04/01/05
Standard Type:	Other Solution	Prepared:	03/01/05
Solvent:	MeOH	Prepared By:	Melissa Spencer
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/01/05 12:03 by MS

Absolute Part# 92785, Lot# 022301, 1,4-Dioxane-d8, 10mg/mL in methanol
ORIGINAL LOG-IN ID#5010501

Analyte	CAS Number	Concentration (ppm)
1,4-Dioxane-d8	17647-74-4	10000

Brenda Steffy
Reviewed By

03-08-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030256

Description:	8260 INTERNAL STANDARD	Expires:	04/15/05
Standard Type:	Other Solution	Prepared:	03/15/05
Solvent:	N/A	Prepared By:	Jody Galassi
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/15/05 10:23 by JG

Absolute PART#20013, LOT#122104, 2000PPM
CRACKED NEW AMPULE--ORIGINAL LOG-IN ID#5010496

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	2000
1,4-Difluorobenzene	540-36-3	2000
Chlorobenzene-d5	3114-55-4	2000
Pentafluorobenzene	NA	2000

Melissa Spencer
Reviewed By

03-18-2005
Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030321

Description:	IS/SURR MIX DIOXANE250/10/10PPM	Expires:	04/01/05
Standard Type:	Surrogate Spike	Prepared:	03/18/05
Solvent:	MeOH/EMD#44337	Prepared By:	Corey Schrader
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/18/05 11:10 by cs

IS/SURR MIX for 1,4-Dioxane:1,4-Dioxane-d8 at 250 ppm,Pentafluorobenzene at 10 ppm,Dibromofluoromethane at 10 ppm

Analyte	CAS Number	Concentration (ppm)
1,4-Dichlorobenzene d4	3855-82-1	10
1,4-Difluorobenzene	540-36-3	10
1,4-Dioxane-d8	17647-74-4	250
4-Bromofluorobenzene	460-00-4	10
Chlorobenzene-d5	3114-55-4	10
Dibromofluoromethane	1868-53-7	10
Pentafluorobenzene	NA	10
Toluene-d8	2037-26-5	10

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030019	1,4-Dioxane-d8 10000 PPB	03/01/05	Melissa Spencer	04/01/05	03/01/05 12:03 by M	0.025
5030256	8260 INTERNAL STANDARD	03/15/05	Jody Galassi	04/15/05	03/15/05 10:23 by J	0.005
5030320	8260 SURR,2000PPM	03/18/05	Corey Schrader	04/18/05	03/18/05 11:08 by c	0.005

Melissa Spencer
 Reviewed By

03-18-2005
 Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030090

Description:	4-BFB FOR TUNE	Expires:	04/04/05
Standard Type:	Surrogate Spike	Prepared:	03/04/05
Solvent:	MeOH/EMD-#44337	Prepared By:	Jody Galassi
Final Volume (mls):	1	Department:	GCMS
Vials:	1	Last Edit:	03/04/05 14:55 by JG

Analyte	CAS Number	Concentration (ppm)
4-BFB (FID)	460-00-4	40
4-BFB (PID)	460-00-4	40
4-Bromofluorobenzene	460-00-4	40

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	Amount (mls)
5030084	4-BFB STOCK 2000ppm	03/04/05	Carlos Warner	04/04/05	03/04/05 13:48 by c	0.02

Brenda Steffy
 Reviewed By

03-08-2005
 Date

Analytical Standard Record
Del Mar Analytical - Phoenix
5030084

Description:	4-BFB STOCK 2000ppm	Expires:	04/04/05
Standard Type:	Surrogate Spike	Prepared:	03/04/05
Solvent:	MeOH	Prepared By:	Carlos Warner
Final Volume (mls):	1	Department:	BTEX
Vials:	1	Last Edit:	03/04/05 13:48 by cw

CRACKED NEW VIAL OF ULTRA SCIENTIFIC PART# STS-110N, LOT# U-1409, 2000ug/ml in methanol. Original Log in # 4100456
This lot # has been used previously, no confirmation necessary.

Analyte	CAS Number	Concentration (ppm)
4-BFB (FID)	460-00-4	2000
4-BFB (PID)	460-00-4	2000
4-Bromofluorobenzene	460-00-4	2000

Reviewed By

Date

APPENDIX G

Section 39

March Outfall 018

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF40
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 5

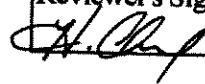
Laboratory Alta

Reviewer H. Chang

Analysis/Method Dioxins & Furans /1613

Date: April 7, 2005

Reviewer's Signature



ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Detects below the method calibration level were qualified "J." EMPCs were qualified "UJ." Ether interference was qualified "UJ."

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOC0871, IOC2062, IOC2063,
IOC2064, IOC2093

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC0871, IOC2062, IOC2063, IOC2064, IOC2093
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 7, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 018	IOC0871-01	25975-001	water	1613
Outfall 002	IOC2062-01	25969-001	water	1613
Outfall 011	IOC2063-01	25967-001	water	1613
Outfall 011 Composite	IOC2064-01	25968-001	water	1613
Outfall 001	IOC2093-01	25970-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All samples in these SDGs were received at Del Mar with cooler temperatures within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with the exception of sample Outfall 002 which was received at 8°C . The samples were received at 0.4°C at Alta. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. Due to non-volatile nature of the target compounds and since all samples were received intact, no qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 01/21/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6653_MB001) was extracted and analyzed with the samples in these SDGs. There were no target compound detects reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (0_6653_OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any results reported as Estimated Maximum Possible Concentration (EMPC) were qualified as estimated nondetects, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, the results below the lower MCL but above the lower calibration level were flagged with "A" laboratory qualifier. These results were qualified as estimated, "J," by the reviewer.

2,3,7,8-TCDF was detected in sample Outfall 018; however, no confirmation was performed since the level of the detect was below the calibration range. This compound was qualified as estimated, "J."

The Total TCDF result in sample Outfall 011 was reported with "D" laboratory qualifier due to the presence of ether. Total TCDF was qualified as "J" in this sample. No further qualifications were required.



Sample ID: IOC0871-01		Client Data		Sample Data		Laboratory Data		EPA Method 1613	
Name: Del Mar Analytical, Irvine		Matrix: Aqueous		Date Received: 30-Mar-05		Lab Sample: 25975-001		Date Analyzed DB-225: NA	
Project: IOC0871		Sample Size: 1.026 L		Date Collected: 10-Mar-05		QC Batch No.: 6653		Date Analyzed DB-5: 1-Apr-05	
Time Collected: 1004		DL ^a		EMPC ^b		Labeled Standard		%R LCL-UCL ^d Qualifiers	
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers	
2,3,7,8-TCDD	ND	0.000000498			13C-2,3,7,8-TCDD	71.8	25 - 164		
1,2,3,7,8-PeCDD	ND	0.000000655			13C-1,2,3,7,8-PeCDD	71.8	25 - 181		
1,2,3,4,7,8-HxCDD	ND	0.000000824			13C-1,2,3,4,7,8-HxCDD	64.6	32 - 141		
1,2,3,6,7,8-HxCDD	ND	0.000000832			13C-1,2,3,6,7,8-HxCDD	71.6	28 - 130		
1,2,3,7,8,9-HxCDD	ND	0.000000820			13C-1,2,3,4,6,7,8-HpCDD	60.7	23 - 140		
1,2,3,4,6,7,8-HpCDD	0.0000120			J	13C-OCDD	40.0	17 - 157		
OCDD	0.000178				13C-2,3,7,8-TCDF	76.7	24 - 169		
2,3,7,8-TCDF	0.00000143			J	13C-1,2,3,7,8-PeCDF	74.3	24 - 185		
1,2,3,7,8-PeCDF	ND	0.000000682			13C-2,3,4,7,8-PeCDF	78.9	21 - 178		
2,3,4,7,8-PeCDF	ND	0.000000572			13C-1,2,3,4,7,8-HxCDF	62.8	26 - 152		
1,2,3,4,7,8-HxCDF	ND	0.000000257			13C-1,2,3,6,7,8-HxCDF	71.3	26 - 123		
1,2,3,6,7,8-HxCDF	ND	0.000000244			13C-2,3,4,6,7,8-HxCDF	69.0	28 - 136		
2,3,4,6,7,8-HxCDF	ND	0.000000262			13C-1,2,3,7,8,9-HxCDF	65.2	29 - 147		
1,2,3,7,8,9-HxCDF	ND	0.000000413			13C-1,2,3,4,6,7,8-HpCDF	56.1	28 - 143		
1,2,3,4,6,7,8-HpCDF	ND	0.00000146			13C-1,2,3,4,7,8,9-HpCDF	61.8	26 - 138		
1,2,3,4,7,8,9-HpCDF	ND	0.000000456			13C-OCDF	47.1	17 - 157		
OCDF	0.00000356			J	CRS 37Cl-2,3,7,8-TCDD	84.3	35 - 197		
Totals									
Total TCDD	ND	0.000000498							
Total PeCDD	ND	0.000000655							
Total HxCDD	0.00000229	0.00000387							
Total HpCDD	0.0000277								
Total TCDF	0.00000264	0.00000790							
Total PeCDF	0.000000690	0.000000993							
Total HxCDF	ND	0.00000131							
Total HpCDF	0.00000241	0.00000387							

Footnotes

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

Approved By: William J. Luksemburg 01-Apr-2005 14:55

AMEC VALIDATED
 LEVEL IV

Analyst: RAS



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOC0871

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#: IOC0871
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 31, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, *SW-846 Method 6010B for Inductively Coupled Plasma*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 018	Outfall 018	IOC0871-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. A duplicate was submitted for Outfall 018; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

2.4 BLANKS

Mercury was detected in a bracketing CCB; however, as mercury was not detected in Outfall 018, no qualifications were required. There were no other reported detects in the CCBs or method blanks associated with the site sample. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferences sulfur, phosphorus, carbon, and chloride, and lead was not spiked into the ICSAB solution. Copper was detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferences, Al, Ca, Fe, and Mg, and determined that the levels of reported interferences were not high enough to cause matrix effects. Aluminum was recovered below the control limit in the ICSA and ICSAB analyses; however, as aluminum was not a reported analyte, 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 5C11081-BS1 and the mercury LCS sample was identified as 5C11048-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



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

Project ID: Routine Outfall 018
 Routine Outfall 018
 Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5C11081	0.49	2.0	3.5	1	03/11/05	03/15/05	Raw Qual
Lead	EPA 200.8	5C11081	0.13	1.0	0.74	1	03/11/05	03/15/05	J J
Mercury	EPA 245.1	5C11048	0.063	0.20	ND	1	03/11/05	03/11/05	U DNG

AMEC VALIDATED

LEVEL 1

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 T711PP23
 Task Order 313150010
 SDG No. IOC0871

No. of Analyses 1

Laboratory Del Mar

Reviewer H. Chang

Analysis/Method Pesticides/608

Date: April 6, 2005

Reviewer's Signature



ACTION ITEMS^a

1. **Case Narrative**
Deficiencies

2. **Out of Scope**
Analyses

3. **Analyses Not Conducted**

4. **Missing Hardcopy**
Deliverables

5. **Incorrect Hardcopy**
Deliverables

6. **Deviations from Analysis**

Protocol, e.g.,

Holding Times

GC/MS Tune/Inst. Perform

Calibrations

Blanks

Surrogates

Matrix Spike/Dup LCS

Field QC

Internal Standard Performance

Compound Identification and

Quantitation

System Performance

COMMENTS^b

Acceptable as reviewed.

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

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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: PESTICIDES

SAMPLE DELIVERY GROUP: IOC0871

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#: IOC0871
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 6, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary form as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	Method
Outfall 018	Outfall 018	IOC0871-01	water	608

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory outside the temperature limits of 4°C \pm 2°C at 8°C; however, due to the nonvolatile nature of the analyte, no qualification was necessary. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard; however, as alpha-BHC was the only compound of interest, the breakdown check standard was not necessary. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

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

2.3 CALIBRATION

2.3.1 Analytical Sequence

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

2.3.2 Initial Calibration

There was one initial calibration dated 03/02/05 associated with this SDG, which consisted of six-point calibrations for alpha-BHC on two analytical columns. The laboratory provided an overlay of the sample chromatogram and the pesticide standard for identification purposes. The %RSD was within the EPA Method 608 QC limit of $\leq 10\%$ on channel B, and the r^2 was ≥ 0.995 on channel A. An ICV was analyzed immediately following the initial calibration. The %D for alpha-BHC was within the QC limit of $\leq 15\%$ on both analytical columns. The %RSD, r^2 , and ICV %D for alpha-BHC were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

The sample analysis in this SDG was bracketed by the daily ICV and two closing continuing calibration standards. The applicable %Ds were within the Method QC limit of $\pm 15\%$ for both calibrations. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 BLANKS

2.4.1 Instrument Blanks

An instrument blank was analyzed at the beginning of the analytical sequence. Cross-contamination was not evident in the sample. No qualifications were necessary.

2.4.2 Method Blanks

One water method blank (5C11041-BLK1) was extracted and analyzed with this SDG. Target compound alpha-BHC was not detected in the method blank. Review of the chromatograms showed no false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C11041-BS1/5C11041-BSD1) was extracted and analyzed with this SDG. The recoveries for alpha-BHC were within the laboratory-established QC limits of 45-115% and the RPD was $\leq 30\%$. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample and all QC samples were fortified with the surrogate compounds decachlorobiphenyl and tetrachloro-m-xylene. Surrogate recoveries for both samples were within the laboratory-established QC limits. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with this SDG. Accuracy and precision were assessed based on the blank spike/blank spike duplicate results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction benchsheet, no cleanups were performed on the water sample. No qualifications were required.

2.9 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with the sample in this SDG.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for alpha-BHC by EPA Method 608. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the sample in this SDG. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG; however, as there were no reported detects, quantitation was verified by recalculating blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL study. The reporting limit for alpha-BHC was not adjusted for sample amount on the result summary; however, the dilution factor listed on the summary reflected the sample volume extracted. Results were reported in ug/L (ppb). No qualifications were required.



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

Project ID: Routine Outfall 018
 Routine Outfall 018
 Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

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: IOC0871-01 (DRAFT: Outfall 018 - Water) - cont. Reporting Units: ug/l											
alpha-BHC	EPA 608	5C11041	0.0010	0.010	ND	0.962	03/11/05	03/14/05	u		
Surrogate: Decachlorobiphenyl (45-120%)					79 %						
Surrogate: Tetrachloro-m-xylene (35-120%)					64 %						

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV40
 Task Order 313150010
 SDG No. IOC0871
 No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: April 7, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications were required for detects below the reporting limit.
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: IOC0871

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#: IOC0871
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 7, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 018	Outfall 018	IOC0871-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/17/05. The average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for all target compounds listed on the sample summary form. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/17/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.4 BLANKS

One method blank (5C13017-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (5C13017-BS1) was extracted and analyzed with this SDG. All percent recoveries were within the laboratory QC limits. A representative number of recoveries were

calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial and the method detection limit study. Target compounds detected below the reporting limit were qualified as estimated, "J," by the laboratory. No further qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Routine Outfall 018
 Routine Outfall 018
 Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

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: IOC0871-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5C13017	1.1	5.0	2.2	0.952	03/13/05	03/18/05	J J DNR
2,4-Dinitrotoluene	EPA 625	5C13017	0.23	9.0	ND	0.952	03/13/05	03/18/05	U
N-Nitrosodimethylamine	EPA 625	5C13017	0.22	8.0	ND	0.952	03/13/05	03/18/05	↓
Pentachlorophenol	EPA 625	5C13017	0.78	8.0	ND	0.952	03/13/05	03/18/05	
2,4,6-Trichlorophenol	EPA 625	5C13017	0.10	6.0	ND	0.952	03/13/05	03/18/05	
Surrogate: 2-Fluorophenol (30-120%)					60 %				
Surrogate: Phenol-d6 (35-120%)					61 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					59 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					73 %				

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
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Package ID T711VO71

Task Order 313150010

SDG No. IOC0871

No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: April 7, 2005

Reviewer's Signature


ACTION ITEMS^a

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

Qualifications were required for detects below the reporting limit and for elevated sample receipt temperatures.

 - 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: IOC0871

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#: IOC0871
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 7, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, *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 018	Outfall 018	IOC0871-01	water	624
Trip Blank	Trip Blank	IOC0871-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at the laboratory above the temperature limits of 4°C ±2°C at 8°C. All site sample target analytes were qualified as estimated, "J," for detects and "UJ," for nondetects due to elevated sample receipt temperature. Qualification was not required for the trip blank. The samples were properly preserved. The COCs noted that the samples were received intact; however, information regarding absence of headspace was not provided. No further 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 all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 03/04/05 was associated with this SDG. The average RRFs were ≥0.05 for all compounds listed on the sample result summaries. The %RSDs were ≤35% for the target compounds analyzed by EPA Method 624. One continuing calibration associated with the sample analyses were analyzed 03/12/05. The RRFs were ≥0.05 in the continuing calibration. The %Ds for the continuing calibrations associated with the site samples were all ≤20%. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (5C12014-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

One water blank spike (5C12014-BS1) was associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

An MS/MSD analyses was not performed with this SDG. Evaluation of method accuracy was based on the LCS results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.8.1 Trip Blanks

Sample Trip Blank (IOC0871-02) was the trip blank associated with this SDG. No target compounds were reported in the Trip Blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration standards and by the MDL study. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. Detects below the reporting limits were qualified as estimated, "J," by the laboratory. No further qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	REV QUAL US
Carbon tetrachloride	EPA 624	5C12014	0.28	5.0	ND	1	03/12/05	03/12/05	QUAL X1
Chloroform	EPA 624	5C12014	0.33	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethane	EPA 624	5C12014	0.27	2.0	ND	1	03/12/05	03/12/05	
1,2-Dichloroethane	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethene	EPA 624	5C12014	0.32	3.0	ND	1	03/12/05	03/12/05	
Ethylbenzene	EPA 624	5C12014	0.25	2.0	ND	1	03/12/05	03/12/05	
Tetrachloroethene	EPA 624	5C12014	0.32	2.0	ND	1	03/12/05	03/12/05	
Toluene	EPA 624	5C12014	0.36	2.0	ND	1	03/12/05	03/12/05	
1,1,1-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
1,1,2-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
Trichloroethene	EPA 624	5C12014	0.26	5.0	0.43	1	03/12/05	03/12/05	J J DND, X1
Trichlorofluoromethane	EPA 624	5C12014	0.34	5.0	ND	1	03/12/05	03/12/05	US
Vinyl chloride	EPA 624	5C12014	0.26	5.0	ND	1	03/12/05	03/12/05	X1
Xylenes, Total	EPA 624	5C12014	0.52	4.0	ND	1	03/12/05	03/12/05	
Surrogate: Dibromofluoromethane (80-120%)					112%				
Surrogate: Toluene-d8 (80-120%)					104%				
Surrogate: 4-Bromofluorobenzene (80-120%)					97%				
Sample ID: IOC0871-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	U
Carbon tetrachloride	EPA 624	5C12014	0.28	5.0	ND	1	03/12/05	03/12/05	
Chloroform	EPA 624	5C12014	0.33	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethane	EPA 624	5C12014	0.27	2.0	ND	1	03/12/05	03/12/05	
1,2-Dichloroethane	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethene	EPA 624	5C12014	0.32	3.0	ND	1	03/12/05	03/12/05	
Ethylbenzene	EPA 624	5C12014	0.25	2.0	ND	1	03/12/05	03/12/05	
Tetrachloroethene	EPA 624	5C12014	0.32	2.0	ND	1	03/12/05	03/12/05	
Toluene	EPA 624	5C12014	0.36	2.0	ND	1	03/12/05	03/12/05	
1,1,1-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
1,1,2-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
Trichloroethene	EPA 624	5C12014	0.26	5.0	ND	1	03/12/05	03/12/05	
Trichlorofluoromethane	EPA 624	5C12014	0.34	5.0	ND	1	03/12/05	03/12/05	
Vinyl chloride	EPA 624	5C12014	0.26	5.0	ND	1	03/12/05	03/12/05	
Xylenes, Total	EPA 624	5C12014	0.52	4.0	ND	1	03/12/05	03/12/05	
Surrogate: Dibromofluoromethane (80-120%)					110%				
Surrogate: Toluene-d8 (80-120%)					102%				
Surrogate: 4-Bromofluorobenzene (80-120%)					98%				

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

AMEC VALIDATED

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LEVEL TT



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC0871

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC0871
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 5, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 405.1, 335.2, 413.1, 160.2, 160.5, 160.1, 300.0, 425.1, 120.1, and 180.1*, and validation guidelines outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 018	Outfall 018	IOC0871-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 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 COC was signed and dated by field and laboratory personnel. The COC accounted for all analyses presented in this SDG. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

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

2.3 BLANKS

Turbidity was detected in method blank 5C11106-BLK1 at 0.050 NTU; however, the method blank result was insufficient to qualify the Outfall 018 result. Oil and grease was detected in method blank 5C14065-BLK1 at 1.6 mg/L; however, as oil and grease was not detected in Outfall 018, no qualifications were required. Cyanide was reported in a bracketing CCB at -0.0036 mg/L; therefore, nondetected cyanide in Outfall 018 was qualified as estimated, "UJ." The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No further qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

A laboratory duplicate analyses was performed on Outfall 018 for turbidity. The RPD was within the control limits of $\leq 20\%$ and no qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Cyanide in Outfall 018 was reported in the raw data at -0.0030 mg/L and the CCB associated with Outfall 018 was reported at -0.0036 mg/L. Due to these negative results, the reviewer raised the MDL on the Form Is to the level of interference. Surfactant detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 018
 Routine Outfall 018
 Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) - cont. Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C15088	0.30	0.50	1.4	1	03/15/05	03/15/05	
Biochemical Oxygen Demand	EPA 405.1	5C11085	0.59	2.0	3.6	1	03/11/05	03/16/05	
Chloride	EPA 300.0	5C10119	0.26	0.50	24	1	03/10/05	03/11/05	
Total Cyanide	EPA 335.2	5C14099	0.0022	0.0050	ND	1	03/14/05	03/14/05	UJ
Nitrate/Nitrite-N	EPA 300.0	5C10119	0.075	0.26	ND	1	03/10/05	03/11/05	U
Oil & Grease	EPA 413.1	5C14065	0.94	5.0	ND	1	03/14/05	03/14/05	↓
Sulfate	EPA 300.0	5C10119	1.8	5.0	66	10	03/10/05	03/11/05	
Surfactants (MBAS)	EPA 425.1	5C10133	0.044	0.10	0.079	1	03/10/05	03/10/05	J
Total Dissolved Solids	EPA 160.1	5C14069	10	10	310	1	03/14/05	03/14/05	J
Total Suspended Solids	EPA 160.2	5C11107	10	10	ND	1	03/11/05	03/11/05	U
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C11087	0.10	0.10	ND	1	03/11/05	03/11/05	U
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: NTU									
Turbidity	EPA 180.1	5C11106	0.040	1.0	9.4	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C11046	0.80	4.0	ND	1	03/11/05	03/11/05	*
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C14070	1.0	1.0	470	1	03/14/05	03/14/05	

REV: QUAL CODE

B, \$

J DNQ

JT 3/5/05

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC99
Task Order 313150010
SDG No. IOC0871

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate

Date: 04/05/05

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. 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: IOC0871

Prepared by

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

I. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC0871
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 5, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0, and 120.1*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 018	Outfall 018	IOC0871-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 8°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. The analysis did not required preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 018
 Routine Outfall 018
 Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

DRAFT: INORGANICS

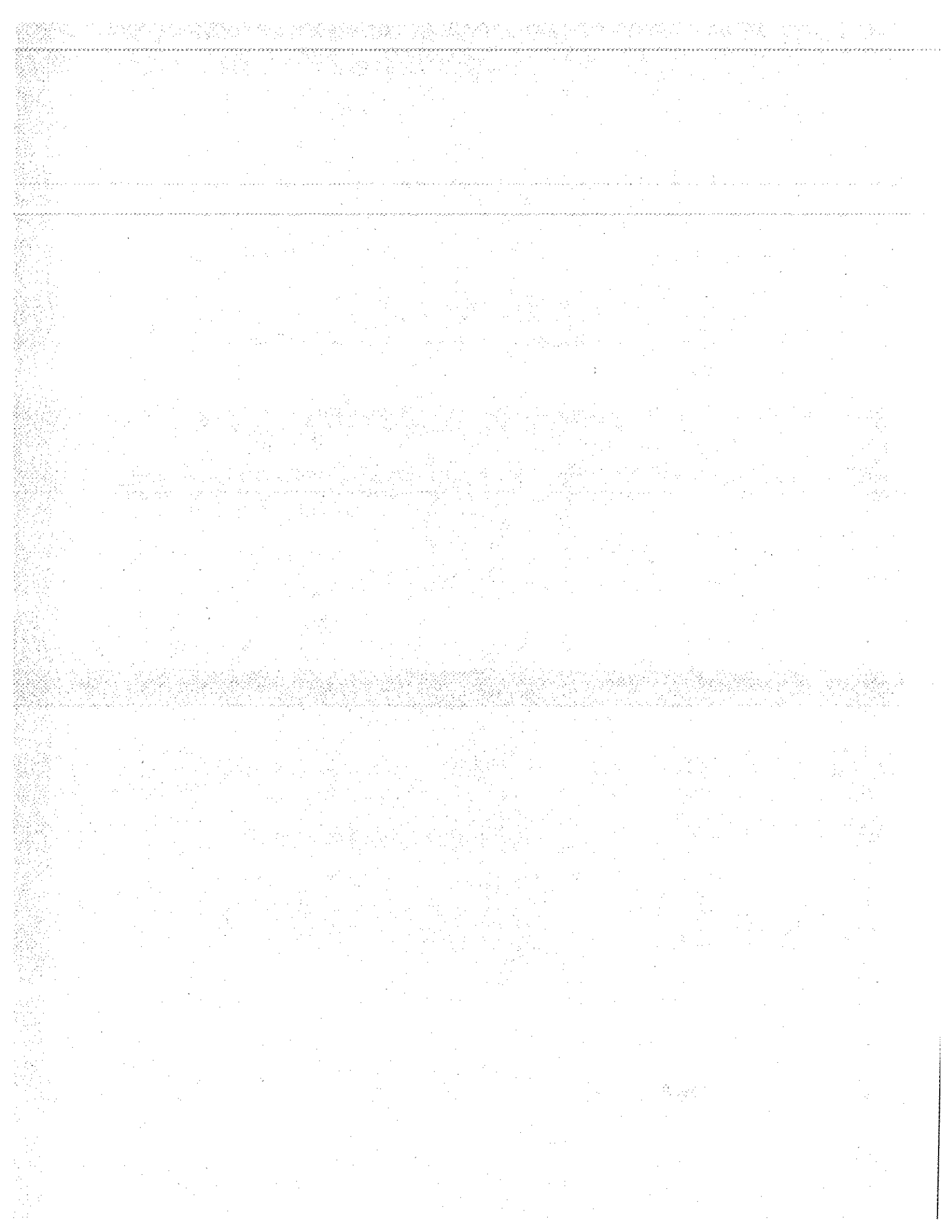
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) - cont. Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C15088	0.30	0.50	1.4	1	03/15/05	03/15/05	* REV. QUAL CODE
Biochemical Oxygen Demand	EPA 405.1	5C11085	0.59	2.0	3.6	1	03/11/05	03/16/05	
Chloride	EPA 300.0	5C10119	0.26	0.50	24	1	03/10/05	03/11/05	
Total Cyanide	EPA 335.2	5C14099	0.0022	0.0050	ND	1	03/14/05	03/14/05	
Nitrate/Nitrite-N	EPA 300.0	5C10119	0.075	0.26	ND	1	03/10/05	03/11/05	
Oil & Grease	EPA 413.1	5C14065	0.94	5.0	ND	1	03/14/05	03/14/05	
Sulfate	EPA 300.0	5C10119	1.8	5.0	66	10	03/10/05	03/11/05	
Surfactants (MBAS)	EPA 425.1	5C10133	0.044	0.10	0.079	1	03/10/05	03/10/05	J
Total Dissolved Solids	EPA 160.1	5C14069	10	10	310	1	03/14/05	03/14/05	
Total Suspended Solids	EPA 160.2	5C11107	10	10	ND	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C11087	0.10	0.10	ND	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: NTU									
Turbidity	EPA 180.1	5C11106	0.040	1.0	9.4	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C11046	0.80	4.0	ND	1	03/11/05	03/11/05	u
Sample ID: IOC0871-01 (DRAFT: Outfall 018 - Water) Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C14070	1.0	1.0	470	1	03/14/05	03/14/05	*

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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LABORATORY REPORT

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

Project: Routine Outfall 018

Sampled: 03/10/05
Received: 03/10/05
Issued: 04/08/05 17:08

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOC0871-01	Outfall 018	Water
IOC0871-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	
Carbon tetrachloride	EPA 624	5C12014	0.28	5.0	ND	1	03/12/05	03/12/05	
Chloroform	EPA 624	5C12014	0.33	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethane	EPA 624	5C12014	0.27	2.0	ND	1	03/12/05	03/12/05	
1,2-Dichloroethane	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethene	EPA 624	5C12014	0.32	3.0	ND	1	03/12/05	03/12/05	
Ethylbenzene	EPA 624	5C12014	0.25	2.0	ND	1	03/12/05	03/12/05	
Tetrachloroethene	EPA 624	5C12014	0.32	2.0	ND	1	03/12/05	03/12/05	
Toluene	EPA 624	5C12014	0.36	2.0	ND	1	03/12/05	03/12/05	
1,1,1-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
1,1,2-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
Trichloroethene	EPA 624	5C12014	0.26	5.0	0.43	1	03/12/05	03/12/05	J
Trichlorofluoromethane	EPA 624	5C12014	0.34	5.0	ND	1	03/12/05	03/12/05	
Vinyl chloride	EPA 624	5C12014	0.26	5.0	ND	1	03/12/05	03/12/05	
Xylenes, Total	EPA 624	5C12014	0.52	4.0	ND	1	03/12/05	03/12/05	
Surrogate: Dibromofluoromethane (80-120%)					112 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

Sample ID: IOC0871-02 (Trip Blank - Water)

Reporting Units: ug/l

Benzene	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	
Carbon tetrachloride	EPA 624	5C12014	0.28	5.0	ND	1	03/12/05	03/12/05	
Chloroform	EPA 624	5C12014	0.33	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethane	EPA 624	5C12014	0.27	2.0	ND	1	03/12/05	03/12/05	
1,2-Dichloroethane	EPA 624	5C12014	0.28	2.0	ND	1	03/12/05	03/12/05	
1,1-Dichloroethene	EPA 624	5C12014	0.32	3.0	ND	1	03/12/05	03/12/05	
Ethylbenzene	EPA 624	5C12014	0.25	2.0	ND	1	03/12/05	03/12/05	
Tetrachloroethene	EPA 624	5C12014	0.32	2.0	ND	1	03/12/05	03/12/05	
Toluene	EPA 624	5C12014	0.36	2.0	ND	1	03/12/05	03/12/05	
1,1,1-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
1,1,2-Trichloroethane	EPA 624	5C12014	0.30	2.0	ND	1	03/12/05	03/12/05	
Trichloroethene	EPA 624	5C12014	0.26	5.0	ND	1	03/12/05	03/12/05	
Trichlorofluoromethane	EPA 624	5C12014	0.34	5.0	ND	1	03/12/05	03/12/05	
Vinyl chloride	EPA 624	5C12014	0.26	5.0	ND	1	03/12/05	03/12/05	
Xylenes, Total	EPA 624	5C12014	0.52	4.0	ND	1	03/12/05	03/12/05	
Surrogate: Dibromofluoromethane (80-120%)					110 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

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: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5C13017	1.1	5.0	2.2	0.952	03/13/05	03/18/05	J
2,4-Dinitrotoluene	EPA 625	5C13017	0.23	9.0	ND	0.952	03/13/05	03/18/05	
N-Nitrosodimethylamine	EPA 625	5C13017	0.22	8.0	ND	0.952	03/13/05	03/18/05	
Pentachlorophenol	EPA 625	5C13017	0.78	8.0	ND	0.952	03/13/05	03/18/05	
2,4,6-Trichlorophenol	EPA 625	5C13017	0.10	6.0	ND	0.952	03/13/05	03/18/05	
Surrogate: 2-Fluorophenol (30-120%)					60 %				
Surrogate: Phenol-d6 (35-120%)					61 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					59 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					73 %				

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C11041	0.0010	0.010	ND	0.962	03/11/05	03/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					79 %				
<i>Surrogate: Tetrachloro-m-xylene (35-120%)</i>					64 %				

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5C11081	0.49	2.0	3.5	1	03/11/05	03/15/05	
Lead	EPA 200.8	5C11081	0.13	1.0	0.74	1	03/11/05	03/15/05	J
Mercury	EPA 245.1	5C11048	0.063	0.20	ND	1	03/11/05	03/11/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOC0871	Sampled: 03/10/05 Received: 03/10/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0871-01 (Outfall 018 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C15088	0.30	0.50	1.4	1	03/15/05	03/15/05	
Biochemical Oxygen Demand	EPA 405.1	5C11085	0.59	2.0	3.6	1	03/11/05	03/16/05	
Chloride	EPA 300.0	5C10119	0.26	0.50	24	1	03/10/05	03/11/05	
Nitrate/Nitrite-N	EPA 300.0	5C10119	0.075	0.26	ND	1	03/10/05	03/11/05	
Oil & Grease	EPA 413.1	5C14065	0.94	5.0	ND	1	03/14/05	03/14/05	
Sulfate	EPA 300.0	5C10119	1.8	5.0	66	10	03/10/05	03/11/05	
Surfactants (MBAS)	EPA 425.1	5C10133	0.044	0.10	0.079	1	03/10/05	03/10/05	J
Total Dissolved Solids	EPA 160.1	5C14069	10	10	310	1	03/14/05	03/14/05	
Total Suspended Solids	EPA 160.2	5C11107	10	10	ND	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C11087	0.10	0.10	ND	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C11106	0.040	1.0	9.4	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5C14099	2.2	5.0	ND	1	03/14/05	03/14/05	
Perchlorate	EPA 314.0	5C11046	0.80	4.0	ND	1	03/11/05	03/11/05	
Sample ID: IOC0871-01 (Outfall 018 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C14070	1.0	1.0	470	1	03/14/05	03/14/05	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 018 (IOC0871-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/10/2005 10:04	03/10/2005 19:23	03/11/2005 12:41	03/11/2005 14:00
EPA 180.1	2	03/10/2005 10:04	03/10/2005 19:23	03/11/2005 13:00	03/11/2005 14:00
EPA 300.0	2	03/10/2005 10:04	03/10/2005 19:23	03/10/2005 21:00	03/11/2005 00:33
EPA 405.1	2	03/10/2005 10:04	03/10/2005 19:23	03/11/2005 12:40	03/16/2005 11:30
EPA 425.1	2	03/10/2005 10:04	03/10/2005 19:23	03/10/2005 21:24	03/10/2005 22:07

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Michele Harper
Project Manager



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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C12014 Extracted: 03/12/05										
Blank Analyzed: 03/12/2005 (5C12014-BLK1)										
Benzene	ND	2.0	0.28	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Carbon tetrachloride	ND	5.0	0.28	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	2.0	0.28	ug/l						
1,1-Dichloroethene	ND	3.0	0.32	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	5.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	5.0	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	28.3			ug/l	25.0		113		80-120	
Surrogate: Toluene-d8	25.9			ug/l	25.0		104		80-120	
Surrogate: 4-Bromofluorobenzene	24.3			ug/l	25.0		97		80-120	
LCS Analyzed: 03/12/2005 (5C12014-BS1)										
Benzene	23.8	2.0	0.28	ug/l	25.0		95		70-120	
Carbon tetrachloride	23.7	5.0	0.28	ug/l	25.0		95		70-140	
Chloroform	26.3	2.0	0.33	ug/l	25.0		105		75-130	
1,1-Dichloroethane	26.1	2.0	0.27	ug/l	25.0		104		70-135	
1,2-Dichloroethane	29.0	2.0	0.28	ug/l	25.0		116		60-150	
1,1-Dichloroethene	23.3	3.0	0.32	ug/l	25.0		93		75-135	
Ethylbenzene	23.3	2.0	0.25	ug/l	25.0		93		80-120	
Tetrachloroethene	21.1	2.0	0.32	ug/l	25.0		84		75-125	
Toluene	23.2	2.0	0.36	ug/l	25.0		93		75-120	
1,1,1-Trichloroethane	25.6	2.0	0.30	ug/l	25.0		102		75-140	
1,1,2-Trichloroethane	24.7	2.0	0.30	ug/l	25.0		99		70-125	
Trichloroethene	22.1	5.0	0.26	ug/l	25.0		88		80-120	
Trichlorofluoromethane	25.8	5.0	0.34	ug/l	25.0		103		65-145	
Vinyl chloride	20.8	5.0	0.26	ug/l	25.0		83		50-130	
Surrogate: Dibromofluoromethane	28.5			ug/l	25.0		114		80-120	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

METHOD BLANK/QC DATA
PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C12014 Extracted: 03/12/05										
LCS Analyzed: 03/12/2005 (5C12014-BS1)										
Surrogate: Toluene-d8	26.2			ug/l	25.0		105 80-120			
Surrogate: 4-Bromofluorobenzene	25.8			ug/l	25.0		103 80-120			
Matrix Spike Analyzed: 03/12/2005 (5C12014-MS1) Source: IOC0951-01										
Benzene	28.1	2.0	0.28	ug/l	25.0	0.33	111 70-120			
Carbon tetrachloride	27.2	5.0	0.28	ug/l	25.0	ND	109 70-145			
Chloroform	30.9	2.0	0.33	ug/l	25.0	ND	124 70-135			
1,1-Dichloroethane	31.3	2.0	0.27	ug/l	25.0	0.70	122 65-135			
1,2-Dichloroethane	31.3	2.0	0.28	ug/l	25.0	ND	125 60-150			
1,1-Dichloroethene	29.3	3.0	0.32	ug/l	25.0	2.1	109 65-140			
Ethylbenzene	27.0	2.0	0.25	ug/l	25.0	ND	108 70-130			
Tetrachloroethene	24.2	2.0	0.32	ug/l	25.0	ND	97 70-130			
Toluene	28.2	2.0	0.36	ug/l	25.0	1.5	107 70-120			
1,1,1-Trichloroethane	29.5	2.0	0.30	ug/l	25.0	ND	118 75-140			
1,1,2-Trichloroethane	28.9	2.0	0.30	ug/l	25.0	ND	116 60-135			
Trichloroethene	25.4	5.0	0.26	ug/l	25.0	ND	102 70-125			
Trichlorofluoromethane	31.5	5.0	0.34	ug/l	25.0	ND	126 55-145			
Vinyl chloride	26.4	5.0	0.26	ug/l	25.0	ND	106 40-135			
Surrogate: Dibromofluoromethane	29.2			ug/l	25.0		117 80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103 80-120			
Surrogate: 4-Bromofluorobenzene	25.8			ug/l	25.0		103 80-120			
Matrix Spike Dup Analyzed: 03/12/2005 (5C12014-MSD1) Source: IOC0951-01										
Benzene	27.2	2.0	0.28	ug/l	25.0	0.33	107 70-120	3	20	
Carbon tetrachloride	27.0	5.0	0.28	ug/l	25.0	ND	108 70-145	1	25	
Chloroform	30.2	2.0	0.33	ug/l	25.0	ND	121 70-135	2	20	
1,1-Dichloroethane	30.4	2.0	0.27	ug/l	25.0	0.70	119 65-135	3	20	
1,2-Dichloroethane	33.6	2.0	0.28	ug/l	25.0	ND	134 60-150	7	20	
1,1-Dichloroethene	27.2	3.0	0.32	ug/l	25.0	2.1	100 65-140	7	20	
Ethylbenzene	26.2	2.0	0.25	ug/l	25.0	ND	105 70-130	3	20	
Tetrachloroethene	23.8	2.0	0.32	ug/l	25.0	ND	95 70-130	2	20	
Toluene	27.9	2.0	0.36	ug/l	25.0	1.5	106 70-120	1	20	
1,1,1-Trichloroethane	29.7	2.0	0.30	ug/l	25.0	ND	119 75-140	1	20	
1,1,2-Trichloroethane	28.1	2.0	0.30	ug/l	25.0	ND	112 60-135	3	25	
Trichloroethene	25.0	5.0	0.26	ug/l	25.0	ND	100 70-125	2	20	
Trichlorofluoromethane	30.4	5.0	0.34	ug/l	25.0	ND	122 55-145	4	25	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOC0871	Sampled: 03/10/05 Received: 03/10/05
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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C12014 Extracted: 03/12/05										
Matrix Spike Dup Analyzed: 03/12/2005 (5C12014-MSD1)					Source: IOC0951-01					
Vinyl chloride	27.4	5.0	0.26	ug/l	25.0	ND	110 40-135	4	30	
Surrogate: Dibromofluoromethane	28.8			ug/l	25.0		115 80-120			
Surrogate: Toluene-d8	25.9			ug/l	25.0		104 80-120			
Surrogate: 4-Bromofluorobenzene	25.7			ug/l	25.0		103 80-120			

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

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: 5C13017 Extracted: 03/13/05										
Blank Analyzed: 03/18/2005 (5C13017-BLK1)										
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
2,4-Dinitrotoluene	ND	9.0	0.23	ug/l						
N-Nitrosodimethylamine	ND	8.0	0.22	ug/l						
Pentachlorophenol	ND	8.0	0.78	ug/l						
2,4,6-Trichlorophenol	ND	6.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	11.4			ug/l	20.0		57 30-120			
Surrogate: Phenol-d6	11.9			ug/l	20.0		60 35-120			
Surrogate: 2,4,6-Tribromophenol	13.8			ug/l	20.0		69 45-120			
Surrogate: Nitrobenzene-d5	6.08			ug/l	10.0		61 45-120			
Surrogate: 2-Fluorobiphenyl	6.92			ug/l	10.0		69 45-120			
Surrogate: Terphenyl-d14	6.62			ug/l	10.0		66 45-120			
LCS Analyzed: 03/18/2005 (5C13017-BS1)										
Bis(2-ethylhexyl)phthalate	8.90	5.0	1.1	ug/l	10.0		89 60-130			M-NR1
2,4-Dinitrotoluene	8.00	9.0	0.23	ug/l	10.0		80 60-120			J
N-Nitrosodimethylamine	7.98	8.0	0.22	ug/l	10.0		80 40-120			J
Pentachlorophenol	8.64	8.0	0.78	ug/l	10.0		86 50-120			
2,4,6-Trichlorophenol	9.16	6.0	0.10	ug/l	10.0		92 60-120			
Surrogate: 2-Fluorophenol	14.4			ug/l	20.0		72 30-120			
Surrogate: Phenol-d6	14.7			ug/l	20.0		74 35-120			
Surrogate: 2,4,6-Tribromophenol	16.6			ug/l	20.0		83 45-120			
Surrogate: Nitrobenzene-d5	7.48			ug/l	10.0		75 45-120			
Surrogate: 2-Fluorobiphenyl	8.08			ug/l	10.0		81 45-120			
Surrogate: Terphenyl-d14	7.90			ug/l	10.0		79 45-120			
LCS Dup Analyzed: 03/18/2005 (5C13017-BSD1)										
Bis(2-ethylhexyl)phthalate	8.62	5.0	1.1	ug/l	10.0		86 60-130	3	20	
2,4-Dinitrotoluene	7.92	9.0	0.23	ug/l	10.0		79 60-120	1	20	J
N-Nitrosodimethylamine	7.66	8.0	0.22	ug/l	10.0		77 40-120	4	20	J
Pentachlorophenol	8.66	8.0	0.78	ug/l	10.0		87 50-120	0	25	
2,4,6-Trichlorophenol	8.76	6.0	0.10	ug/l	10.0		88 60-120	4	20	
Surrogate: 2-Fluorophenol	14.2			ug/l	20.0		71 30-120			
Surrogate: Phenol-d6	14.2			ug/l	20.0		71 35-120			
Surrogate: 2,4,6-Tribromophenol	16.6			ug/l	20.0		83 45-120			
Surrogate: Nitrobenzene-d5	7.52			ug/l	10.0		75 45-120			
Surrogate: 2-Fluorobiphenyl	7.60			ug/l	10.0		76 45-120			

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

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: 5C13017 Extracted: 03/13/05											
LCS Dup Analyzed: 03/18/2005 (5C13017-BSD1)											
Surrogate: Terphenyl-d14	8.16			ug/l	10.0		82	45-120			

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Project ID: Routine Outfall 018

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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C11041 Extracted: 03/11/05										
Blank Analyzed: 03/12/2005 (5C11041-BLK1)										
alpha-BHC	ND	0.010	0.0010	ug/l						
Surrogate: Decachlorobiphenyl	0.436			ug/l	0.500		87 45-120			
Surrogate: Tetrachloro-m-xylene	0.350			ug/l	0.500		70 35-120			
LCS Analyzed: 03/12/2005 (5C11041-BS1)										
alpha-BHC	0.341	0.010	0.0010	ug/l	0.500		68 45-115			M-NR1
Surrogate: Decachlorobiphenyl	0.396			ug/l	0.500		79 45-120			
Surrogate: Tetrachloro-m-xylene	0.311			ug/l	0.500		62 35-120			
LCS Dup Analyzed: 03/12/2005 (5C11041-BSD1)										
alpha-BHC	0.310	0.010	0.0010	ug/l	0.500		62 45-115	10	30	
Surrogate: Decachlorobiphenyl	0.359			ug/l	0.500		72 45-120			
Surrogate: Tetrachloro-m-xylene	0.291			ug/l	0.500		58 35-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOC0871	Sampled: 03/10/05 Received: 03/10/05
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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: 5C11048 Extracted: 03/11/05										
Blank Analyzed: 03/11/2005 (5C11048-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 03/11/2005 (5C11048-BS1)										
Mercury	8.19	0.20	0.063	ug/l	8.00		102 85-115			
Matrix Spike Analyzed: 03/11/2005 (5C11048-MS1) Source: IOC0631-17										
Mercury	8.34	0.20	0.063	ug/l	8.00	ND	104 70-130			
Matrix Spike Dup Analyzed: 03/11/2005 (5C11048-MSD1) Source: IOC0631-17										
Mercury	7.94	0.20	0.063	ug/l	8.00	ND	99 70-130	5	20	
Batch: 5C11081 Extracted: 03/11/05										
Blank Analyzed: 03/15/2005 (5C11081-BLK1)										
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 03/15/2005 (5C11081-BS1)										
Copper	81.9	2.0	0.49	ug/l	80.0		102 85-115			
Lead	82.1	1.0	0.13	ug/l	80.0		103 85-115			
Matrix Spike Analyzed: 03/15/2005 (5C11081-MS1) Source: IOC0540-01										
Copper	87.4	2.0	0.49	ug/l	80.0	11	96 70-130			
Lead	83.2	1.0	0.13	ug/l	80.0	3.1	100 70-130			
Matrix Spike Dup Analyzed: 03/15/2005 (5C11081-MSD1) Source: IOC0540-01										
Copper	88.8	2.0	0.49	ug/l	80.0	11	97 70-130	2	20	
Lead	83.5	1.0	0.13	ug/l	80.0	3.1	100 70-130	0	20	

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

Project ID: Routine Outfall 018
 Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

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: 5C10119 Extracted: 03/10/05										
Blank Analyzed: 03/10/2005 (5C10119-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.075	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/10/2005 (5C10119-BS1)										
Chloride	4.76	0.50	0.26	mg/l	5.00		95 90-110			M-3
Sulfate	9.85	0.50	0.18	mg/l	10.0		98 90-110			M-3
Batch: 5C10133 Extracted: 03/10/05										
Blank Analyzed: 03/10/2005 (5C10133-BLK1)										
Surfactants (MBAS)	ND	0.10	0.044	mg/l						
LCS Analyzed: 03/10/2005 (5C10133-BS1)										
Surfactants (MBAS)	0.261	0.10	0.044	mg/l	0.250		104 90-110			
Matrix Spike Analyzed: 03/10/2005 (5C10133-MS1)										
Surfactants (MBAS)	0.262	0.10	0.044	mg/l	0.250	ND	105 50-125			
Matrix Spike Dup Analyzed: 03/10/2005 (5C10133-MSD1)										
Surfactants (MBAS)	0.265	0.10	0.044	mg/l	0.250	ND	106 50-125	1	20	
Batch: 5C11046 Extracted: 03/11/05										
Blank Analyzed: 03/11/2005 (5C11046-BLK1)										
Perchlorate	ND	4.0	0.80	ug/l						

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C11046 Extracted: 03/11/05											
LCS Analyzed: 03/11/2005 (5C11046-BS1)											
Perchlorate	53.0	4.0	0.80	ug/l	50.0		106	85-115			
Matrix Spike Analyzed: 03/11/2005 (5C11046-MS1)											
Perchlorate	61.0	4.0	0.80	ug/l	50.0	1.1	120	80-120			
Matrix Spike Dup Analyzed: 03/11/2005 (5C11046-MSD1)											
Perchlorate	59.3	4.0	0.80	ug/l	50.0	1.1	116	80-120	3	20	
Batch: 5C11085 Extracted: 03/11/05											
Blank Analyzed: 03/16/2005 (5C11085-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/16/2005 (5C11085-BS1)											
Biochemical Oxygen Demand	218	100	30	mg/l	198		110	85-115			
LCS Dup Analyzed: 03/16/2005 (5C11085-BSD1)											
Biochemical Oxygen Demand	212	100	30	mg/l	198		107	85-115	3	20	
Batch: 5C11106 Extracted: 03/11/05											
Blank Analyzed: 03/11/2005 (5C11106-BLK1)											
Turbidity	0.0500	1.0	0.040	NTU							J
Duplicate Analyzed: 03/11/2005 (5C11106-DUP1)											
Turbidity	9.33	1.0	0.040	NTU		9.4			1	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOC0871	Sampled: 03/10/05 Received: 03/10/05
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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: 5C11107 Extracted: 03/11/05											
Blank Analyzed: 03/11/2005 (5C11107-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/11/2005 (5C11107-BS1)											
Total Suspended Solids	955	10	10	mg/l	1000		96	85-115			
Duplicate Analyzed: 03/11/2005 (5C11107-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0914-01 ND				10	
Batch: 5C14065 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14065-BLK1)											
Oil & Grease	1.60	5.0	0.94	mg/l							J
LCS Analyzed: 03/14/2005 (5C14065-BS1)											
Oil & Grease	23.4	5.0	0.94	mg/l	20.0		117	65-120			M-NR1
LCS Dup Analyzed: 03/14/2005 (5C14065-BSD1)											
Oil & Grease	23.9	5.0	0.94	mg/l	20.0		120	65-120	2	20	
Batch: 5C14069 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14069-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/14/2005 (5C14069-BS1)											
Total Dissolved Solids	970	10	10	mg/l	1000		97	90-110			

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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05
 Received: 03/10/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C14069 Extracted: 03/14/05											
Duplicate Analyzed: 03/14/2005 (5C14069-DUP1)											
Total Dissolved Solids	271	10	10	mg/l		280			3	10	
Batch: 5C14070 Extracted: 03/14/05											
Duplicate Analyzed: 03/14/2005 (5C14070-DUP1)											
Specific Conductance	432	1.0	1.0	umhos/cm		420			3	5	
Batch: 5C14099 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14099-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							
LCS Analyzed: 03/14/2005 (5C14099-BS1)											
Total Cyanide	198	5.0	2.2	ug/l	200		99	90-110			
Matrix Spike Analyzed: 03/14/2005 (5C14099-MS1)											
Total Cyanide	210	5.0	2.2	ug/l	200	ND	105	70-115			
Matrix Spike Dup Analyzed: 03/14/2005 (5C14099-MSD1)											
Total Cyanide	199	5.0	2.2	ug/l	200	ND	100	70-115	5	15	
Batch: 5C15088 Extracted: 03/15/05											
Blank Analyzed: 03/15/2005 (5C15088-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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



Del Mar Analytical

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

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOC0871	Sampled: 03/10/05 Received: 03/10/05
--	---	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C15088 Extracted: 03/15/05											
LCS Analyzed: 03/15/2005 (5C15088-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/15/2005 (5C15088-MS1)											
						Source: IOC1063-01					
Ammonia-N (Distilled)	8.12	0.50	0.30	mg/l	10.0	ND	81	70-120			
Matrix Spike Dup Analyzed: 03/15/2005 (5C15088-MSD1)											
						Source: IOC1063-01					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	16	15	R

Del Mar Analytical, Irvine
 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 018

Report Number: IOC0871

Sampled: 03/10/05

Received: 03/10/05

DATA QUALIFIERS AND DEFINITIONS

- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- R** The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Routine Outfall 018

Report Number: IOC0871

Sampled: 03/10/05
Received: 03/10/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 120.1	Water	X	X
EPA 160.1	Water	X	X
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 425.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X

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

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC0871-01

Analysis Performed: EDD + Level 4

Samples: IOC0871-01

Del Mar Analytical, Irvine
Michele Harper
Project Manager

132 I00871

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:		Project:		ANALYSIS REQUIRED												Field readings:												
MVH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Raloch</i>		Boeing-SSFL NPDES Routine Outfall 018 R-2 Spillway Phone Number: (626) 568-6891 Fax Number: (626) 568-6515		Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Cu, Pb, Hg	Settleable Solids	VOCs 624 + xylenes	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	BOD5(20 degrees C)	Surfactants (MBAS)	C, S, SO4, NO3+NO2-N, Perchlorate	Turbidity, TDS, TSS, Conductivity	Ammonia-N	Alpha BHC (8081A)	2,4,6 Trichlorophenol, 2,4 Dinitrotoluene, Bz(2-ethylhexyl)phthalate, NDMA, perchlorophenol (EPA 625)	Temp = 65.1 pH = 7.5	Comments			
Outfall 018	W	Poly-1L	1	3-10-05 10:04	HNO3	1A	X																					
Outfall 018-Dup	W	Poly-1L	1		HNO3	1B	X																					
Outfall 018	W	Poly-1L	1		None	2																						
Outfall 018	W	VOAs	3		HCl	3A, 3B, 3C					X																	
Outfall 018	W	1L Amber	2		None	4A, 4B						X																
Outfall 018	W	1L Amber	2		HCl	5A, 5B							X															
Outfall 018	W	Poly-500 ml	1		NaOH	6								X														
Outfall 018	W	Poly-1 L	1		None	7									X													
Outfall 018	W	Poly-500 ml	2		None	8A, 8B										X												
Outfall 018	W	Poly-500 ml	2		None	9A, 9B											X											
Outfall 018	W	Poly-500 ml	2		None	10A, 10B												X										
Outfall 018	W	Poly-500 ml	1		H2SO4	11																						
Outfall 018	W	1L Amber	2		None	12A, 12B																						
Outfall 018	W	1L Amber	2		None	13A, 13B																						
Trip Blank	W	VOAs	3		HCl	15A, 15B, 15C						X																
Relinquished By	<i>[Signature]</i>		Date/Time	3-10-05 14:45		Received By		<i>[Signature]</i>		Date/Time	3/10/05		1445		Turn around Time: (check)		24 Hours		5 Days		48 Hours		10 Days		72 Hours		Normal	
Relinquished By	<i>[Signature]</i>		Date/Time	3/10/05 19:23		Received By		<i>[Signature]</i>		Date/Time	3/10/05		1923		Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check)		Intact		On box: X		8°C			

April 6, 2005

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

Attention: Bronwyn Kelly

Project: Routine Outfall 018
Sampled: 03/10/05
Del Mar Analytical Number: IOC0871

Dear Ms. Kelly:

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

Conoco ID	DEL MAR ID	Alta ID
Outfall 018	IOC0871-01	25975-001

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) 261-1002 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager



April 01, 2005

Alta Project I.D.: 25975

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 30, 2005 under your Project Name "IOC0871". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier
Director of HRMS Services



All data from this laboratory complies with the requirements of California regulations at 40 CFR Part 136. For more information, please contact the laboratory at 916-933-1640 or visit our website at www.altalab.com.



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762
FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/30/2005

Alta Lab. ID

Client Sample ID

25975-001

IOC0871-01

SECTION II



Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	6653	Lab Sample:	0-MB001		
Sample Size:	1.000 L	Date Extracted:	30-Mar-05	Date Analyzed DB-5:	31-Mar-05		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000554		IS 13C-2,3,7,8-TCDD	85.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000438		13C-1,2,3,7,8-PeCDD	89.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000693		13C-1,2,3,4,7,8-HxCDD	78.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000669		13C-1,2,3,6,7,8-HxCDD	92.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000673		13C-1,2,3,4,6,7,8-HpCDD	77.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.000000795		13C-OCDD	50.0	17 - 157	
OCDD	ND	0.00000232		13C-2,3,7,8-TCDF	91.1	24 - 169	
2,3,7,8-TCDF	ND	0.000000436		13C-1,2,3,7,8-PeCDF	89.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000695		13C-2,3,4,7,8-PeCDF	96.8	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000592		13C-1,2,3,4,7,8-HxCDF	77.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000264		13C-1,2,3,6,7,8-HxCDF	87.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000253		13C-2,3,4,6,7,8-HxCDF	84.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000263		13C-1,2,3,7,8,9-HxCDF	80.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000408		13C-1,2,3,4,6,7,8-HpCDF	72.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000381		13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000359		13C-OCDF	57.9	17 - 157	
OCDF	ND	0.00000147		CRS 37Cl-2,3,7,8-TCDD	90.5	35 - 197	
Totals							
Total TCDD	ND	0.000000554					
Total PeCDD	ND	0.000000438					
Total HxCDD	ND	0.000000677					
Total HpCDD	ND	0.000000795					
Total TCDF	ND	0.000000436					
Total PeCDF	ND	0.000000642					
Total HxCDF	ND	0.000000291					
Total HpCDF	ND	0.000000450					
Footnotes							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 14:55



EPA Method 1613

OPR Results

Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	68.5	25 - 164
1,2,3,7,8-PeCDD	50.0	53.3	35 - 71	13C-1,2,3,7,8-PeCDD	68.2	25 - 181
1,2,3,4,7,8-HxCDD	50.0	52.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	88.5	32 - 141
1,2,3,6,7,8-HxCDD	50.0	53.5	38 - 67	13C-1,2,3,6,7,8-HxCDD	101	28 - 130
1,2,3,7,8,9-HxCDD	50.0	41.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	70.5	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	52.7	35 - 70	13C-OCDD	38.0	17 - 157
OCDD	100	111	78 - 144	13C-2,3,7,8-TCDF	75.2	24 - 169
2,3,7,8-TCDF	10.0	10.4	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	66.3	24 - 185
1,2,3,7,8-PeCDF	50.0	50.2	40 - 67	13C-2,3,4,7,8-PeCDF	72.3	21 - 178
2,3,4,7,8-PeCDF	50.0	50.4	34 - 80	13C-1,2,3,4,7,8-HxCDF	88.8	26 - 152
1,2,3,4,7,8-HxCDF	50.0	49.9	36 - 67	13C-1,2,3,6,7,8-HxCDF	97.3	26 - 123
1,2,3,6,7,8-HxCDF	50.0	50.1	42 - 65	13C-2,3,4,6,7,8-HxCDF	86.3	28 - 136
2,3,4,6,7,8-HxCDF	50.0	50.5	35 - 78	13C-1,2,3,7,8,9-HxCDF	84.2	29 - 147
1,2,3,7,8,9-HxCDF	50.0	49.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	69.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	50.3	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	48.9	39 - 69	13C-OCDF	49.3	17 - 157
OCDF	100	99.5	63 - 170	CRS 37Cl-2,3,7,8-TCDD	74.7	35 - 197

Lab Sample: 0-OPR001
 Date Analyzed DB-5: 31-Mar-05 Date Analyzed DB-225: NA

QC Batch No.: 6653
 Date Extracted: 30-Mar-05

Matrix: Aqueous
 Sample Size: 1.000 L

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 13:48



Sample ID: IOC0871-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data				
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25975-001			
Project:	IOC0871	Sample Size:	1.026 L	QC Batch No.:	6653			
Date Collected:	10-Mar-05			Date Analyzed DB-5:	1-Apr-05			
Time Collected:	1004			Date Analyzed DB-225: NA				
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000498			IS 13C-2,3,7,8-TCDD	71.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000655			13C-1,2,3,7,8-PeCDD	71.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000824			13C-1,2,3,4,7,8-HxCDD	64.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000832			13C-1,2,3,6,7,8-HxCDD	71.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000820		J	13C-1,2,3,4,6,7,8-HpCDD	60.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.0000120				13C-OCDD	40.0	17 - 157	
OCDD	0.000178				13C-2,3,7,8-TCDF	76.7	24 - 169	
2,3,7,8-TCDF	0.00000143			J	13C-1,2,3,7,8-PeCDF	74.3	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000682			13C-2,3,4,7,8-PeCDF	78.9	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000572			13C-1,2,3,4,7,8-HxCDF	62.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000257			13C-1,2,3,6,7,8-HxCDF	71.3	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000244			13C-2,3,4,6,7,8-HxCDF	69.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000262			13C-1,2,3,7,8,9-HxCDF	65.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000413			13C-1,2,3,4,6,7,8-HpCDF	56.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000146	0.000000146		13C-1,2,3,4,7,8,9-HpCDF	61.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000456			13C-OCDF	47.1	17 - 157	
OCDF	0.00000356			J	CRS 37Cl-2,3,7,8-TCDD	84.3	35 - 197	
Totals								
Total TCDD	ND	0.000000498						
Total PeCDD	ND	0.000000655						
Total HxCDD	0.00000229		0.00000387					
Total HpCDD	0.0000277							
Total TCDF	0.00000264		0.00000790					
Total PeCDF	0.000000690		0.000000993					
Total HxCDF	ND		0.00000131					
Total HpCDF	0.00000241		0.00000387					
Footnotes								
a. Sample specific estimated detection limit.								
b. Estimated maximum possible concentration.								
c. Method detection limit.								
d. Lower control limit - upper control limit.								

Analyst: RAS

Approved By:

William J. Luksemburg 01-Apr-2005 14:55

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS



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

09/28/04



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

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

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

9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651

2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 799-3620 Fax (702) 799-3621

SUBCONTRACT ORDER - PROJECT # IOC0871

SENDING LABORATORY:

Del Mar Analytical, Irvine
17461 Darian 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

25975 0.5°C

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

Analysis	Expiration	Comments
		1 week TAT MH 3/29/05

Sample ID: IOC0871-01 Water Sampled: 03/10/05 10:04

1613-Dioxin-HR 03/17/05 10:04
EDD + Level 4 04/07/05 10:04

J flags, 17 congeners, no TEQ, sub to Alta
Excel EDD email to pm, Include Std logs for Lvl IV

Containers Supplied:

1 L Amber (IOC0871-01G)
1 L Amber (IOC0871-01H)

SAMPLE INTEGRITY:

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

Released By Vu Bank Date 3-29-05 Time 17:00 Received By Brittany J. Benedict Date 3/30/05 Time 08:25

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

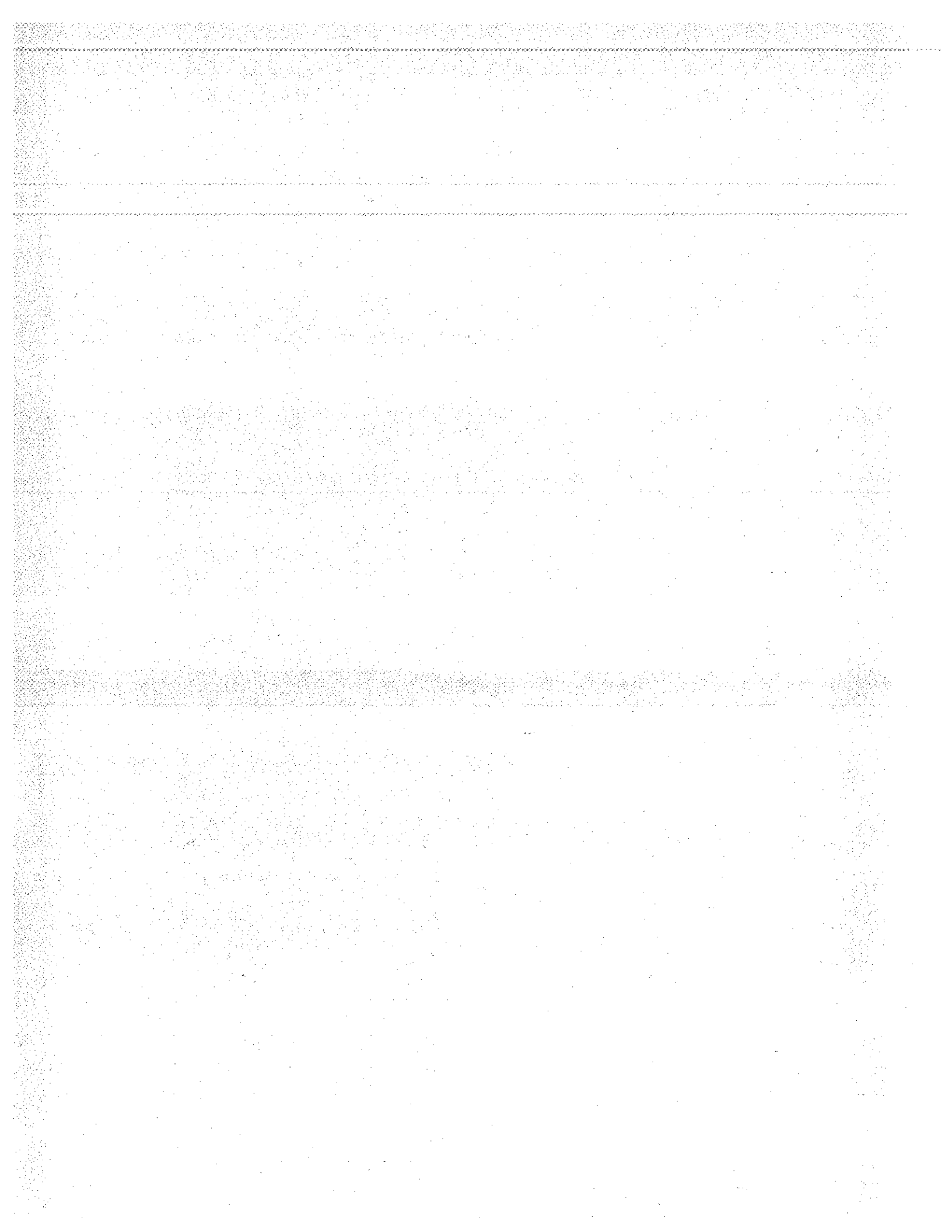
ALTA Project No.: 25975

1. Date Samples Arrived: <u>3/30/05 0825</u> Initials: <u>ALB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>0935 3/30/05</u> Initials: <u>ALB</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>0.5°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>7922 4206 8969</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 label.

ALTA Analytical Laboratory
El Dorado Hills, CA 95762




CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF38
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 3

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

Date: April 6, 2005
 Reviewer's Signature


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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOC1817, IOC1818, IOC1819

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 6, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 010	IOC1817-01C	25954-001	water	1613
Outfall 007	IOC1818-01	25955-001	water	1613
Outfall 018	IOC1819-01	25956-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

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

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6631_MB001) was extracted and analyzed with the samples in these SDGs. There were no target compound detects reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (0_6631_OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the lower method calibration level (MCL) were qualified as estimated, "J," however, as Alta analyzed an additional calibration standard, not all results below the lower MCL were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. Total HpCDF in Outfall 010 was qualified as estimated since one of the total constituents was below the lower MCL even though total concentration was above the lower MCL. No further qualifications were required.

Sample ID: IOC1819-01

Outfall 013

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25956-001
Project:	IOC1819	Sample Size:	0.984 L	QC Batch No.:	6631
Date Collected:	23-Mar-05			Date Analyzed DB-5:	27-Mar-05
Time Collected:	1051			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	1.90		IS 13C-2,3,7,8-TCDD	61.5 25 - 164
1,2,3,7,8-PeCDD	ND	1.56		13C-1,2,3,7,8-PeCDD	53.0 25 - 181
1,2,3,4,7,8-HxCDD	ND	5.56		13C-1,2,3,4,7,8-HxCDD	57.5 32 - 141
1,2,3,6,7,8-HxCDD	ND	5.65		13C-1,2,3,6,7,8-HxCDD	62.6 28 - 130
1,2,3,7,8,9-HxCDD	ND	5.59		13C-1,2,3,4,6,7,8-HpCDD	54.5 23 - 140
1,2,3,4,6,7,8-HpCDD	73.6			13C-OCDD	40.1 17 - 157
OCDD	935			13C-2,3,7,8-TCDF	63.0 24 - 169
2,3,7,8-TCDF	ND	2.59		13C-1,2,3,7,8-PeCDF	53.5 24 - 185
1,2,3,7,8-PeCDF	ND	4.36		13C-2,3,4,7,8-PeCDF	54.1 21 - 178
2,3,4,7,8-PeCDF	ND	4.12		13C-1,2,3,4,7,8-HxCDF	59.8 26 - 152
1,2,3,4,7,8-HxCDF	ND	1.25		13C-1,2,3,6,7,8-HxCDF	66.7 26 - 123
1,2,3,6,7,8-HxCDF	ND	1.13		13C-2,3,4,6,7,8-HxCDF	61.8 28 - 136
2,3,4,6,7,8-HxCDF	ND	1.43		13C-1,2,3,7,8,9-HxCDF	60.4 29 - 147
1,2,3,7,8,9-HxCDF	ND	2.25		13C-1,2,3,4,6,7,8-HpCDF	56.4 28 - 143
1,2,3,4,6,7,8-HpCDF	10.6			13C-1,2,3,4,7,8,9-HpCDF	59.8 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.43	J	13C-OCDF	48.9 17 - 157
OCDF	23.4		J	CRS 37Cl-2,3,7,8-TCDD	72.7 35 - 197
Totals					
Total TCDD	ND	1.90			
Total PeCDD	ND	1.56			
Total HxCDD	18.2				
Total HpCDD	156				
Total TCDF	5.32				
Total PeCDF	ND	1.29			
Total HxCDF	13.8				
Total HpCDF	26.4				

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

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:16

AMEC VALIDATED
 LEVEL IX

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT73
 Task Order 313150010
 SDG No. IOC1819

No. of Analyses 1

Laboratory Del Mar

Date: 04/06/05

Reviewer P. Meeks

Reviewer's Signature

Analysis/Method Metals

P. Meeks

ACTION ITEMS*

1. Case Narrative
 Deficiencies

2. Out of Scope
 Analyses

3. Analyses Not
 Conducted

4. Missing Hardcopy
 Deliverables

5. Incorrect Hardcopy
 Deliverables

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

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.

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

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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOC1819

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOC1819
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 06, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC1819
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 018	Outfall 018	IOC1819-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 7°C ; however, as the sample had insufficient time to cool 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 COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS metals and 80-120% for mercury. The 0.2 ppb reporting limit check standard for lead was recovered above the control limit at 137%; however, lead was detected in Outfall 018 at 2.9 ppb and the 2.0 ppb reporting limit check standard was recovered within the control limits, no qualifications were required. The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

There were no detects in the method blank or CCBs associated with Outfall 018. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and lead was not spiked into the ICSAB solution. Aluminum was recovered below the control limit in the ICSAB analysis and potassium was recovered above the calibration range in the ICSA; however, as these analytes were found at low levels in the site sample matrix, no qualifications were required. Copper was detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported 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 5C23123-BS1 and the mercury LCS sample was identified as 5C24056-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. 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 sample.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



Del Mar Analytical

17461 Derby Ave., Suite 100, Irvine, CA 92614 (949) 261-1122 FAX (949) 261-1121
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4607 FAX (909) 370-1121
 6484 Chesapeake Dr., Suite 305, San Diego, CA 92123 (619) 503-8596 FAX (619) 503-8620
 9850 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0051
 2320 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: Routine Outfall 018

Report Number: IOC1819

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

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5C23123	0.49	2.0	4.7	1	03/23/05	03/24/05	Rev Qual Qual Code
Lead	EPA 200.8	5C23123	0.13	1.0	2.9	1	03/23/05	03/24/05	X #3
Mercury	EPA 245.1	5C24056	0.063	0.20	ND	1	03/24/05	03/24/05	U

MW 4/6/05

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 T711PP33
 Task Order 313150010
 SDG No. IOC1819

No. of Analyses 1

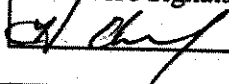
Laboratory Del Mar

Reviewer H. Chang

Analysis/Method Pesticide/608

Date: April 10, 2005

Reviewer's Signature



ACTION ITEMS^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis	
Protocol, e.g.,	
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: IOC1819

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOC1819
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 10, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary form as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	Method
Outfall 018	Outfall 018	IOC1819-01	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 analyzed a breakdown check standard; however, as alpha-BHC was the only compound of interest, the breakdown check standard was not necessary. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

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

2.3 CALIBRATION

2.3.1 Analytical Sequence

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

2.3.2 Initial Calibration

There was one initial calibration dated 03/24/05 associated which consisted of six-point calibrations for alpha-BHC on two analytical columns. The %RSD was within the EPA Method 608 QC limit of $\leq 10\%$ on channel B, and the r^2 was ≥ 0.995 on channel A. An ICV was analyzed immediately following the initial calibration. The %D for alpha-BHC was within the QC limit of $\leq 15\%$ on both analytical columns. The %RSD, r^2 , and ICV %D for alpha-BHC were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

The sample analysis in this SDG was bracketed by the daily ICV and two closing continuing calibration standards. The applicable %Ds were within the Method QC limit of $\pm 15\%$ for all calibrations. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 BLANKS

2.4.1 Instrument Blanks

An instrument blank was analyzed at the beginning of each analytical sequence. Cross-contamination was not evident in the samples. No qualifications were necessary.

2.4.2 Method Blanks

One water method blank (5C24055-BLK1) was extracted and analyzed with this SDG. Target compound alpha-BHC was not detected in the method blank. Review of the chromatograms showed no false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One pair of blank spike and blank spike duplicate (5C24055-BS1/5C24055-BSD1) was extracted and analyzed with this SDG. The recoveries for alpha-BHC were within the laboratory-established QC limits of 45-115% and the RPD was $\leq 30\%$. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample and all QC samples were fortified with the surrogate compounds decachlorobiphenyl and tetrachloro-m-xylene. All surrogate recoveries 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 performed in this SDG. Method accuracy was assessed based on the blank spike results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction benchsheet, no cleanups were performed on the water sample. No qualifications were required.

2.9 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with the sample in this SDG.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for alpha-BHC by EPA Method 608. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the sample in this SDG. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG; however, as there were no reported detects, quantitation was verified by recalculating blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL study. The reporting limit for alpha-BHC was not adjusted for sample amount on the result summary; however, the dilution factor listed on the summary reflected the sample volume extracted. Results were reported in ug/L (ppb). No qualifications were required.



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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C24055	0.0010	0.010	ND	0.99	03/24/05	03/25/05	U
Surrogate: Decachlorobiphenyl (45-120%)					68 %				
Surrogate: Tetrachloro-m-xylene (35-115%)					54 %				

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 T711SV51
 Task Order 313150010
 SDG No. IOC1819

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: April 11, 2005

Reviewer's Signature



ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis 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 a calibration outlier.
COMMENTS ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC1819

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOC1819
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 11, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 018	Outfall 018	IOC1819-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/17/05. The average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for all target compounds. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/30/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$ except for the %D for 2,4-dinitrotoluene. 2,4-Dinitrotoluene was qualified as an estimated nondetect, "UJ," in sample Outfall 018. 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 (5C24053-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5C24053-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary, to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ," for nondetects, and "J," for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits. A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

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

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									REV QUAL	QUAL CODE
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water)										
Reporting Units: ug/l										
Bis(2-ethylhexyl)phthalate	EPA 625	5C24053	1.1	5.0	ND	0.99	03/24/05	03/30/05	U	
2,4-Dinitrotoluene	EPA 625	5C24053	0.23	9.0	ND	0.99	03/24/05	03/30/05	U	
N-Nitrosodimethylamine	EPA 625	5C24053	0.22	8.0	ND	0.99	03/24/05	03/30/05	U	C
Pentachlorophenol	EPA 625	5C24053	0.78	8.0	ND	0.99	03/24/05	03/30/05	U	
2,4,6-Trichlorophenol	EPA 625	5C24053	0.10	6.0	ND	0.99	03/24/05	03/30/05	U	
Surrogate: 2-Fluorophenol (30-120%)					68 %					
Surrogate: Phenol-d6 (35-120%)					61 %					
Surrogate: 2,4,6-Tribromophenol (45-120%)					85 %					
Surrogate: Nitrobenzene-d5 (45-120%)					67 %					
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %					
Surrogate: Terphenyl-d14 (45-120%)					82 %					

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 T711VO86
Task Order 313150010
SDG No. IOC1819

No. of Analyses 2

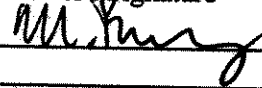
Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: April 11, 2005

Reviewer's Signature



ACTION ITEMS*

1. **Case Narrative**
Deficiencies

2. **Out of Scope**
Analyses

3. **Analyses Not Conducted**

4. **Missing Hardcopy**
Deliverables

5. **Incorrect Hardcopy**
Deliverables

6. **Deviations from Analysis**
Protocol, e.g.,
Holding Times
GC/MS Tune/Inst. Perform
Calibrations
Blanks
Surrogates
Matrix Spike/Dup LCS
Field QC
Internal Standard Performance
Compound Identification and
Quantitation
System Performance

COMMENTS*

Acceptable as reviewed.

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

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: IOC1819

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
SDG#: IOC1819
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 11, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, *EPA SW-846 Method 8260B*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 018	Outfall 018	IOC1819-01	water	624
Trip Blank	Trip Blank	IOC1819-02	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 COC was signed and dated by both field and laboratory personnel. The COC accounted for the analysis 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 all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 03/04/05 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. One continuing calibration associated with the sample analyses was analyzed 03/24/05. The RRFs were ≥0.05 in the continuing calibration. The %Ds were ≤20% for the 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 calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (5C24012-BLK1) was associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summary. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5C24012-BS1) was associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 018 was the MS/MSD analyses associated with this SDG. 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 was the trip blank associated with this SDG. No target compounds were reported in the trip blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed 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. No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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



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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

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: IOC1819-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	REV QUAL QUAL CODE U ↓ V
Carbon tetrachloride	EPA 624	5C24012	0.28	5.0	ND	1	03/24/05	03/24/05	
Chloroform	EPA 624	5C24012	0.33	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethane	EPA 624	5C24012	0.27	2.0	ND	1	03/24/05	03/24/05	
1,2-Dichloroethane	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethene	EPA 624	5C24012	0.32	3.0	ND	1	03/24/05	03/24/05	
Ethylbenzene	EPA 624	5C24012	0.25	2.0	ND	1	03/24/05	03/24/05	
Tetrachloroethene	EPA 624	5C24012	0.32	2.0	ND	1	03/24/05	03/24/05	
Toluene	EPA 624	5C24012	0.36	2.0	ND	1	03/24/05	03/24/05	
1,1,1-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
1,1,2-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
Trichloroethene	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Trichlorofluoromethane	EPA 624	5C24012	0.34	5.0	ND	1	03/24/05	03/24/05	
Vinyl chloride	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Xylenes, Total	EPA 624	5C24012	0.52	4.0	ND	1	03/24/05	03/24/05	
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				
Sample ID: IOC1819-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	U ↓ V
Carbon tetrachloride	EPA 624	5C24012	0.28	5.0	ND	1	03/24/05	03/24/05	
Chloroform	EPA 624	5C24012	0.33	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethane	EPA 624	5C24012	0.27	2.0	ND	1	03/24/05	03/24/05	
1,2-Dichloroethane	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethene	EPA 624	5C24012	0.32	3.0	ND	1	03/24/05	03/24/05	
Ethylbenzene	EPA 624	5C24012	0.25	2.0	ND	1	03/24/05	03/24/05	
Tetrachloroethene	EPA 624	5C24012	0.32	2.0	ND	1	03/24/05	03/24/05	
Toluene	EPA 624	5C24012	0.36	2.0	ND	1	03/24/05	03/24/05	
1,1,1-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
1,1,2-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
Trichloroethene	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Trichlorofluoromethane	EPA 624	5C24012	0.34	5.0	ND	1	03/24/05	03/24/05	
Vinyl chloride	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Xylenes, Total	EPA 624	5C24012	0.52	4.0	ND	1	03/24/05	03/24/05	
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					99 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

AMEC VALIDATED

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC1819

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC1819
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 6, 2005

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

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 018	Outfall 018	IOC1819-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . Initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, 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 oil and grease, total dissolved solids, total suspended solids, or total settleable solids. The total cyanide reporting limit check standard was recovered within the control limits of 70-130%. No qualifications were required.

2.3 BLANKS

Cyanide was reported in a bracketing CCB at $-4.5 \mu\text{g/L}$; therefore, nondetected cyanide in Outfall 018 was qualified as estimated, "UJ." Nitrate/nitrite was detected in a bracketing CCB at 0.091 mg/L ; therefore, nitrate/nitrite detected in Outfall 018 was qualified as estimated, "UJ." The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No further qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

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

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C24087	0.30	0.50	ND	1	03/24/05	03/24/05	U
Biochemical Oxygen Demand	EPA 405.1	5C24063	0.59	2.0	2.5	1	03/24/05	03/29/05	
Chloride	EPA 300.0	5C23116	0.26	0.50	13	1	03/23/05	03/24/05	
Nitrate/Nitrite-N	EPA 300.0	5C23116	0.075	0.26	0.26	1	03/23/05	03/24/05	WT B
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	ND	1	03/25/05	03/25/05	U
Sulfate	EPA 300.0	5C23116	0.18	0.50	35	1	03/23/05	03/24/05	
Surfactants (MBAS)	EPA 425.1	5C23092	0.044	0.10	0.053	1	03/23/05	03/23/05	J J DNR
Total Dissolved Solids	EPA 160.1	5C23106	10	10	290	1	03/23/05	03/23/05	
Total Suspended Solids	EPA 160.2	5C24086	10	10	59	1	03/24/05	03/24/05	
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C24080	0.10	0.10	ND	1	03/24/05	03/24/05	U
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C24085	0.080	2.0	64	2	03/24/05	03/24/05	
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5C24111	2.2	5.0	ND	1	03/24/05	03/24/05	WT B
Perchlorate	EPA 314.0	5C24062	0.80	4.0	ND	1	03/24/05	03/24/05	*
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C23108	1.0	1.0	290	1	03/23/05	03/23/05	

AMEC VALIDATED

LEVEL IV

*Analysis Not Valid

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

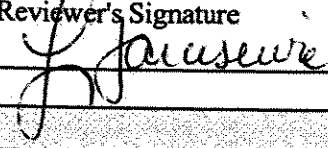
CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC124
 Task Order 313150010
 SDG No. IOC1819

No. of Analyses 1

Laboratory Del Mar Analytical

Date: 04/07/05
 Reviewer's Signature


Reviewer L. Jarusewic

Analysis/Method Perchlorate

ACTION ITEMS^a

1. Case Narrative Deficiencies
2. Out of Scope Analyses
3. Analyses Not Conducted
4. Missing Hardcopy Deliverables
5. Incorrect Hardcopy Deliverables
6. Deviations from Analysis Protocol, e.g.,
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

COMMENTS^b Acceptable as reviewed.

^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: IOC1819

Prepared by

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

I. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC1819
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 7, 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 018	Outfall 018	IOC1819-01	Water	Perchlorate

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, ICCS, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) - cont. Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C24087	0.30	0.50	ND	1	03/24/05	03/24/05	* <u>REV</u> <u>QUAL</u> <u>DATA</u>
Biochemical Oxygen Demand	EPA 405.1	5C24063	0.59	2.0	2.5	1	03/24/05	03/29/05	
Chloride	EPA 300.0	5C23116	0.26	0.50	13	1	03/23/05	03/24/05	
Nitrate/Nitrite-N	EPA 300.0	5C23116	0.075	0.26	0.26	1	03/23/05	03/24/05	
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	ND	1	03/25/05	03/25/05	
Sulfate	EPA 300.0	5C23116	0.18	0.50	35	1	03/23/05	03/24/05	
Surfactants (MBAS)	EPA 425.1	5C23092	0.044	0.10	0.053	1	03/23/05	03/23/05	
Total Dissolved Solids	EPA 160.1	5C23106	10	10	290	1	03/23/05	03/23/05	
Total Suspended Solids	EPA 160.2	5C24086	10	10	59	1	03/24/05	03/24/05	
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C24080	0.10	0.10	ND	1	03/24/05	03/24/05	
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) Reporting Units: NTU									
Turbidity	EPA 180.1	5C24085	0.080	2.0	64	2	03/24/05	03/24/05	
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5C24111	2.2	5.0	ND	1	03/24/05	03/24/05	✓
Perchlorate	EPA 314.0	5C24062	0.80	4.0	ND	1	03/24/05	03/24/05	u
Sample ID: IOC1819-01 (DRAFT: Outfall 018 - Water) Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C23108	1.0	1.0	290	1	03/23/05	03/23/05	*

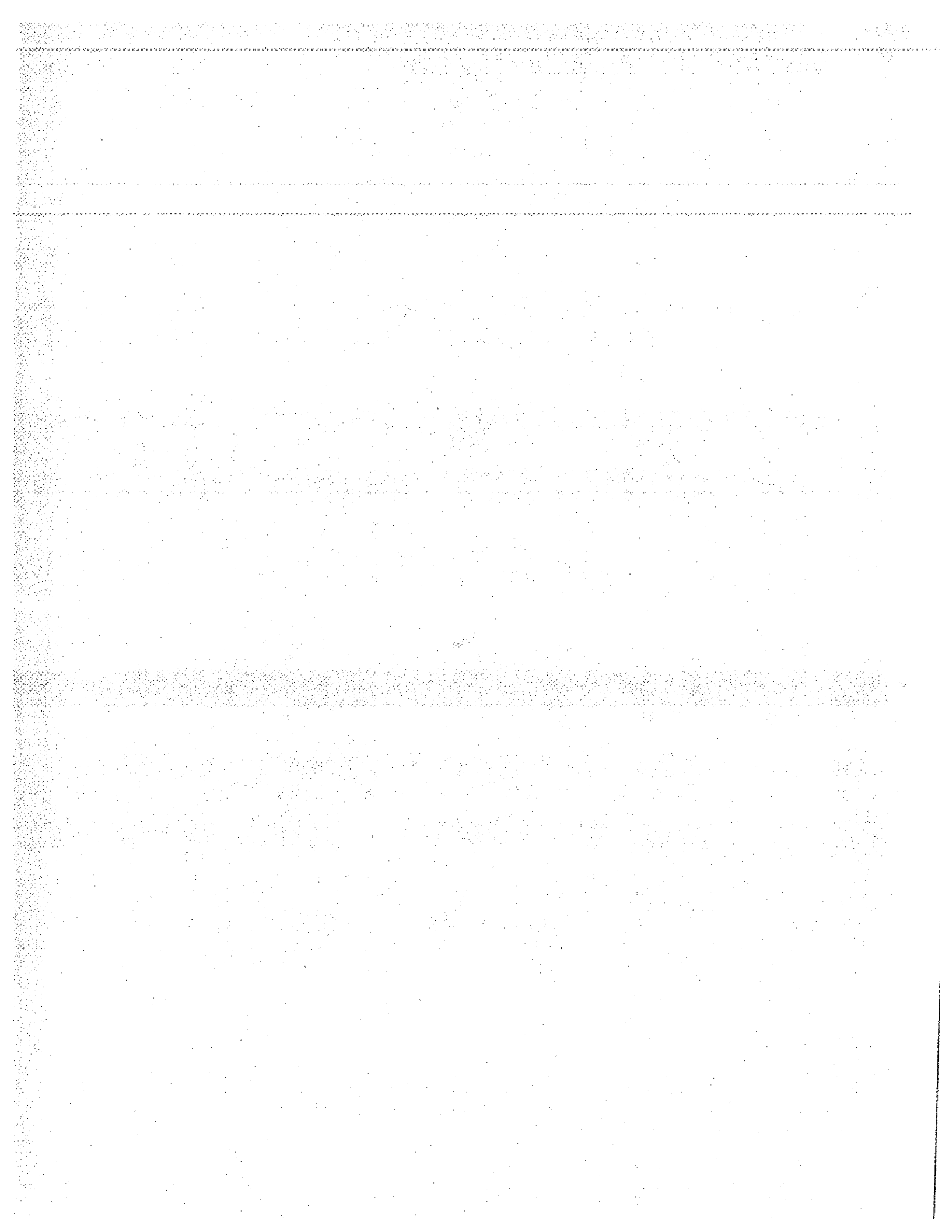
AMEC VALIDATED

LEVEL IV

* Analytic Not Valid

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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LABORATORY REPORT

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

Project: Routine Outfall 018

Sampled: 03/23/05
Received: 03/23/05
Issued: 04/11/05 14:08

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

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

LABORATORY ID	CLIENT ID	MATRIX
IOC1819-01	Outfall 018	Water
IOC1819-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

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: IOC1819-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	
Carbon tetrachloride	EPA 624	5C24012	0.28	5.0	ND	1	03/24/05	03/24/05	
Chloroform	EPA 624	5C24012	0.33	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethane	EPA 624	5C24012	0.27	2.0	ND	1	03/24/05	03/24/05	
1,2-Dichloroethane	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethene	EPA 624	5C24012	0.32	3.0	ND	1	03/24/05	03/24/05	
Ethylbenzene	EPA 624	5C24012	0.25	2.0	ND	1	03/24/05	03/24/05	
Tetrachloroethene	EPA 624	5C24012	0.32	2.0	ND	1	03/24/05	03/24/05	
Toluene	EPA 624	5C24012	0.36	2.0	ND	1	03/24/05	03/24/05	
1,1,1-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
1,1,2-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
Trichloroethene	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Trichlorofluoromethane	EPA 624	5C24012	0.34	5.0	ND	1	03/24/05	03/24/05	
Vinyl chloride	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Xylenes, Total	EPA 624	5C24012	0.52	4.0	ND	1	03/24/05	03/24/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					106 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %				
Sample ID: IOC1819-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	
Carbon tetrachloride	EPA 624	5C24012	0.28	5.0	ND	1	03/24/05	03/24/05	
Chloroform	EPA 624	5C24012	0.33	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethane	EPA 624	5C24012	0.27	2.0	ND	1	03/24/05	03/24/05	
1,2-Dichloroethane	EPA 624	5C24012	0.28	2.0	ND	1	03/24/05	03/24/05	
1,1-Dichloroethene	EPA 624	5C24012	0.32	3.0	ND	1	03/24/05	03/24/05	
Ethylbenzene	EPA 624	5C24012	0.25	2.0	ND	1	03/24/05	03/24/05	
Tetrachloroethene	EPA 624	5C24012	0.32	2.0	ND	1	03/24/05	03/24/05	
Toluene	EPA 624	5C24012	0.36	2.0	ND	1	03/24/05	03/24/05	
1,1,1-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
1,1,2-Trichloroethane	EPA 624	5C24012	0.30	2.0	ND	1	03/24/05	03/24/05	
Trichloroethene	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Trichlorofluoromethane	EPA 624	5C24012	0.34	5.0	ND	1	03/24/05	03/24/05	
Vinyl chloride	EPA 624	5C24012	0.26	5.0	ND	1	03/24/05	03/24/05	
Xylenes, Total	EPA 624	5C24012	0.52	4.0	ND	1	03/24/05	03/24/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					100 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					99 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %				

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

Project ID: Routine Outfall 018

Report Number: IOC1819

Sampled: 03/23/05

Received: 03/23/05

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: IOC1819-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5C24053	1.1	5.0	ND	0.99	03/24/05	03/30/05	
2,4-Dinitrotoluene	EPA 625	5C24053	0.23	9.0	ND	0.99	03/24/05	03/30/05	C
N-Nitrosodimethylamine	EPA 625	5C24053	0.22	8.0	ND	0.99	03/24/05	03/30/05	
Pentachlorophenol	EPA 625	5C24053	0.78	8.0	ND	0.99	03/24/05	03/30/05	
2,4,6-Trichlorophenol	EPA 625	5C24053	0.10	6.0	ND	0.99	03/24/05	03/30/05	
Surrogate: 2-Fluorophenol (30-120%)					68 %				
Surrogate: Phenol-d6 (35-120%)					61 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					85 %				
Surrogate: Nitrobenzene-d5 (45-120%)					67 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					82 %				

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 Michele Harper
 Project Manager

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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C24055	0.0010	0.010	ND	0.99	03/24/05	03/25/05	
Surrogate: Decachlorobiphenyl (45-120%)					68 %				
Surrogate: Tetrachloro-m-xylene (35-115%)					54 %				

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Project ID: Routine Outfall 018

Report Number: IOC1819

Sampled: 03/23/05

Received: 03/23/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5C23123	0.49	2.0	4.7	1	03/23/05	03/24/05	
Lead	EPA 200.8	5C23123	0.13	1.0	2.9	1	03/23/05	03/24/05	
Mercury	EPA 245.1	5C24056	0.063	0.20	ND	1	03/24/05	03/24/05	

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Project ID: Routine Outfall 018

Report Number: IOC1819

Sampled: 03/23/05

Received: 03/23/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1819-01 (Outfall 018 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C24087	0.30	0.50	ND	1	03/24/05	03/24/05	
Biochemical Oxygen Demand	EPA 405.1	5C24063	0.59	2.0	2.5	1	03/24/05	03/29/05	
Chloride	EPA 300.0	5C23116	0.26	0.50	13	1	03/23/05	03/24/05	
Nitrate/Nitrite-N	EPA 300.0	5C23116	0.075	0.26	0.26	1	03/23/05	03/24/05	
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	ND	1	03/25/05	03/25/05	
Sulfate	EPA 300.0	5C23116	0.18	0.50	35	1	03/23/05	03/24/05	
Surfactants (MBAS)	EPA 425.1	5C23092	0.044	0.10	0.053	1	03/23/05	03/23/05	J
Total Dissolved Solids	EPA 160.1	5C23106	10	10	290	1	03/23/05	03/23/05	
Total Suspended Solids	EPA 160.2	5C24086	10	10	59	1	03/24/05	03/24/05	
Sample ID: IOC1819-01 (Outfall 018 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C24080	0.10	0.10	ND	1	03/24/05	03/24/05	
Sample ID: IOC1819-01 (Outfall 018 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C24085	0.080	2.0	64	2	03/24/05	03/24/05	
Sample ID: IOC1819-01 (Outfall 018 - Water)									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5C24111	2.2	5.0	ND	1	03/24/05	03/24/05	
Perchlorate	EPA 314.0	5C24062	0.80	4.0	ND	1	03/24/05	03/24/05	
Sample ID: IOC1819-01 (Outfall 018 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C23108	1.0	1.0	290	1	03/23/05	03/23/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOC1819	Sampled: 03/23/05 Received: 03/23/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 018 (IOC1819-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/23/2005 10:51	03/23/2005 18:36	03/24/2005 12:12	03/24/2005 15:00
EPA 180.1	2	03/23/2005 10:51	03/23/2005 18:36	03/24/2005 10:00	03/24/2005 11:00
EPA 300.0	2	03/23/2005 10:51	03/23/2005 18:36	03/23/2005 23:00	03/24/2005 01:42
EPA 405.1	2	03/23/2005 10:51	03/23/2005 18:36	03/24/2005 13:00	03/29/2005 09:30
EPA 425.1	2	03/23/2005 10:51	03/23/2005 18:36	03/23/2005 21:00	03/23/2005 21:38

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 018

Report Number: IOC1819

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

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: 5C24012 Extracted: 03/24/05										
Blank Analyzed: 03/24/2005 (5C24012-BLK1)										
Benzene	ND	2.0	0.28	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Carbon tetrachloride	ND	5.0	0.28	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	2.0	0.28	ug/l						
1,1-Dichloroethene	ND	3.0	0.32	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	5.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	5.0	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	25.9			ug/l	25.0		104		80-120	
Surrogate: Toluene-d8	24.8			ug/l	25.0		99		80-120	
Surrogate: 4-Bromofluorobenzene	23.9			ug/l	25.0		96		80-120	
LCS Analyzed: 03/24/2005 (5C24012-BS1)										
Benzene	23.8	2.0	0.28	ug/l	25.0		95		70-120	
Carbon tetrachloride	23.8	5.0	0.28	ug/l	25.0		95		70-140	
Chloroform	23.7	2.0	0.33	ug/l	25.0		95		75-130	
1,1-Dichloroethane	24.0	2.0	0.27	ug/l	25.0		96		70-135	
1,2-Dichloroethane	23.6	2.0	0.28	ug/l	25.0		94		60-150	
1,1-Dichloroethene	23.9	3.0	0.32	ug/l	25.0		96		75-135	
Ethylbenzene	24.5	2.0	0.25	ug/l	25.0		98		80-120	
Tetrachloroethene	24.3	2.0	0.32	ug/l	25.0		97		75-125	
Toluene	24.1	2.0	0.36	ug/l	25.0		96		75-120	
1,1,1-Trichloroethane	23.7	2.0	0.30	ug/l	25.0		95		75-140	
1,1,2-Trichloroethane	20.7	2.0	0.30	ug/l	25.0		83		70-125	
Trichloroethene	25.1	5.0	0.26	ug/l	25.0		100		80-120	
Trichlorofluoromethane	24.4	5.0	0.34	ug/l	25.0		98		65-145	
Vinyl chloride	24.2	5.0	0.26	ug/l	25.0		97		50-130	
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98		80-120	

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

Project ID: Routine Outfall 018

Report Number: IOC1819

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

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD	RPD	Limit	Data Qualifiers
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Batch: 5C24012 Extracted: 03/24/05

LCS Analyzed: 03/24/2005 (5C24012-BS1)

Surrogate: Toluene-d8	25.0			ug/l	25.0		100			80-120	
Surrogate: 4-Bromofluorobenzene	23.4			ug/l	25.0		94			80-120	

Matrix Spike Analyzed: 03/24/2005 (5C24012-MS1)

Source: IOC1819-01

Benzene	26.0	2.0	0.28	ug/l	25.0	ND	104			70-120	
Carbon tetrachloride	25.4	5.0	0.28	ug/l	25.0	ND	102			70-145	
Chloroform	26.6	2.0	0.33	ug/l	25.0	ND	106			70-135	
1,1-Dichloroethane	26.9	2.0	0.27	ug/l	25.0	ND	108			65-135	
1,2-Dichloroethane	29.8	2.0	0.28	ug/l	25.0	ND	119			60-150	
1,1-Dichloroethene	26.4	3.0	0.32	ug/l	25.0	ND	106			65-140	
Ethylbenzene	25.6	2.0	0.25	ug/l	25.0	ND	102			70-130	
Tetrachloroethene	24.9	2.0	0.32	ug/l	25.0	ND	100			70-130	
Toluene	25.6	2.0	0.36	ug/l	25.0	ND	102			70-120	
1,1,1-Trichloroethane	25.5	2.0	0.30	ug/l	25.0	ND	102			75-140	
1,1,2-Trichloroethane	28.2	2.0	0.30	ug/l	25.0	ND	113			60-135	
Trichloroethene	25.5	5.0	0.26	ug/l	25.0	ND	102			70-125	
Trichlorofluoromethane	27.1	5.0	0.34	ug/l	25.0	ND	108			55-145	
Vinyl chloride	19.6	5.0	0.26	ug/l	25.0	ND	78			40-135	
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105			80-120	
Surrogate: Toluene-d8	25.1			ug/l	25.0		100			80-120	
Surrogate: 4-Bromofluorobenzene	24.9			ug/l	25.0		100			80-120	

Matrix Spike Dup Analyzed: 03/24/2005 (5C24012-MSD1)

Source: IOC1819-01

Benzene	25.2	2.0	0.28	ug/l	25.0	ND	101		3	20	
Carbon tetrachloride	24.7	5.0	0.28	ug/l	25.0	ND	99		3	25	
Chloroform	25.9	2.0	0.33	ug/l	25.0	ND	104		3	20	
1,1-Dichloroethane	26.0	2.0	0.27	ug/l	25.0	ND	104		3	20	
1,2-Dichloroethane	28.1	2.0	0.28	ug/l	25.0	ND	112		6	20	
1,1-Dichloroethene	25.2	3.0	0.32	ug/l	25.0	ND	101		5	20	
Ethylbenzene	24.5	2.0	0.25	ug/l	25.0	ND	98		4	20	
Tetrachloroethene	23.8	2.0	0.32	ug/l	25.0	ND	95		5	20	
Toluene	24.7	2.0	0.36	ug/l	25.0	ND	99		4	20	
1,1,1-Trichloroethane	24.9	2.0	0.30	ug/l	25.0	ND	100		2	20	
1,1,2-Trichloroethane	26.3	2.0	0.30	ug/l	25.0	ND	105		7	25	
Trichloroethene	24.9	5.0	0.26	ug/l	25.0	ND	100		2	20	
Trichlorofluoromethane	26.1	5.0	0.34	ug/l	25.0	ND	104		4	25	

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Project ID: Routine Outfall 018

Report Number: IOC1819

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

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: 5C24012 Extracted: 03/24/05											
Matrix Spike Dup Analyzed: 03/24/2005 (5C24012-MSD1)						Source: IOC1819-01					
Vinyl chloride	20.9	5.0	0.26	ug/l	25.0	ND	84	40-135	6	30	
Surrogate: Dibromofluoromethane	26.7			ug/l	25.0		107	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			

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Project ID: Routine Outfall 018

Report Number: IOC1819

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

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: 5C24053 Extracted: 03/24/05										
Blank Analyzed: 03/29/2005 (5C24053-BLK1)										
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
2,4-Dinitrotoluene	ND	9.0	0.23	ug/l						
N-Nitrosodimethylamine	ND	8.0	0.22	ug/l						
Pentachlorophenol	ND	8.0	0.78	ug/l						
2,4,6-Trichlorophenol	ND	6.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	14.2			ug/l	20.0		71		30-120	
Surrogate: Phenol-d6	13.8			ug/l	20.0		69		35-120	
Surrogate: 2,4,6-Tribromophenol	16.2			ug/l	20.0		81		45-120	
Surrogate: Nitrobenzene-d5	7.54			ug/l	10.0		75		45-120	
Surrogate: 2-Fluorobiphenyl	8.50			ug/l	10.0		85		45-120	
Surrogate: Terphenyl-d14	8.50			ug/l	10.0		85		45-120	
LCS Analyzed: 03/29/2005 (5C24053-BS1)										
Bis(2-ethylhexyl)phthalate	8.92	5.0	1.1	ug/l	10.0		89		60-130	M-NRI
2,4-Dinitrotoluene	8.52	9.0	0.23	ug/l	10.0		85		60-120	J
N-Nitrosodimethylamine	7.84	8.0	0.22	ug/l	10.0		78		40-120	J
Pentachlorophenol	8.46	8.0	0.78	ug/l	10.0		85		50-120	
2,4,6-Trichlorophenol	8.62	6.0	0.10	ug/l	10.0		86		60-120	
Surrogate: 2-Fluorophenol	13.3			ug/l	20.0		66		30-120	
Surrogate: Phenol-d6	13.0			ug/l	20.0		65		35-120	
Surrogate: 2,4,6-Tribromophenol	16.6			ug/l	20.0		83		45-120	
Surrogate: Nitrobenzene-d5	6.90			ug/l	10.0		69		45-120	
Surrogate: 2-Fluorobiphenyl	7.14			ug/l	10.0		71		45-120	
Surrogate: Terphenyl-d14	7.88			ug/l	10.0		79		45-120	
LCS Dup Analyzed: 03/29/2005 (5C24053-BSD1)										
Bis(2-ethylhexyl)phthalate	9.16	5.0	1.1	ug/l	10.0		92	3	20	
2,4-Dinitrotoluene	8.66	9.0	0.23	ug/l	10.0		87	2	20	J
N-Nitrosodimethylamine	7.78	8.0	0.22	ug/l	10.0		78	1	20	J
Pentachlorophenol	8.88	8.0	0.78	ug/l	10.0		89	5	25	
2,4,6-Trichlorophenol	8.90	6.0	0.10	ug/l	10.0		89	3	20	
Surrogate: 2-Fluorophenol	13.6			ug/l	20.0		68		30-120	
Surrogate: Phenol-d6	13.4			ug/l	20.0		67		35-120	
Surrogate: 2,4,6-Tribromophenol	16.8			ug/l	20.0		84		45-120	
Surrogate: Nitrobenzene-d5	6.94			ug/l	10.0		69		45-120	
Surrogate: 2-Fluorobiphenyl	7.44			ug/l	10.0		74		45-120	

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

Project ID: Routine Outfall 018

Report Number: IOC1819

Sampled: 03/23/05

Received: 03/23/05

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: 5C24053 Extracted: 03/24/05											
LCS Dup Analyzed: 03/29/2005 (5C24053-BSD1)											
Surrogate: Terphenyl-d14	8.24			ug/l	10.0		82	45-120			

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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C24055 Extracted: 03/24/05										
Blank Analyzed: 03/24/2005 (5C24055-BLK1)										
alpha-BHC	ND	0.010	0.0010	ug/l						
Surrogate: Decachlorobiphenyl	0.361			ug/l	0.500		72		45-120	
Surrogate: Tetrachloro-m-xylene	0.309			ug/l	0.500		62		35-115	
LCS Analyzed: 03/24/2005 (5C24055-BS1)										
alpha-BHC	0.337	0.010	0.0010	ug/l	0.500		67		45-115	M-NR1
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76		45-120	
Surrogate: Tetrachloro-m-xylene	0.330			ug/l	0.500		66		35-115	
LCS Dup Analyzed: 03/24/2005 (5C24055-BSD1)										
alpha-BHC	0.372	0.010	0.0010	ug/l	0.500		74	10	45-115	30
Surrogate: Decachlorobiphenyl	0.427			ug/l	0.500		85		45-120	
Surrogate: Tetrachloro-m-xylene	0.372			ug/l	0.500		74		35-115	

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C23123 Extracted: 03/23/05										
Blank Analyzed: 03/24/2005 (5C23123-BLK1)										
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 03/24/2005 (5C23123-BS1)										
Copper	85.9	2.0	0.49	ug/l	80.0		107 85-115			
Lead	82.1	1.0	0.13	ug/l	80.0		103 85-115			
Matrix Spike Analyzed: 03/24/2005 (5C23123-MS1)										
						Source: IOC1817-01				
Copper	85.0	2.0	0.49	ug/l	80.0	3.9	101 70-130			
Lead	84.0	1.0	0.13	ug/l	80.0	1.6	103 70-130			
Matrix Spike Dup Analyzed: 03/24/2005 (5C23123-MSD1)										
						Source: IOC1817-01				
Copper	86.9	2.0	0.49	ug/l	80.0	3.9	104 70-130	2	20	
Lead	86.4	1.0	0.13	ug/l	80.0	1.6	106 70-130	3	20	
Batch: 5C24056 Extracted: 03/24/05										
Blank Analyzed: 03/24/2005 (5C24056-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 03/24/2005 (5C24056-BS1)										
Mercury	8.04	0.20	0.063	ug/l	8.00		100 85-115			
Matrix Spike Analyzed: 03/24/2005 (5C24056-MS1)										
						Source: IOC1762-01				
Mercury	7.85	0.20	0.063	ug/l	8.00	ND	98 70-130			
Matrix Spike Dup Analyzed: 03/24/2005 (5C24056-MSD1)										
						Source: IOC1762-01				
Mercury	8.07	0.20	0.063	ug/l	8.00	ND	101 70-130	3	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C23092 Extracted: 03/23/05											
Blank Analyzed: 03/23/2005 (5C23092-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 03/23/2005 (5C23092-BS1)											
Surfactants (MBAS)	0.228	0.10	0.044	mg/l	0.250		91	90-110			
Matrix Spike Analyzed: 03/23/2005 (5C23092-MS1)											
Surfactants (MBAS)	0.168	0.10	0.044	mg/l	0.250	ND	67	50-125			
Matrix Spike Dup Analyzed: 03/23/2005 (5C23092-MSD1)											
Surfactants (MBAS)	0.184	0.10	0.044	mg/l	0.250	ND	74	50-125	9	20	
Batch: 5C23106 Extracted: 03/23/05											
Blank Analyzed: 03/23/2005 (5C23106-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/23/2005 (5C23106-BS1)											
Total Dissolved Solids	1040	10	10	mg/l	1000		104	90-110			
Duplicate Analyzed: 03/23/2005 (5C23106-DUP1)											
Total Dissolved Solids	487	10	10	mg/l					1	10	
Batch: 5C23108 Extracted: 03/23/05											
Duplicate Analyzed: 03/23/2005 (5C23108-DUP1)											
Specific Conductance	381	1.0	1.0	umhos/cm					0	5	

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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
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Batch: 5C23116 Extracted: 03/23/05

Blank Analyzed: 03/23/2005 (5C23116-BLK1)

Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.075	mg/l						
Sulfate	ND	0.50	0.18	mg/l						

LCS Analyzed: 03/23/2005 (5C23116-BS1)

Chloride	5.10	0.50	0.26	mg/l	5.00		102		90-110	
Sulfate	10.2	0.50	0.18	mg/l	10.0		102		90-110	

Matrix Spike Analyzed: 03/23/2005 (5C23116-MS1)

					Source: IOC1789-01					
Chloride	39.0	1.0	0.52	mg/l	5.00	34	100		80-120	
Sulfate	45.2	1.0	0.36	mg/l	10.0	35	102		80-120	

Matrix Spike Dup Analyzed: 03/23/2005 (5C23116-MSD1)

					Source: IOC1789-01					
Chloride	38.7	1.0	0.52	mg/l	5.00	34	94		80-120	1 20
Sulfate	44.8	1.0	0.36	mg/l	10.0	35	98		80-120	1 20

Batch: 5C24062 Extracted: 03/24/05

Blank Analyzed: 03/24/2005 (5C24062-BLK1)

Perchlorate	ND	4.0	0.80	ug/l						
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LCS Analyzed: 03/24/2005 (5C24062-BS1)

Perchlorate	49.9	4.0	0.80	ug/l	50.0		100		85-115	
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Matrix Spike Analyzed: 03/24/2005 (5C24062-MS1)

					Source: IOC1870-03					
Perchlorate	90.4	4.0	0.80	ug/l	50.0	40	101		80-120	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C24062 Extracted: 03/24/05											
Matrix Spike Dup Analyzed: 03/24/2005 (5C24062-MSD1)											
Perchlorate	98.1	4.0	0.80	ug/l	50.0	40	116	80-120	8	20	
Source: IOC1870-03											
Batch: 5C24063 Extracted: 03/24/05											
Blank Analyzed: 03/29/2005 (5C24063-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/29/2005 (5C24063-BS1)											
Biochemical Oxygen Demand	206	100	30	mg/l	198		104	85-115			
LCS Dup Analyzed: 03/29/2005 (5C24063-BSD1)											
Biochemical Oxygen Demand	209	100	30	mg/l	198		106	85-115	1	20	
Batch: 5C24085 Extracted: 03/24/05											
Blank Analyzed: 03/24/2005 (5C24085-BLK1)											
Turbidity	ND	1.0	0.040	NTU							
Duplicate Analyzed: 03/24/2005 (5C24085-DUP1)											
Turbidity	5.70	1.0	0.040	NTU		5.6			2	20	
Source: IOC1762-01											
Batch: 5C24086 Extracted: 03/24/05											
Blank Analyzed: 03/24/2005 (5C24086-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C24086 Extracted: 03/24/05											
LCS Analyzed: 03/24/2005 (5C24086-BS1)											
Total Suspended Solids	967	10	10	mg/l	1000		97	85-115			
Duplicate Analyzed: 03/24/2005 (5C24086-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1873-01 ND				10	
Batch: 5C24087 Extracted: 03/24/05											
Blank Analyzed: 03/24/2005 (5C24087-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/24/2005 (5C24087-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/24/2005 (5C24087-MS1)											
Ammonia-N (Distilled)	10.4	0.50	0.30	mg/l	10.0	Source: IOC1837-01 0.84	96	70-120			
Matrix Spike Dup Analyzed: 03/24/2005 (5C24087-MSD1)											
Ammonia-N (Distilled)	10.6	0.50	0.30	mg/l	10.0	Source: IOC1837-01 0.84	98	70-120	2	15	
Batch: 5C24111 Extracted: 03/24/05											
Blank Analyzed: 03/24/2005 (5C24111-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							
LCS Analyzed: 03/24/2005 (5C24111-BS1)											
Total Cyanide	199	5.0	2.2	ug/l	200		100	90-110			

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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: 5C24111 Extracted: 03/24/05										
Matrix Spike Analyzed: 03/24/2005 (5C24111-MS1)										
Total Cyanide	54.9	5.0	2.2	ug/l	200	ND	27	70-115		M2
Matrix Spike Dup Analyzed: 03/24/2005 (5C24111-MSD1)										
Total Cyanide	64.0	5.0	2.2	ug/l	200	ND	32	70-115	15	15
Batch: 5C25043 Extracted: 03/25/05										
Blank Analyzed: 03/25/2005 (5C25043-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 03/25/2005 (5C25043-BS1)										
Oil & Grease	15.5	5.0	0.94	mg/l	20.0		78	65-120		M-NR1
LCS Dup Analyzed: 03/25/2005 (5C25043-BSD1)										
Oil & Grease	15.8	5.0	0.94	mg/l	20.0		79	65-120	2	20

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DATA QUALIFIERS AND DEFINITIONS

- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- 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.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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Certification Summary

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Method	Matrix	Nelac	California
EPA 120.1	Water	X	X
EPA 160.1	Water	X	X
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 425.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X

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

Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC1819-01

Analysis Performed: EDD + Level 4

Samples: IOC1819-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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

498 IO(1819

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Routine Outfall 018 R-2 Spillway		Phone Number: (626) 568-6691 Fax Number: (626) 568-6515	
Project Manager: Bronwyn Kelly Sampler: <i>Paloch</i>		Sample Matrix W		Container Type Poly-1L	
Sample Description Outfall 018		# of Cont. 1		Sampling Date/Time 3-23-05 10:51	
Outfall 018-Dup		Poly-1L		Preservative HNO3	
Outfall 018		Poly-1L		HNO3	
Outfall 018		Poly-1L		None	
Outfall 018		VOAs		HCl	
Outfall 018		1L Amber		None	
Outfall 018		1L Amber		None	
Outfall 018		Poly-500 ml		HCl	
Outfall 018		Poly-1L		NaOH	
Outfall 018		Poly-500 ml		None	
Outfall 018		Poly-500 ml		None	
Outfall 018		Poly-500 ml		None	
Outfall 018		Poly-500 ml		None	
Outfall 018		Poly-500 ml		None	
Outfall 018		Poly-500 ml		H2SO4	
Outfall 018		1L Amber		None	
Outfall 018		1L Amber		None	
Trip Blank		VOAs		HCl	
Relinquished By <i>[Signature]</i>		Date/Time 3-23-05 5:35		Received By <i>[Signature]</i>	
Relinquished By <i>[Signature]</i>		Date/Time 3/23/05 1836		Received By <i>[Signature]</i>	
Relinquished By <i>[Signature]</i>		Date/Time 3/23/05		Received By <i>[Signature]</i>	

ANALYSIS REQUIRED

Total Recoverable Metals: Cu, Pb, Hg, X	Settleable Solids	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	BOD5(20 degrees C)	Surfactants (MBAS)	Cl-, SO4, NO3+NO2-N	Perrchlorate	Turbidity, TDS, TSS, Conductivity	Ammonia-N	2,4,6 Trichlorophenol, 2,4 Dinitrofluorene, Bis(2-ethylhexyloxy)phthalate, NDMA	perrchlorophenol (EPA 625)	Field readings: Temp = 58.1 pH = 6.8
X	X	X	X	X	X	X	X	X	X	X	X	X	Comments

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Perrchlorate Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample Integrity: (Check) Intact On Ice: 4°C



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (658) 505-8596 FAX (658) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

April 4, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 018
Sampled: 03/23/05
Del Mar Analytical Number: IOC1819

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 018	IOC1819-01	25956-001

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 28, 2005

Alta Project I.D.: 25956

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on March 25, 2005 under your Project Name "IOC1819". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

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

Section I: Sample Inventory Report

Date Received: 3/25/2005

Alta Lab ID

Client Sample ID

25956-001

IOC1819-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6631	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	25-Mar-05	Date Analyzed DB-5:	27-Mar-05			
Date Analyzed DB-225:	NA							
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.79			IS 13C-2,3,7,8-TCDD	74.3	25 - 164	
1,2,3,7,8-PeCDD	ND	1.50			13C-1,2,3,7,8-PeCDD	69.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.62			13C-1,2,3,4,7,8-HxCDD	77.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.73			13C-1,2,3,6,7,8-HxCDD	83.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.67			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.65			13C-OCDD	51.2	17 - 157	
OCDD	ND	5.70			13C-2,3,7,8-TCDF	74.8	24 - 169	
2,3,7,8-TCDF	ND	1.57			13C-1,2,3,7,8-PeCDF	69.0	24 - 185	
1,2,3,7,8-PeCDF	ND	2.33			13C-2,3,4,7,8-PeCDF	69.7	21 - 178	
2,3,4,7,8-PeCDF	ND	2.07			13C-1,2,3,4,7,8-HxCDF	77.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.597			13C-1,2,3,6,7,8-HxCDF	87.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.599			13C-2,3,4,6,7,8-HxCDF	84.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.670			13C-1,2,3,7,8,9-HxCDF	78.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.10			13C-1,2,3,4,6,7,8-HpCDF	74.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.23			13C-1,2,3,4,7,8,9-HpCDF	82.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.45			13C-OCDF	61.7	17 - 157	
OCDF	ND	4.20			CRS 37Cl-2,3,7,8-TCDD	77.8	35 - 197	
Totals					Footnotes			
Total TCDD	ND	1.79			a. Sample specific estimated detection limit.			
Total PeCDD	ND	1.51			b. Estimated maximum possible concentration.			
Total HxCDD	ND	2.68			c. Method detection limit.			
Total HpCDD	ND	1.65			d. Lower control limit - upper control limit.			
Total TCDF	ND	1.57						
Total PeCDF	ND	2.20						
Total HxCDF	ND	0.716						
Total HpCDF	ND	1.33						

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:16



EPA Method 1613

OPR Results

Matrix: Aqueous		QC Batch No.: 6631	Lab Sample: 0-OPR001		
Sample Size: 1.000 L		Date Extracted: 25-Mar-05	Date Analyzed DB-5: 27-Mar-05		
			Date Analyzed DB-225: NA		
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard		
			%R		
			LCL-UCL		
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	84.3	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	83.7	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	95.9	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	105	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	91.6	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	62.5	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	82.5	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	79.8	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	79.8	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	95.8	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	110	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	106	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	98.9	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	94.9	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	104	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	76.9	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.9	35 - 197

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:16



Sample ID: **IOC1819-01**

EPA Method 1613

Client Data		Laboratory Data	
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25956-001	Date Received: 25-Mar-05
Project: IOC1819	Sample Size: 0.984 L	QC Batch No.: 6631	Date Extracted: 25-Mar-05
Date Collected: 23-Mar-05		Date Analyzed DB-5: 27-Mar-05	Date Analyzed DB-225: NA
Time Collected: 1051			

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.90			13C-2,3,7,8-TCDD	61.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.56			13C-1,2,3,7,8-PeCDD	53.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	5.56			13C-1,2,3,4,7,8-HxCDD	57.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	5.65			13C-1,2,3,6,7,8-HxCDD	62.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	5.59			13C-1,2,3,4,6,7,8-HpCDD	54.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	73.6				13C-OCDD	40.1	17 - 157	
OCDD	935							
2,3,7,8-TCDF	ND	2.59			13C-2,3,7,8-TCDF	63.0	24 - 169	
1,2,3,7,8-PeCDF	ND	4.36			13C-1,2,3,7,8-PeCDF	53.5	24 - 185	
2,3,4,7,8-PeCDF	ND	4.12			13C-2,3,4,7,8-PeCDF	54.1	21 - 178	
1,2,3,4,7,8-HxCDF	ND	1.25			13C-1,2,3,4,7,8-HxCDF	59.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND	1.13			13C-1,2,3,6,7,8-HxCDF	66.7	26 - 123	
2,3,4,6,7,8-HxCDF	ND	1.43			13C-2,3,4,6,7,8-HxCDF	61.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	2.25			13C-1,2,3,7,8,9-HxCDF	60.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	10.6			J	13C-1,2,3,4,6,7,8-HpCDF	56.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	1.43			13C-1,2,3,4,7,8,9-HpCDF	59.8	26 - 138	
OCDF	23.4			J	13C-OCDF	48.9	17 - 157	
Totals					CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197	

Footnotes	
Total TCDD	1.90
Total PeCDD	1.56
Total HxCDD	18.2
Total HpCDD	156
Total TCDF	5.32
Total PeCDF	1.29
Total HxCDF	13.8
Total HpCDF	26.4

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

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:16

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

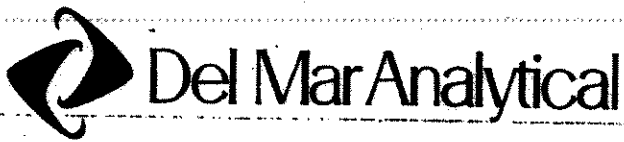
Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

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

CURRENT CERTIFICATIONS



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



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9396 Fax (619) 505-9689
 5830 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 # IOC1819

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical, Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Harper	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940

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

Analysis	Expiration	Sampled:	Comments
Sample ID: IOC1819-01 Water		03/23/05 10:51	Instant Notification
1613-Dioxin-HR	03/30/05 10:51		J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/20/05 10:51		Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:			
1 L Amber (IOC1819-01G)			
1 L Amber (IOC1819-01H)			

25956 A2°

SAMPLE INTEGRITY:

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

Released By: [Signature] Date: 3-24-05 Time: 1700 Received By: [Signature] Date: 3/25/05 Time: 0900

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25950

1. Date Samples Arrived: <u>3/25/05 0900</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/25/05 1000</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> / <u>Blue Ice</u> / Dry Ice / None Temp °C <u>4.2°</u>			
	YES	NO	NA
5. Shipping Container(s) Intact? If not, describe condition in comment section.	✓	/	
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓	/	
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 8006 9252</u>	✓		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. _____ Intact? If not intact, describe condition in comment section.		✓	✓
9. Sample Container Intact? If no, indicate sample condition in comment section.	✓	/	
10. Chain of Custody (COC) or other Sample Documentation Present?	✓	/	
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	✓		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		✓	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓

Comments:

initials of sampler on bottles

ALTA Analytical Laboratory
El Dorado Hills, CA 95762

APPENDIX G

Section 40

Ambient Stormwater

January 7, February 11, 18, March 4, and 23, 2005

AMEC Data Validation Reports

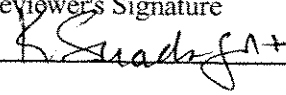
Del Mar Analytical Laboratory Report

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF39
 Task Order 313150010
 SDG No. IOA0364
 No. of Analyses 1

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: February 11, 2005
 Reviewer's Signature


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

Data Qualifier Reference Table

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

Qualification Code Reference Table

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

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOA0364

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 #: IOA0364
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: February 11, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Pace)	Matrix	COC Method
AMB	IOA0364-01	105965001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The sample in this SDG was received at Pace Analytical Services below the temperature limits of 4°C ±2°C; however, as the sample was noted to have been damaged, no qualifications were required. The sample was received in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

2.4 BLANKS

One method blank (Blank-6202) was extracted and analyzed with this SDG. Target compounds 1,2,3,4,6,7,8-HpCDD, total HpCDD, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations $< 5x$ the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the sample of this SDG. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One LCS/LCSD pair (LCS-6203/LCSD-6204) was extracted and analyzed with this SDG. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There were no QC limits established for RPDs. The reported RPDs were within $\pm 20\%$. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

No field duplicate samples were identified for this SDG.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	I0A0364-01	AMEC		
Lab Sample ID	105965001			
Filename	F50127B_06			
Injected By	MRO			
Total Amount Extracted	1010 mL		Matrix	Water
% Moisture	NA		Dilution	NA
Dry Weight Extracted	NA		Collected	01/07/2005
ICAL Date	11/29/2004		Received	01/11/2005
CCal Filename(s)	F50127A_13		Extracted	01/24/2005
Method Blank ID	BLANK-6202		Analyzed	01/28/2005 01:08

Qual	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
U	2,3,7,8-TCDF	ND	----	3.4	2,3,7,8-TCDF-13C	2.00	49
U	Total TCDF	ND	----	3.4	2,3,7,8-TCDD-13C	2.00	62
					1,2,3,7,8-PeCDF-13C	2.00	82
U	2,3,7,8-TCDD	ND	----	3.5	2,3,4,7,8-PeCDF-13C	2.00	79
U	Total TCDD	ND	----	3.5	1,2,3,7,8-PeCDD-13C	2.00	91
					1,2,3,4,7,8-HxCDF-13C	2.00	74
U	1,2,3,7,8-PeCDF	ND	----	1.8	1,2,3,6,7,8-HxCDF-13C	2.00	101
U	2,3,4,7,8-PeCDF	ND	----	2.0	2,3,4,6,7,8-HxCDF-13C	2.00	95
U	Total PeCDF	ND	----	1.9	1,2,3,7,8,9-HxCDF-13C	2.00	83
					1,2,3,4,7,8-HxCDD-13C	2.00	71
U	1,2,3,7,8-PeCDD	ND	----	2.9	1,2,3,6,7,8-HxCDD-13C	2.00	96
U	Total PeCDD	ND	----	2.9	1,2,3,4,6,7,8-HpCDF-13C	2.00	83
					1,2,3,4,7,8,9-HpCDF-13C	2.00	78
U	1,2,3,4,7,8-HxCDF	ND	----	1.6	1,2,3,4,6,7,8-HpCDD-13C	2.00	100
U	1,2,3,6,7,8-HxCDF	ND	----	1.5	OCDD-13C	4.00	97
U	2,3,4,6,7,8-HxCDF	ND	----	1.2			
U	1,2,3,7,8,9-HxCDF	ND	----	2.1	1,2,3,4-TCDD-13C	2.00	NA
U	Total HxCDF	ND	----	1.6	1,2,3,7,8,9-HxCDD-13C	2.00	NA
U	1,2,3,4,7,8-HxCDD	ND	----	1.9	2,3,7,8-TCDD-37Cl4	0.20	58
U	1,2,3,6,7,8-HxCDD	ND	----	1.6			
J	1,2,3,7,8,9-HxCDD	ND	----	1.6			
J	Total HxCDD	2.4	----	1.7 J			
J	1,2,3,4,6,7,8-HpCDF	5.5	----	1.8 J			
J	1,2,3,4,7,8,9-HpCDF	ND	----	2.4			
J	Total HpCDF	15.0	----	2.1 J			
J	1,2,3,4,6,7,8-HpCDD	9.2	----	1.8 BJ			
J	Total HpCDD	20.0	----	1.8 J			
U	OCDF	11.0	----	2.8 BJ			
U	OCDD	45.0	----	3.3 BJ			

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

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

Report No.....105965

AMEC VALIDATED

REPORT OF LABORATORY ANALYSIS

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LABORATORY REPORT

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

Project: Ambient Stormwater

Sampled: 01/07/05
Received: 01/07/05
Issued: 03/16/05 16:01

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

IOA0364-01

CLIENT ID

AMB

MATRIX

Water

Reviewed By:

Del Mar Analytical, Irvine

Michele Harper

Project Manager



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

Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05

Received: 01/07/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0364-01 (AMB - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5A08036	0.18	2.0	ND	1	01/08/05	01/10/05	
Cadmium	EPA 200.8	5A08036	0.015	1.0	0.043	1	01/08/05	01/10/05	J
Copper	EPA 200.8	5A08036	0.49	2.0	1.0	1	01/08/05	01/10/05	J
Lead	EPA 200.8	5A08036	0.13	1.0	0.49	1	01/08/05	01/10/05	J
Mercury	EPA 245.1	5A10047	0.063	0.20	0.11	1	01/10/05	01/10/05	J

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05
Received: 01/07/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0364-01 (AMB - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5A07045	0.26	0.50	0.33	1	01/07/05	01/07/05	J
Nitrate/Nitrite-N	EPA 300.0	5A07045	0.072	0.26	0.33	1	01/07/05	01/07/05	
Oil & Grease	EPA 413.1	5A10052	0.94	5.0	ND	1	01/10/05	01/10/05	
Sulfate	EPA 300.0	5A07045	0.18	0.50	0.46	1	01/07/05	01/07/05	J
Total Dissolved Solids	SM2540C	5A11087	10	10	ND	1	01/11/05	01/11/05	

Del Mar Analytical, Irvine
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300 North Lake Avenue, Suite 1200
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Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05
Received: 01/07/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: AMB (IOA0364-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	01/07/2005 10:20	01/07/2005 15:15	01/07/2005 18:00	01/07/2005 18:16

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

Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05

Received: 01/07/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5A08036 Extracted: 01/08/05										
Blank Analyzed: 01/10/2005 (5A08036-BLK1)										
Antimony	0.706	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: 01/10/2005 (5A08036-BS1)										
Antimony	72.3	2.0	0.18	ug/l	80.0		90	85-115		
Cadmium	75.7	1.0	0.015	ug/l	80.0		95	85-115		
Copper	70.6	2.0	0.49	ug/l	80.0		88	85-115		
Lead	79.4	1.0	0.13	ug/l	80.0		99	85-115		
Matrix Spike Analyzed: 01/10/2005 (5A08036-MS1) Source: IOA0289-01										
Antimony	68.3	2.0	0.18	ug/l	80.0	0.63	85	70-130		
Cadmium	65.9	1.0	0.015	ug/l	80.0	0.020	82	70-130		
Copper	61.4	2.0	0.49	ug/l	80.0	3.8	72	70-130		
Lead	66.4	1.0	0.13	ug/l	80.0	0.16	83	70-130		
Matrix Spike Dup Analyzed: 01/10/2005 (5A08036-MSD1) Source: IOA0289-01										
Antimony	79.2	2.0	0.18	ug/l	80.0	0.63	98	70-130	15	20
Cadmium	74.9	1.0	0.015	ug/l	80.0	0.020	94	70-130	13	20
Copper	69.1	2.0	0.49	ug/l	80.0	3.8	82	70-130	12	20
Lead	75.4	1.0	0.13	ug/l	80.0	0.16	94	70-130	13	20
Batch: 5A10047 Extracted: 01/10/05										
Blank Analyzed: 01/10/2005 (5A10047-BLK1)										
Mercury	ND	0.20	0.063	ug/l						

Del Mar Analytical, Irvine
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 Project Manager



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Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05

Received: 01/07/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5A10047 Extracted: 01/10/05											
LCS Analyzed: 01/10/2005 (5A10047-BS1)											
Mercury	8.02	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 01/10/2005 (5A10047-MS1)											
						Source: IOA0364-01					
Mercury	7.74	0.20	0.063	ug/l	8.00	0.11	95	70-130			
Matrix Spike Dup Analyzed: 01/10/2005 (5A10047-MSD1)											
						Source: IOA0364-01					
Mercury	7.88	0.20	0.063	ug/l	8.00	0.11	97	70-130	2	20	

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Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05

Received: 01/07/05

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: 5A07045 Extracted: 01/07/05											
Blank Analyzed: 01/07/2005 (5A07045-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: 01/07/2005 (5A07045-BS1)											
Chloride	5.06	0.50	0.26	mg/l	5.00		101	90-110			
Sulfate	10.6	0.50	0.18	mg/l	10.0		106	90-110			
Matrix Spike Analyzed: 01/07/2005 (5A07045-MS1) Source: IOA0273-01											
Chloride	9.51	0.50	0.26	mg/l	5.00	4.4	102	80-120			
Sulfate	43.7	0.50	0.18	mg/l	10.0	33	107	80-120			
Matrix Spike Dup Analyzed: 01/07/2005 (5A07045-MSD1) Source: IOA0273-01											
Chloride	9.40	0.50	0.26	mg/l	5.00	4.4	100	80-120	1	20	
Sulfate	43.3	0.50	0.18	mg/l	10.0	33	103	80-120	1	20	
Batch: 5A10052 Extracted: 01/10/05											
Blank Analyzed: 01/10/2005 (5A10052-BLK1)											
Oil & Grease	1.20	5.0	0.94	mg/l							J
LCS Analyzed: 01/10/2005 (5A10052-BS1) M-NRI											
Oil & Grease	17.5	5.0	0.94	mg/l	20.0		88	65-120			
LCS Dup Analyzed: 01/10/2005 (5A10052-BSD1)											
Oil & Grease	20.2	5.0	0.94	mg/l	20.0		101	65-120	14	20	

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

Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05

Received: 01/07/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5A11087 Extracted: 01/11/05											
Blank Analyzed: 01/11/2005 (5A11087-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 01/11/2005 (5A11087-BS1)											
Total Dissolved Solids	978	10	10	mg/l	1000		98	90-110			
Duplicate Analyzed: 01/11/2005 (5A11087-DUP1)											
Total Dissolved Solids	ND	10	10	mg/l		Source: IOA0364-01				10	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

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Sampled: 01/07/05
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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-NRI** 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
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Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOA0364

Sampled: 01/07/05

Received: 01/07/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
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

Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR

Samples: IOA0364-01

Analysis Performed: EDD + Level 4

Samples: IOA0364-01

Del Mar Analytical, Irvine

Michele Harper

Project Manager

WORK 320

10A0364

CHAIN OF CUSTODY FORM

Version 5 8/12/04

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

Del Mar Contact: Michele Harper
Project Manager: Bronwyn Kelly
Sampler: Pollock

Project:
 Boeing-SSFL NPDES
 Ambient Stormwater Sample

Phone Number: (626) 568-6691
Fax Number: (626) 568-6515

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #
AMB	W	Poly-1L	1	1-7-04 10:24	HNO3	1A
AMB Dup	W	Poly-1L	1		HNO3	1B
AMB	W	Glass- Amber	2		None	2A, 2B
AMB	W	Glass- Amber	2		HCl	3A, 3B
AMB	W	Poly-500 ml	2		None	4A, 4B
AMB	W	Poly-500 ml	2		None	5A, 5B

ANALYSIS REQUIRED

Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	X
TCDD (and all congeners)	X
Oil & Grease (EPA 413.1)	X
Cr, SO4, NO3+NO2-N	X
TDS	X

Field readings:
 Temp = 45.0 F
 pH = 5.7

Comments:
 2 - 1L Amber HCL
 3 - 500ML Unpre.
 2 - 1L Amber Unpre.
 2 - 1L Poly

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Perchlorate Only 72 Hours _____
 Metals Only 72 Hours _____

Sample integrity: (Check)
 Intact _____ On ice 25°C

Relinquished By: [Signature] Date/Time: 1-7-05 1030
Received By: [Signature] Date/Time: 1/7/05 1030

Relinquished By: [Signature] Date/Time: 1/7/05 1515
Received By: [Signature] Date/Time: 1-7-05 15:15

February 3, 2005

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

Attention: Bronwyn Kelly

Project: Ambient Stormwater
Sampled: 01/07/05
Del Mar Analytical Number: IOA0364


Dear Ms. Kelly:

Pace Analytical performed Method 1613B analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Pace ID
Ambient Stormwater	IOA0364-01	105965001

Attached is the original report from the subcontract laboratory. If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager

Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	I0A0364-01	Matrix	Water
Lab Sample ID	105965001	Dilution	NA
Filename	F50127B_06	Collected	01/07/2005
Injected By	MRO	Received	01/11/2005
Total Amount Extracted	1010 mL	Extracted	01/24/2005
% Moisture	NA	Analyzed	01/28/2005 01:08
Dry Weight Extracted	NA		
ICAL Date	11/29/2004		
CCal Filename(s)	F50127A_13		
Method Blank ID	BLANK-6202		

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	3.4	2,3,7,8-TCDF-13C	2.00	49
Total TCDF	ND	----	3.4	2,3,7,8-TCDD-13C	2.00	62
				1,2,3,7,8-PeCDF-13C	2.00	82
2,3,7,8-TCDD	ND	----	3.5	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	ND	----	3.5	1,2,3,7,8-PeCDD-13C	2.00	91
				1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	ND	----	1.8	1,2,3,6,7,8-HxCDF-13C	2.00	101
2,3,4,7,8-PeCDF	ND	----	2.0	2,3,4,6,7,8-HxCDF-13C	2.00	95
Total PeCDF	ND	----	1.9	1,2,3,7,8,9-HxCDF-13C	2.00	83
				1,2,3,4,7,8-HxCDD-13C	2.00	71
1,2,3,7,8-PeCDD	ND	----	2.9	1,2,3,6,7,8-HxCDD-13C	2.00	96
Total PeCDD	ND	----	2.9	1,2,3,4,6,7,8-HpCDF-13C	2.00	83
				1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	ND	----	1.6	1,2,3,4,6,7,8-HpCDD-13C	2.00	100
1,2,3,6,7,8-HxCDF	ND	----	1.5	OCDD-13C	4.00	97
2,3,4,6,7,8-HxCDF	ND	----	1.2			
1,2,3,7,8,9-HxCDF	ND	----	2.1	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	1.6	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.9	2,3,7,8-TCDD-37Cl4	0.20	58
1,2,3,6,7,8-HxCDD	ND	----	1.6			
1,2,3,7,8,9-HxCDD	ND	----	1.6			
Total HxCDD	2.4	----	1.7 J			
1,2,3,4,6,7,8-HpCDF	5.5	----	1.8 J			
1,2,3,4,7,8,9-HpCDF	ND	----	2.4			
Total HpCDF	15.0	----	2.1 J			
1,2,3,4,6,7,8-HpCDD	9.2	----	1.8 BJ			
Total HpCDD	20.0	----	1.8 J			
OCDF	11.0	----	2.8 BJ			
OCDD	45.0	----	3.3 BJ			

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

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

Report No.....105965

REPORT OF LABORATORY ANALYSIS

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Method 1613B Blank Analysis Results

Client - Del Mar Analytical

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

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

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

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

Report No.....105645

REPORT OF LABORATORY ANALYSIS

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Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

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

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

Cs = Concentration Spiked (ng/mL)

Cr = Concentration Recovered (ng/mL)

Rec. = Recovery (Expressed as Percent)

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

X = Background subtracted value

P = Recovery outside of control limits

Nn = Value obtained from additional analysis

* = See Discussion

Report No.....105645

REPORT OF LABORATORY ANALYSIS

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Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

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

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

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

Report No.....105645

REPORT OF LABORATORY ANALYSIS

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SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6203
SPIKE 1 Filename..... F50127A_03
SPIKE 2 ID..... LCSD-6204
SPIKE 2 Filename..... F50127A_04

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

REC = Percent Recovered

RPD = The difference between the two values divided by the average.

NA = Not Applicable

Report No..... 105645

REPORT OF LABORATORY ANALYSIS

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

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

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

Reference: 1989 ITEFs

REPORT OF LABORATORY ANALYSIS

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17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Cotton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOA0364

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;">105965</div>

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

Analysis	Expiration	Comments
Sample ID: IOA0364-01 Water	Sampled: 01/07/05 10:20	
1613-Dioxin-HR	01/14/05 10:20	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	02/04/05 10:20	Excel EDD email to pm, Include Std logs for Lvl IV

Containers Supplied:
 1 L Amber (IOA0364-01C)
 1 L Amber (IOA0364-01D)

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):	33°C

	1-10-05	1700		1-11-05	09:20
Released By	Date	Time	Received By	Date	Time



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: IOB1006, IOB1011, & IOB1012

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#: IOB1006/1011/1012
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: L. Jarusewic
Date of Review: March 22, 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
Ambient	Ambient	IOB1012-01	Water	ILM04
HC-1	HC-1	IOB1011-01	Water	ILM04
RP-1	RP-1	IOB1006-01	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 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. Antimony was not recovered in the ICP/MS 0.2 µg/L reporting limit check standard associated with HC-1; therefore, antimony detected in sample HC-1 was qualified as estimated, "UJ," (see section 2.4). Antimony was not recovered for the ICP/MS 0.2 µg/L reporting limit check standard and below the control limits in the 1.0 and 2.0 µg/L reporting limit check standards associated with sample Ambient at 22.1% and 66.4%, respectively; therefore, nondetected antimony was qualified as estimated, "UJ." Silver and thallium were not recovered in the ICP/MS 0.1 µg/L reporting limit check

standard; therefore, nondetected silver and thallium in sample Ambient were 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.

The low reporting limit check standard recoveries indicated the laboratory could not detect antimony at the level reported on the summary results form for sample Ambient. The reviewer, therefore, raised the MDL for antimony to the reporting limit, 2.0 µg/L and raised the nondetected result for sample Ambient to the same level. No further qualifications were required due to reporting limit check standards.

2.4 BLANKS

There were detects and negative results reported for the method blanks and bracketing CCBs associated with the samples in these SDGs. Boron was detected in the ICP method blank (5B16093-BLK1) at 0.0430 mg/L; therefore, detected boron in samples RP-1 and HC-1 was qualified as estimated, "UJ." Antimony was detected in bracketing CCBs for the ICP/MS runs at 0.80 and 0.65 µg/L; therefore, detected antimony in samples RP-1 and HC-1 was qualified as estimated, "UJ." Arsenic was detected in a bracketing ICP CCB at 0.0040 mg/L; therefore, arsenic detected in sample RP-1 was qualified as estimated, "UJ." Nickel was reported in a bracketing ICP CCB at -0.0025 mg/L; therefore, nickel detected in sample RP-1 was qualified as estimated, "J." No further 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 the ICSA/AB analyses associated with samples RP-1 and HC-1. The results for aluminum exceeded the calibration range of the instrument for ICSA/AB analyses associated with RP-1 and HC-1 and were low with a recovery of 77.1% for sample Ambient in the ICSA analyses. The results for aluminum were low with recoveries of 78.3% for samples RP-1 and HC-1 and were recovered within control limits for sample Ambient in the ICSAB analyses. Selenium, antimony, lead, and thallium were not spiked into the ICSAB solution for all samples; therefore, the ICSAB recoveries could not be assessed at validation. Silver was recovered below the control limits in the ICSAB analyses at 70.9% and 75.5%; therefore, nondetected silver in samples RP-1 and Ambient was qualified as estimated, "UJ," and detected silver in sample HC-1 was qualified as estimated, "J." The validator reviewed the raw data for the site samples 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.

The recoveries for the interferents and spiked analytes were within the control limits of 80-120% for the ICP analyses. Detects for arsenic and 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 affects. No further sample qualifications were required due to the ICP ICS analysis.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS samples were identified as 5B16093-BS1 and 5B15046-BS1. The ICP/MS LCS samples were identified as 5B16085-BS1, 5B18058-BS1, and 5B15069-BS1. The mercury LCS sample was identified as 5B15070-BS1. The ICP/MS LCS result for antimony in LCS 5B18058-BS1 was above the control limits at 123%; however, as antimony was not detected in associated sample RP-1, no qualifications were required (see section 2.4). The remaining 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 assessed based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS 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." 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.

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

Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1012

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
										REV QUAL QUA COD
Sample ID: IOB1012-01 (Ambient - Water)										
Reporting Units: mg/l										
Barium	EPA 200.7	5B15046	0.0028	0.010	ND	1	02/15/05	02/15/05	u	
Boron	EPA 200.7	5B15046	0.0074	0.050	ND	1	02/15/05	02/15/05		
Cobalt	EPA 200.7	5B15046	0.00089	0.010	ND	1	02/15/05	02/15/05		
Iron	EPA 200.7	5B15046	0.0088	0.040	ND	1	02/15/05	02/15/05		
Manganese	EPA 200.7	5B15046	0.0032	0.020	ND	1	02/15/05	02/15/05		
Vanadium	EPA 200.7	5B15046	0.0014	0.010	ND	1	02/15/05	02/15/05		
Sample ID: IOB1012-01 (Ambient - Water)										
Reporting Units: ug/l										
Antimony	EPA 200.8	5B15069	0.18 2.0	2.0	ND	1	02/15/05	02/16/05	UJ	*3,\$
Arsenic	EPA 200.7	5B15046	3.8	5.0	ND	1	02/15/05	02/15/05	u	
Beryllium	EPA 200.7	5B15046	0.62	2.0	ND	1	02/15/05	02/15/05		
Cadmium	EPA 200.8	5B15069	0.015	1.0	ND	1	02/15/05	02/16/05		
Chromium	EPA 200.7	5B15046	0.68	5.0	0.70	1	02/15/05	02/15/05	J	DNR
Copper	EPA 200.8	5B15069	0.49	2.0	ND	1	02/15/05	02/16/05	u	
Lead	EPA 200.8	5B15069	0.13	1.0	ND	1	02/15/05	02/16/05		
Mercury	EPA 245.1	5B15070	0.063	0.20	0.12	1	02/15/05	02/15/05	J	DNR
Nickel	EPA 200.7	5B15046	2.0	10	ND	1	02/15/05	02/15/05	u	
Selenium	EPA 200.8	5B15069	0.36	2.0	ND	1	02/15/05	02/16/05		
Silver	EPA 200.8	5B15069	0.089	1.0	ND	1	02/15/05	02/16/05	UJ	*3,I
Thallium	EPA 200.8	5B15069	0.075	1.0	ND	1	02/15/05	02/16/05	UJ	*3
Zinc	EPA 200.7	5B15046	3.7	20	ND	1	02/15/05	02/15/05	u	

3/23/05
 JJ

AMEC VALIDATED
LEVEL IV

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

Data Qualifier Reference Table

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

Qualification Code Reference Table

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

*#

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOB1006, IOB1011, & IOB1012

Prepared by

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

I. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOB1006, IOB1011, IOB1012
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 3
Reviewer: L. Jarusewic
Date of Review: March 18, 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 150.1, 160.2 and 160.5*, 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
RP-1	RP-1	IOB1006-01	Water	General Minerals
HC-1	HC-1	IOB1011-01	Water	General Minerals
Ambient	Ambient	IOB1012-01	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 presented 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 seven-day holding time for total suspended solids, the 48-hour holding time for total settleable solids and the 24-hour holding time for pH were met. No qualifications were required.

2.2 CALIBRATION

For the pH analyses, three buffers were analyzed prior to the analysis of the samples and a 7.0 pH buffer was analyzed every 10 samples. These results were considered acceptable. Calibration is not applicable to total suspended solids or total settleable solids. No qualifications were required.

2.3 BLANKS

The 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 total suspended solids laboratory control sample was within the laboratory-established control limits. The LCS is not applicable to total settleable solids or pH. 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. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with these SDGs.



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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3629 FAX (702) 798-3629

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

Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1012

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: IOB1012-01 (Ambient - Water) - cont. Reporting Units: mg/l									
Total Suspended Solids	EPA 160.2	5B16140	10	10	ND	1	02/16/05	02/16/05	U
Sample ID: IOB1012-01 (Ambient - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5B12034	0.10	0.10	ND	1	02/12/05	02/12/05	U

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LEVEL IV

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.





LABORATORY REPORT

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

Project: Ambient Stormwater
Ambient

Sampled: 02/11/05
Received: 02/11/05
Issued: 02/18/05 17:18

NELAP #01108CA California #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

IOB1012-01

CLIENT ID

Ambient

MATRIX

Water

Reviewed By:

Del Mar Analytical, Irvine

Michele Harper

Project Manager

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

Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1012

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: IOB1012-01 (Ambient - Water)									
Reporting Units: mg/l									
Barium	EPA 200.7	5B15046	0.0028	0.010	ND	1	02/15/05	02/15/05	
Boron	EPA 200.7	5B15046	0.0074	0.050	ND	1	02/15/05	02/15/05	
Cobalt	EPA 200.7	5B15046	0.00089	0.010	ND	1	02/15/05	02/15/05	
Iron	EPA 200.7	5B15046	0.0088	0.040	ND	1	02/15/05	02/15/05	
Manganese	EPA 200.7	5B15046	0.0032	0.020	ND	1	02/15/05	02/15/05	
Vanadium	EPA 200.7	5B15046	0.0014	0.010	ND	1	02/15/05	02/15/05	
Sample ID: IOB1012-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B15069	0.18	2.0	ND	1	02/15/05	02/16/05	
Arsenic	EPA 200.7	5B15046	3.8	5.0	ND	1	02/15/05	02/15/05	
Beryllium	EPA 200.7	5B15046	0.62	2.0	ND	1	02/15/05	02/15/05	
Cadmium	EPA 200.8	5B15069	0.015	1.0	ND	1	02/15/05	02/16/05	
Chromium	EPA 200.7	5B15046	0.68	5.0	0.70	1	02/15/05	02/15/05	J
Copper	EPA 200.8	5B15069	0.49	2.0	ND	1	02/15/05	02/16/05	
Lead	EPA 200.8	5B15069	0.13	1.0	ND	1	02/15/05	02/16/05	
Mercury	EPA 245.1	5B15070	0.063	0.20	0.12	1	02/15/05	02/15/05	J
Nickel	EPA 200.7	5B15046	2.0	10	ND	1	02/15/05	02/15/05	
Selenium	EPA 200.8	5B15069	0.36	2.0	ND	1	02/15/05	02/16/05	
Silver	EPA 200.8	5B15069	0.089	1.0	ND	1	02/15/05	02/16/05	
Thallium	EPA 200.8	5B15069	0.075	1.0	ND	1	02/15/05	02/16/05	
Zinc	EPA 200.7	5B15046	3.7	20	ND	1	02/15/05	02/15/05	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1012

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: IOB1012-01 (Ambient - Water) - cont.									
Reporting Units: mg/l									
Total Suspended Solids	EPA 160.2	5B16140	10	10	ND	1	02/16/05	02/16/05	
Sample ID: IOB1012-01 (Ambient - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5B12034	0.10	0.10	ND	1	02/12/05	02/12/05	

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Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1012

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

SHORT HOLD TIME DETAIL REPORT

Sample ID: Ambient (IOB1012-01) - Water EPA 160.5	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/11/2005 16:02	02/11/2005 20:30	02/12/2005 10:00	02/12/2005 11:30

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Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1012

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	Data Limit	Qualifiers
---------	--------	-----------------	-----	-------	-------------	---------------	-----------	------------	---------	------------	------------

Batch: 5B15046 Extracted: 02/15/05

Blank Analyzed: 02/15/2005 (5B15046-BLK1)

Arsenic	ND	5.0	3.8	ug/l							
Barium	ND	0.010	0.0028	mg/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	0.0106	0.050	0.0074	mg/l							J
Chromium	ND	5.0	0.68	ug/l							
Cobalt	ND	0.010	0.00089	mg/l							
Iron	ND	0.040	0.0088	mg/l							
Manganese	ND	0.020	0.0032	mg/l							
Nickel	ND	10	2.0	ug/l							
Vanadium	ND	0.010	0.0014	mg/l							
Zinc	ND	20	3.7	ug/l							

LCS Analyzed: 02/15/2005 (5B15046-BS1)

Arsenic	932	5.0	3.8	ug/l	1000		93	85-115			
Barium	0.953	0.010	0.0028	mg/l	1.00		95	85-115			
Beryllium	946	2.0	0.62	ug/l	1000		95	85-115			
Boron	0.933	0.050	0.0074	mg/l	1.00		93	85-115			
Chromium	930	5.0	0.68	ug/l	1000		93	85-115			
Cobalt	0.912	0.010	0.00089	mg/l	1.00		91	85-115			
Iron	0.944	0.040	0.0088	mg/l	1.00		94	85-115			
Manganese	0.937	0.020	0.0032	mg/l	1.00		94	85-115			
Nickel	946	10	2.0	ug/l	1000		95	85-115			
Vanadium	0.966	0.010	0.0014	mg/l	1.00		97	85-115			
Zinc	934	20	3.7	ug/l	1000		93	85-115			

Matrix Spike Analyzed: 02/15/2005 (5B15046-MS1)

Source: IOB0689-01

Arsenic	1030	5.0	3.8	ug/l	1000	ND	103	70-130			
Barium	1.07	0.010	0.0028	mg/l	1.00	0.028	104	70-130			
Beryllium	1080	2.0	0.62	ug/l	1000	ND	108	70-130			
Boron	1.20	0.050	0.0074	mg/l	1.00	0.14	106	70-130			
Chromium	1020	5.0	0.68	ug/l	1000	ND	102	70-130			
Cobalt	1.00	0.010	0.00089	mg/l	1.00	ND	100	70-130			
Iron	1.16	0.040	0.0088	mg/l	1.00	0.12	104	70-130			
Manganese	1.05	0.020	0.0032	mg/l	1.00	0.026	102	70-130			
Nickel	1030	10	2.0	ug/l	1000	ND	103	70-130			
Vanadium	1.08	0.010	0.0014	mg/l	1.00	0.0014	108	70-130			

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

 Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1012

 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: 5B15046 Extracted: 02/15/05											
Matrix Spike Analyzed: 02/15/2005 (5B15046-MS1)						Source: IOB0689-01					
Zinc	1060	20	3.7	ug/l	1000	ND	106	70-130			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15046-MSD1)						Source: IOB0689-01					
Arsenic	1000	5.0	3.8	ug/l	1000	ND	100	70-130	3	20	
Barium	1.00	0.010	0.0028	mg/l	1.00	0.028	97	70-130	7	20	
Beryllium	1050	2.0	0.62	ug/l	1000	ND	105	70-130	3	20	
Boron	1.15	0.050	0.0074	mg/l	1.00	0.14	101	70-130	4	20	
Chromium	996	5.0	0.68	ug/l	1000	ND	100	70-130	2	20	
Cobalt	0.986	0.010	0.00089	mg/l	1.00	ND	99	70-130	1	20	
Iron	1.12	0.040	0.0088	mg/l	1.00	0.12	100	70-130	4	20	
Manganese	1.02	0.020	0.0032	mg/l	1.00	0.026	99	70-130	3	20	
Nickel	984	10	2.0	ug/l	1000	ND	98	70-130	5	20	
Vanadium	1.02	0.010	0.0014	mg/l	1.00	0.0014	102	70-130	6	20	
Zinc	1020	20	3.7	ug/l	1000	ND	102	70-130	4	20	

Batch: 5B15069 Extracted: 02/15/05
Blank Analyzed: 02/15/2005 (5B15069-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							
Selenium	ND	2.0	0.36	ug/l							
Silver	ND	1.0	0.089	ug/l							
Thallium	ND	1.0	0.075	ug/l							

LCS Analyzed: 02/15/2005 (5B15069-BS1)

Antimony	89.3	2.0	0.18	ug/l	80.0		112	85-115			
Cadmium	83.1	1.0	0.015	ug/l	80.0		104	85-115			
Copper	82.6	2.0	0.49	ug/l	80.0		103	85-115			
Lead	83.2	1.0	0.13	ug/l	80.0		104	85-115			
Selenium	84.8	2.0	0.36	ug/l	80.0		106	85-115			
Silver	82.6	1.0	0.089	ug/l	80.0		103	85-115			
Thallium	83.1	1.0	0.075	ug/l	80.0		104	85-115			

 Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



Del Mar Analytical

17461 Denian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Ambient Stormwater Ambient Report Number: IOB1012	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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B15069 Extracted: 02/15/05											
Matrix Spike Analyzed: 02/15/2005 (5B15069-MS1)						Source: IOB0907-01					
Antimony	93.9	2.0	0.18	ug/l	80.0	1.2	116	70-130			
Cadmium	81.6	1.0	0.015	ug/l	80.0	0.20	102	70-130			
Copper	86.5	2.0	0.49	ug/l	80.0	8.2	98	70-130			
Lead	85.9	1.0	0.13	ug/l	80.0	3.5	103	70-130			
Selenium	81.5	2.0	0.36	ug/l	80.0	0.52	101	70-130			
Silver	79.2	1.0	0.089	ug/l	80.0	1.3	97	70-130			
Thallium	87.0	1.0	0.075	ug/l	80.0	ND	109	70-130			
Matrix Spike Analyzed: 02/16/2005 (5B15069-MS2)						Source: IOB0974-01					
Antimony	98.4	2.0	0.18	ug/l	80.0	6.2	115	70-130			
Cadmium	75.5	1.0	0.015	ug/l	80.0	0.14	94	70-130			
Copper	84.9	2.0	0.49	ug/l	80.0	9.6	94	70-130			
Lead	80.3	1.0	0.13	ug/l	80.0	1.7	98	70-130			
Selenium	98.2	2.0	0.36	ug/l	80.0	16	103	70-130			
Silver	73.9	1.0	0.089	ug/l	80.0	ND	92	70-130			
Thallium	78.0	1.0	0.075	ug/l	80.0	ND	98	70-130			
Matrix Spike Dup Analyzed: 02/15/2005 (5B15069-MSD1)						Source: IOB0907-01					
Antimony	93.6	2.0	0.18	ug/l	80.0	1.2	116	70-130	0	20	
Cadmium	81.9	1.0	0.015	ug/l	80.0	0.20	102	70-130	0	20	
Copper	86.5	2.0	0.49	ug/l	80.0	8.2	98	70-130	0	20	
Lead	86.2	1.0	0.13	ug/l	80.0	3.5	103	70-130	0	20	
Selenium	82.3	2.0	0.36	ug/l	80.0	0.52	102	70-130	1	20	
Silver	79.5	1.0	0.089	ug/l	80.0	1.3	98	70-130	0	20	
Thallium	86.6	1.0	0.075	ug/l	80.0	ND	108	70-130	1	20	
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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 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: Ambient Stormwater
Ambient
Report Number: IOB1012

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

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5B15070 Extracted: 02/15/05											
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	

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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1012

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: 5B16140 Extracted: 02/16/05											
Blank Analyzed: 02/16/2005 (5B16140-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 02/16/2005 (5B16140-BS1)											
Total Suspended Solids	985	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 02/16/2005 (5B16140-DUP1)											
Total Suspended Solids	22.0	10	10	mg/l		Source: IOB0942-01 16			32	10	R-3

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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1012

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.
- R-3** The RPD exceeded the method control limit due to sample matrix effects.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Ambient Stormwater Ambient Report Number: IOB1012	Sampled: 02/11/05 Received: 02/11/05
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Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 200.7	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X

NV 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

Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR
Samples: IOB1012-01

Analysis Performed: EDD + Level 4
Samples: IOB1012-01

Del Mar Analytical, Irvine

Michele Harper
Project Manager

IOB1012

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/12/04

Client Name/Address:
MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Project Manager: Bronwyn Kelly
 Sampler: *Follock*

Project:
**Boeing-SSFL NPDES
 Ambient Stormwater**
~~Perimeter Pond~~
 Phone Number:
 (626) 568-6691
 Fax Number:
 (626) 568-6515

ANALYSIS REQUIRED

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals	Settleable Solids	TCDD (and all congeners)	TSS	Field readings:
Ambient	W	Poly-1L	1	2-11-05 - 16:02	None HNO3	1A	X				Temp = 54.3 pH = 6.8
Ambient	W	Poly-1L	1		HNO3	1B	X				
Ambient	W	Poly-1L	1		None	2		X			
Ambient	W	1L Amber	2		None	9A-9B			X		
Ambient	W	500-ml Poly 1L	1		None	4				X	

Relinquished By: *[Signature]* Date/Time: 2-11-05 1700
 Received By: *[Signature]* Date/Time: 2-11-05 1700

Relinquished By: *[Signature]* Date/Time: 2-11-05 2030
 Received By: *[Signature]* Date/Time: 2-11-05 2030

Relinquished By: *[Signature]* Date/Time: _____
 Received By: *[Signature]* 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: _____
 Intact *3'*



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT39
 Task Order 313150010
 SDG No. IOB1566/IOB1567
 No. of Analyses 2

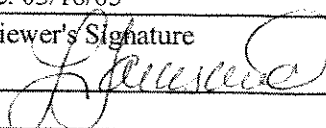
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Metals

Date: 03/18/05

Reviewer's Signature



ACTION ITEMS*

1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were applied for:
Holding Times	1) Method blank and CCB contamination
GC/MS Tune/Inst. Performance	2) Reporting limit check standard recovery low
Calibrations	3) Detects below the reporting limit
Blanks	4) Change of MDL and sample result by reviewer
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

COMMENTS^b

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

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

Data 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: IOB1566 & IOB1567

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#: IOB1566/IOB1567
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 18, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the “R” data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Ambient	Ambient	IOB1566-01	Water	ILM04
Upstream 002	Upstream 002	IOB1567-01	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 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 arsenic reporting limit check standard recoveries were below the control limit; therefore, nondetected arsenic in sample Upstream 002 was qualified as estimated, "UJ," (see section 2.4). 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. Antimony was detected in a bracketing CCB at 0.72 µg/L; therefore, detected antimony in sample Upstream 002 was qualified as estimated, "UJ." Thallium and arsenic were detected in bracketing CCBs at 0.08 µg/L and 0.0040 mg/L, respectively; therefore, thallium and arsenic detected in sample Upstream 002 was qualified as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

The antimony CCB detects indicated the laboratory could not detect antimony at the level reported in the CCBs. The reviewer, therefore, raised the MDLs for antimony to the level reported in the CCBs, 0.72 µg/L and raised the nondetected result for Upstream 002 to the same level (see above). No further 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 analysis. The results for potassium and sodium were above the calibration range of the instrument in both the ICSA and ICSAB analyses. The result for aluminum was low in the ICSA analysis with a recovery of 78.9% and exceeded the calibration range of the instrument in the ICSAB analysis. Selenium, antimony, lead, and thallium were not spiked into the ICSAB solution; therefore, the ICSAB recoveries could not be assessed. The validator reviewed the raw data for the site samples 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.

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 samples were identified as 5B24096-BS1 and 5B24093-BS1. The ICP/MS LCS sample was identified as 5B24099-BS1 and the Hg 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, 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.

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 and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



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

Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1566

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: IOB1566-01 (Ambient - Water)									
Reporting Units: mg/l									
Barium	EPA 200.7	5B24096	0.0028	0.010	ND	1	02/24/05	02/24/05	U
Boron	EPA 200.7	5B24096	0.0074	0.050	ND	1	02/24/05	02/24/05	↓
Iron	EPA 200.7	5B24096	0.0088	0.040	ND	1	02/24/05	02/24/05	↓
Sample ID: IOB1566-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B24099	0.18	2.0	ND	1	02/24/05	02/25/05	U
Arsenic	EPA 200.7	5B24096	3.8	5.0	ND	1	02/24/05	02/24/05	↓
Beryllium	EPA 200.7	5B24096	0.62	2.0	ND	1	02/24/05	02/24/05	
Cadmium	EPA 200.8	5B24099	0.015	1.0	ND	1	02/24/05	02/25/05	
Chromium	EPA 200.7	5B24096	0.68	5.0	ND	1	02/24/05	02/24/05	
Cobalt	EPA 200.7	5B24096	0.89	10	ND	1	02/24/05	02/24/05	
Copper	EPA 200.8	5B24099	0.49	2.0	ND	1	02/24/05	02/25/05	
Lead	EPA 200.8	5B24099	0.13	1.0	ND	1	02/24/05	02/25/05	
Manganese	EPA 200.7	5B24096	3.2	20	ND	1	02/24/05	02/24/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	ND	1	02/22/05	02/22/05	
Nickel	EPA 200.7	5B24096	2.0	10	ND	1	02/24/05	02/24/05	
Selenium	EPA 200.8	5B24099	0.36	2.0	ND	1	02/24/05	02/25/05	
Silver	EPA 200.8	5B24099	0.089	1.0	ND	1	02/24/05	02/25/05	
Thallium	EPA 200.8	5B24099	0.075	1.0	ND	1	02/24/05	02/25/05	
Vanadium	EPA 200.7	5B24096	1.4	10	ND	1	02/24/05	02/24/05	
Zinc	EPA 200.7	5B24096	3.7	20	ND	1	02/24/05	02/24/05	

AMEC VALIDATED

LEVEL IV

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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Data Qualifier Reference Table

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

Qualification Code Reference Table

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

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOB1566 & IOB1567

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 #: IOB1566/IOB1567
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: March 11, 2005

The sample listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 160.2 and 160.5*, 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
Ambient	Ambient	IOB1566-01	Water	General Minerals
Upstream 002	Upstream 002	IOB1567-01	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 presented 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 seven-day holding time for total suspended solids and the 48-hour holding time for total settleable solids were met. No qualifications were required.

2.2 CALIBRATION

Calibration is not applicable to the analyses presented in these SDGs.

2.3 BLANKS

The 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 total suspended solids laboratory control sample was within the laboratory-established control limits. The LCS is not applicable to 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

A laboratory duplicate was performed on sample Ambient in association with the samples in these SDGs. The RPD was within the control limit of $\leq 10\%$. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with these SDGs.



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

Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1566

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: IOB1566-01 (Ambient - Water) - cont. Reporting Units: mg/l										REV QUAL
Total Suspended Solids	EPA 160.2	5B24121	10	10	ND	1	02/24/05	02/24/05	U	OUT CAL
Sample ID: IOB1566-01 (Ambient - Water) Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5B18145	0.10	0.10	ND	1	02/18/05	02/18/05	U	

AMEC VALIDATED

LEVEL IV

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

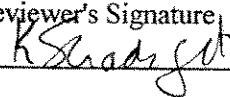
The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF25
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 7

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 4, 2005
 Reviewer's Signature


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

COMMENTS^b

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

Data Qualifier Reference Table

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

Qualification Code Reference Table

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

*#

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 7
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 2, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Ambient Stormwater	IOB1566-01	25770-001	water	1613
MT-1	IOB1547-01	25767-001	water	1613
RP-1	IOB1568-01	25772-001	water	1613
RP-2	IOB1563-01	25768-001	water	1613
SW-1	IOB1569-01	25766-001	water	1613
Upstream 001	IOB1564-01	25769-001	water	1613
Upstream 002	IOB1567-01	25771-001	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 0.3°C and 0.1°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 was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6540-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 (6540-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. There were no QC limits established for RPDs. The reported RPDs were within $\pm 20\%$. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy 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. Target compounds total PeCDF and total HxCDF were reported as EMPCs and qualified as estimated nondetects, "UJ," in sample RP-2. 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: IOB1566-01		Ambient Stormwater		EPA Method 1613	
Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25770-001
Project:	IOB1566	Sample Size:	1.009 L	QC Batch No.:	6540
Date Collected:	18-Feb-05			Date Analyzed DB-5:	26-Feb-05
Time Collected:	1513			Date Analyzed DB-22.5:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	2.69		13C-2,3,7,8-TCDD	70.3 25 - 164
1,2,3,7,8-PeCDD	ND	2.34		13C-1,2,3,7,8-PeCDD	62.7 25 - 181
1,2,3,4,7,8-HxCDD	ND	4.74		13C-1,2,3,4,7,8-HxCDD	73.1 32 - 141
1,2,3,6,7,8-HxCDD	ND	4.84		13C-1,2,3,6,7,8-HxCDD	80.9 28 - 130
1,2,3,7,8,9-HxCDD	ND	4.78		13C-1,2,3,4,6,7,8-HpCDD	76.7 23 - 140
1,2,3,4,6,7,8-HpCDD	ND	6.23		13C-OCDD	52.9 17 - 157
OCDD	ND	12.7		13C-2,3,7,8-TCDF	73.2 24 - 169
2,3,7,8-TCDF	ND	3.02		13C-1,2,3,7,8-PeCDF	59.5 24 - 185
1,2,3,7,8-PeCDF	ND	4.99		13C-2,3,4,7,8-PeCDF	59.9 21 - 178
2,3,4,7,8-PeCDF	ND	4.62		13C-1,2,3,4,7,8-HxCDF	64.0 26 - 152
1,2,3,4,7,8-HxCDF	ND	1.86		13C-1,2,3,6,7,8-HxCDF	76.9 26 - 123
1,2,3,6,7,8-HxCDF	ND	1.78		13C-2,3,4,6,7,8-HxCDF	76.4 28 - 136
2,3,4,6,7,8-HxCDF	ND	1.95		13C-1,2,3,7,8,9-HxCDF	67.6 29 - 147
1,2,3,7,8,9-HxCDF	ND	3.08		13C-1,2,3,4,6,7,8-HpCDF	73.5 28 - 143
1,2,3,4,6,7,8-HpCDF	ND	3.08		13C-1,2,3,4,7,8,9-HpCDF	76.5 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	3.63		13C-OCDF	62.8 17 - 157
OCDF	ND	10.2		CRS 37Cl-2,3,7,8-TCDD	72.1 35 - 197
Totals					
Total TCDD	ND	2.69			
Total PeCDD	ND	2.34			
Total HxCDD	ND	4.79			
Total HpCDD	ND	6.23			
Total TCDF	ND	3.02			
Total PeCDF	ND	4.80			
Total HxCDF	ND	2.11			
Total HpCDF	ND	3.32			

Footnotes

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

Analyst: JMH

Approved By: Martha M. Maier 28-Feb-2005 10:55

AMCS VALIDATED

LEVEL IV





LABORATORY REPORT

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

Project: Ambient Stormwater
Ambient

Sampled: 02/18/05
Received: 02/18/05
Issued: 02/28/05 19:29

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

IOB1566-01

CLIENT ID

Ambient

MATRIX

Water

Reviewed By:

Del Mar Analytical, Irvine

Michele Harper

Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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: IOB1566-01 (Ambient - Water)									
Reporting Units: mg/l									
Barium	EPA 200.7	5B24096	0.0028	0.010	ND	1	02/24/05	02/24/05	
Boron	EPA 200.7	5B24096	0.0074	0.050	ND	1	02/24/05	02/24/05	
Iron	EPA 200.7	5B24096	0.0088	0.040	ND	1	02/24/05	02/24/05	
Sample ID: IOB1566-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B24099	0.18	2.0	ND	1	02/24/05	02/25/05	
Arsenic	EPA 200.7	5B24096	3.8	5.0	ND	1	02/24/05	02/24/05	
Beryllium	EPA 200.7	5B24096	0.62	2.0	ND	1	02/24/05	02/24/05	
Cadmium	EPA 200.8	5B24099	0.015	1.0	ND	1	02/24/05	02/25/05	
Chromium	EPA 200.7	5B24096	0.68	5.0	ND	1	02/24/05	02/24/05	
Cobalt	EPA 200.7	5B24096	0.89	10	ND	1	02/24/05	02/24/05	
Copper	EPA 200.8	5B24099	0.49	2.0	ND	1	02/24/05	02/25/05	
Lead	EPA 200.8	5B24099	0.13	1.0	ND	1	02/24/05	02/25/05	
Manganese	EPA 200.7	5B24096	3.2	20	ND	1	02/24/05	02/24/05	
Mercury	EPA 245.1	5B22063	0.063	0.20	ND	1	02/22/05	02/22/05	
Nickel	EPA 200.7	5B24096	2.0	10	ND	1	02/24/05	02/24/05	
Selenium	EPA 200.8	5B24099	0.36	2.0	ND	1	02/24/05	02/25/05	
Silver	EPA 200.8	5B24099	0.089	1.0	ND	1	02/24/05	02/25/05	
Thallium	EPA 200.8	5B24099	0.075	1.0	ND	1	02/24/05	02/25/05	
Vanadium	EPA 200.7	5B24096	1.4	10	ND	1	02/24/05	02/24/05	
Zinc	EPA 200.7	5B24096	3.7	20	ND	1	02/24/05	02/24/05	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Ambient Stormwater Ambient Report Number: IOB1566	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: IOB1566-01 (Ambient - Water) - cont.									
Reporting Units: mg/l									
Total Suspended Solids	EPA 160.2	5B24121	10	10	ND	1	02/24/05	02/24/05	
Sample ID: IOB1566-01 (Ambient - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5B18145	0.10	0.10	ND	1	02/18/05	02/18/05	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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

SHORT HOLD TIME DETAIL REPORT

Sample ID: Ambient (IOB1566-01) - Water EPA 160.5	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	02/18/2005 15:13	02/18/2005 18:30	02/18/2005 22:00	02/18/2005 23:00

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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 Limit	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: 5B24096 Extracted: 02/24/05											
Blank Analyzed: 02/24/2005 (5B24096-BLK1)											
Arsenic	ND	5.0	3.8	ug/l							
Barium	ND	0.010	0.0028	mg/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	ND	0.050	0.0074	mg/l							
Chromium	ND	5.0	0.68	ug/l							
Cobalt	ND	10	0.89	ug/l							
Iron	ND	0.040	0.0088	mg/l							
Manganese	ND	20	3.2	ug/l							
Nickel	ND	10	2.0	ug/l							
Vanadium	ND	10	1.4	ug/l							
Zinc	ND	20	3.7	ug/l							
LCS Analyzed: 02/24/2005 (5B24096-BS1)											
Arsenic	998	5.0	3.8	ug/l	1000		100	85-115			
Barium	0.988	0.010	0.0028	mg/l	1.00		99	85-115			
Beryllium	981	2.0	0.62	ug/l	1000		98	85-115			
Boron	0.962	0.050	0.0074	mg/l	1.00		96	85-115			
Chromium	986	5.0	0.68	ug/l	1000		99	85-115			
Cobalt	987	10	0.89	ug/l	1000		99	85-115			
Iron	0.994	0.040	0.0088	mg/l	1.00		99	85-115			
Manganese	984	20	3.2	ug/l	1000		98	85-115			
Nickel	984	10	2.0	ug/l	1000		98	85-115			
Vanadium	988	10	1.4	ug/l	1000		99	85-115			

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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	Data Qualifiers
Batch: 5B24096 Extracted: 02/24/05										
LCS Analyzed: 02/24/2005 (5B24096-BS1)										
Zinc	971	20	3.7	ug/l	1000		97	85-115		
Matrix Spike Analyzed: 02/24/2005 (5B24096-MS1) Source: IOB1490-02										
Arsenic	1020	5.0	3.8	ug/l	1000	ND	102	70-130		
Barium	1.06	0.010	0.0028	mg/l	1.00	0.074	99	70-130		
Beryllium	979	2.0	0.62	ug/l	1000	ND	98	70-130		
Boron	1.11	0.050	0.0074	mg/l	1.00	0.12	99	70-130		
Chromium	982	5.0	0.68	ug/l	1000	2.1	98	70-130		
Cobalt	973	10	0.89	ug/l	1000	ND	97	70-130		
Iron	1.00	0.040	0.0088	mg/l	1.00	0.019	98	70-130		
Manganese	995	20	3.2	ug/l	1000	26	97	70-130		
Nickel	972	10	2.0	ug/l	1000	ND	97	70-130		
Vanadium	988	10	1.4	ug/l	1000	ND	99	70-130		
Zinc	983	20	3.7	ug/l	1000	ND	98	70-130		
Matrix Spike Dup Analyzed: 02/24/2005 (5B24096-MSD1) Source: IOB1490-02										
Arsenic	1010	5.0	3.8	ug/l	1000	ND	101	70-130	1	20
Barium	1.04	0.010	0.0028	mg/l	1.00	0.074	97	70-130	2	20
Beryllium	980	2.0	0.62	ug/l	1000	ND	98	70-130	0	20
Boron	1.08	0.050	0.0074	mg/l	1.00	0.12	96	70-130	3	20
Chromium	971	5.0	0.68	ug/l	1000	2.1	97	70-130	1	20
Cobalt	960	10	0.89	ug/l	1000	ND	96	70-130	1	20
Iron	0.989	0.040	0.0088	mg/l	1.00	0.019	97	70-130	1	20
Manganese	997	20	3.2	ug/l	1000	26	97	70-130	0	20
Nickel	954	10	2.0	ug/l	1000	ND	95	70-130	2	20
Vanadium	975	10	1.4	ug/l	1000	ND	98	70-130	1	20
Zinc	968	20	3.7	ug/l	1000	ND	97	70-130	2	20

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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
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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							
Selenium	ND	2.0	0.36	ug/l							
Silver	0.101	1.0	0.089	ug/l							J
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			
Selenium	79.6	2.0	0.36	ug/l	80.0		100	85-115			
Silver	78.9	1.0	0.089	ug/l	80.0		99	85-115			
Thallium	78.5	1.0	0.075	ug/l	80.0		98	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			
Selenium	79.5	2.0	0.36	ug/l	80.0	0.47	99	70-130			
Silver	75.6	1.0	0.089	ug/l	80.0	ND	94	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			
Selenium	79.3	2.0	0.36	ug/l	80.0	ND	99	70-130			
Silver	77.2	1.0	0.089	ug/l	80.0	ND	96	70-130			
Thallium	76.7	1.0	0.075	ug/l	80.0	0.19	96	70-130			

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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 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	
Selenium	79.3	2.0	0.36	ug/l	80.0	0.47	99	70-130	0	20	
Silver	75.6	1.0	0.089	ug/l	80.0	ND	94	70-130	0	20	
Thallium	75.2	1.0	0.075	ug/l	80.0	0.17	94	70-130	2	20	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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 RPD	Data Qualifiers
Batch: 5B24121 Extracted: 02/24/05									
Blank Analyzed: 02/24/2005 (5B24121-BLK1)									
Total Suspended Solids	ND	10	10	mg/l					
LCS Analyzed: 02/24/2005 (5B24121-BS1)									
Total Suspended Solids	984	10	10	mg/l	1000		98 85-115		
Duplicate Analyzed: 02/24/2005 (5B24121-DUP1)									
Total Suspended Solids	ND	10	10	mg/l		Source: IOB1566-01 ND		10	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1566

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.
- 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

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

Project ID: Ambient Stormwater
 Ambient
 Report Number: IOB1566

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

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 150.1	Water	X	X
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 200.7	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	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: IOB1566-01

Analysis Performed: EDD + Level 4

Samples: IOB1566-01

Del Mar Analytical, Irvine

Michele Harper

Project Manager

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Ambient Stormwater
Sampled: 02/18/05
Del Mar Analytical Number: IOB1566

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
Ambient Stormwater	IOB1566-01	25770-001

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

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager



February 28, 2005

Alta Project I.D.: 25770

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 23, 2005 under your Project Name "IOB1566". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762
FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 2/23/2005

Alta Lab. ID

Client Sample ID

25770-001

IOB1566-01

SECTION II



EPA Method 1613

Method Blank		Lab Sample: 0-MB001		Date Analyzed DB-5: 25-Feb-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6540 <th colspan="4"></th>				
Sample Size:	1.000 L <th>Date Extracted:</th> <td>23-Feb-05 <th colspan="4"></th> </td>	Date Extracted:	23-Feb-05 <th colspan="4"></th>				
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	%R	LCL-UCL ^d	Qualifiers	Qualifiers
2,3,7,8-TCDD	ND	2.38		71.1	25 - 164		
1,2,3,7,8-PeCDD	ND	2.60		63.9	25 - 181		
1,2,3,4,7,8-HxCDD	ND	6.83		67.2	32 - 141		
1,2,3,6,7,8-HxCDD	ND	7.11		71.8	28 - 130		
1,2,3,7,8,9-HxCDD	ND	6.95		66.9	23 - 140		
1,2,3,4,6,7,8-HpCDD	ND	3.87		50.9	17 - 157		
OCDD	ND	9.92		74.2	24 - 169		
2,3,7,8-TCDF	ND	2.92		57.7	24 - 185		
1,2,3,7,8-PeCDF	ND	3.54		60.2	21 - 178		
2,3,4,7,8-PeCDF	ND	3.15		57.4	26 - 152		
1,2,3,4,7,8-HxCDF	ND	0.845		63.0	26 - 123		
1,2,3,6,7,8-HxCDF	ND	0.831		64.7	28 - 136		
2,3,4,6,7,8-HxCDF	ND	0.878		64.0	29 - 147		
1,2,3,7,8,9-HxCDF	ND	1.28		62.9	28 - 143		
1,2,3,4,6,7,8-HpCDF	ND	2.01		63.6	26 - 138		
1,2,3,4,7,8,9-HpCDF	ND	2.35		57.3	17 - 157		
OCDF	ND	11.1		72.0	35 - 197		
Totals							
Total TCDD	ND	2.38					
Total PeCDD	ND	2.60					
Total HxCDD	ND	6.97					
Total HpCDD	ND	3.87					
Total TCDF	ND	2.92					
Total PeCDF	ND	3.34					
Total HxCDF	ND	0.943					
Total HpCDF	ND	2.16					
Footnotes							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							

Analyst: DMS

Approved By: Martha M. Maier 28-Feb-2005 10:55



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 25-Feb-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6540	IS		Labeled Standard	
Sample Size:	1.000 L	Date Extracted:	23-Feb-05	OPR Limits		%R	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	8.59	6.7 - 15.8	13C-2,3,7,8-TCDD	75.4	25 - 164	
1,2,3,7,8-PeCDD	50.0	45.0	35 - 71	13C-1,2,3,7,8-PeCDD	65.1	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	42.8	35 - 82	13C-1,2,3,4,7,8-HxCDD	72.3	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	46.7	38 - 67	13C-1,2,3,6,7,8-HxCDD	71.9	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	44.3	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	66.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	47.5	35 - 70	13C-OCDD	52.7	17 - 157	
OCDD	100	93.2	78 - 144	13C-2,3,7,8-TCDF	77.0	24 - 169	
2,3,7,8-TCDF	10.0	9.27	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	60.5	24 - 185	
1,2,3,7,8-PeCDF	50.0	47.1	40 - 67	13C-2,3,4,7,8-PeCDF	61.7	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	59.7	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	48.5	36 - 67	13C-1,2,3,6,7,8-HxCDF	64.7	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	49.6	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.6	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	48.9	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.4	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	49.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	49.2	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	67.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	50.9	39 - 69	13C-OCDF	59.3	17 - 157	
OCDF	100	96.0	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.8	35 - 197	

Analyst: JMH

Approved By: Martha M. Maier 28-Feb-2005 10:55



Sample ID: IOB1566-01		EPA Method 1613					
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25770-001		
Project:	IOB1566	Sample Size:	1.009 L	QC Batch No.:	6540		
Date Collected:	18-Feb-05			Date Analyzed DB-5:	26-Feb-05		
Time Collected:	1513			Date Analyzed DB-225:	NA		
				Date Received:	23-Feb-05		
				Date Extracted:	23-Feb-05		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	2.69		13C-2,3,7,8-TCDD	70.3	25 - 164	
1,2,3,7,8-PeCDD	ND	2.34		13C-1,2,3,7,8-PeCDD	62.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	4.74		13C-1,2,3,4,7,8-HxCDD	73.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	4.84		13C-1,2,3,6,7,8-HxCDD	80.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	4.78		13C-1,2,3,4,6,7,8-HpCDD	76.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	6.23		13C-OCDD	52.9	17 - 157	
OCDD	ND	12.7		13C-2,3,7,8-TCDF	73.2	24 - 169	
2,3,7,8-TCDF	ND	3.02		13C-1,2,3,7,8-PeCDF	59.5	24 - 185	
1,2,3,7,8-PeCDF	ND	4.99		13C-2,3,4,7,8-PeCDF	59.9	21 - 178	
2,3,4,7,8-PeCDF	ND	4.62		13C-1,2,3,4,7,8-HxCDF	64.0	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.86		13C-1,2,3,6,7,8-HxCDF	76.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	1.78		13C-2,3,4,6,7,8-HxCDF	76.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.95		13C-1,2,3,7,8,9-HxCDF	67.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	3.08		13C-1,2,3,4,6,7,8-HpCDF	73.5	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	3.08		13C-1,2,3,4,7,8,9-HpCDF	76.5	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	3.63		13C-OCDF	62.8	17 - 157	
OCDF	ND	10.2		CRS 37Cl-2,3,7,8-TCDD	72.1	35 - 197	
Totals							
Total TCDD	ND	2.69					
Total PeCDD	ND	2.34					
Total HxCDD	ND	4.79					
Total HpCDD	ND	6.23					
Total TCDF	ND	3.02					
Total PeCDF	ND	4.80					
Total HxCDF	ND	2.11					
Total HpCDF	ND	3.32					

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

Analyst: JMH
 Approved By: Martha M. Maier
 28-Feb-2005 10:55

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)



SUBCONTRACT ORDER - PROJECT # IOB1566

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

25770
 0.1°C

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

Analysis	Expiration	Comments
Sample ID: IOB1566-01 Water	Sampled: 02/18/05 15:13	Instant Notification
1613-Dioxin-HR	02/25/05 15:13	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4-OUT	03/18/05 15:13	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOB1566-01C)		
1 L Amber (IOB1566-01D)		

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: Dany Amara Date: 2-22-05 Time: 1700 Received By: Bethina Benedict Date: 2/23/05 Time: 0902

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

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25770

1. Date Samples Arrived: <u>2/23/05 0902</u> Initials: <u>DBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1204 2/23/05</u> Initials: <u>DBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> <u>UPS</u> World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> Dry Ice / None Temp °C <u>0.1</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES ✓	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓	✓	
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7915 5615 4481</u>	✓		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. _____ Intact? If not intact, describe condition in comment section.		✓	✓
9. Sample Container Intact? If no, indicate sample condition in comment section.	✓		
10. Chain of Custody (COC) or other Sample Documentation Present?	✓		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	✓		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		✓	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓

Comments:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



17481 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) 370-1018
 9484 Champepeke Drive, Suite 805, San Diego, CA 92123 Ph (619) 506-8586 Fax (619) 505-9689
 9530 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 788-0843 Fax (480) 785-0851
 2520 E. Sahara Rd., Suite 43, Las Vegas, NV 89120 Ph (702) 790-3030 Fax (702) 798-8821

SUBCONTRACT ORDER - PROJECT # IOB1566

<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 - SUE 1104 Windfield Way 25770 0.1°C El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940</p>
--	---

Standard TAT is requested unless specific due date is requested => Due Date: 1 week Initials: NA

Analysis	Expiration	Comments
Sample ID: IOB1566-01 Water	Sampled: 02/18/05 15:13	Instant Notification
1613-Dioxin-HR	02/25/05 15:13	1 flag, 17 congeners, no TEQ, sub to Alta
EDD + Level 4-OUT	03/18/05 15:13	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOB1566-01C)		
1 L Amber (IOB1566-01D)		

Sampler = R.B.

02/23/05 NA

SAMPLE INTEGRITY:

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

<u>Dave Swan</u>				
Released By	Date	Time	Received By	Date
Released By	Date	Time	Received By	Date



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT50
 Task Order 313150010
 SDG No. IOC04586

No. of Analyses 1

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

Date: 04/06/05

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.,**

	<u>Qualifications applied for detects below the reporting limit, reporting limit check standard recovery outlier, and antimony MDL was raised.</u>
Holding Times	_____
GC/MS Tune/Inst. Performance	_____
Calibrations	_____
Blanks	_____
Surrogates	_____
Matrix Spike/Dup LCS	_____
Field QC	_____
Internal Standard Performance	_____
Compound Identification and Quantitation	_____
System Performance	_____

COMMENTS^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 GROUP: IOC0456

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#: IOC0456
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 06, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Ambient	Ambient	IOC0456-01	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 below the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 1°C ; however, as the sample was not noted to be frozen, no qualifications were required. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. A duplicate aliquot was submitted for the sample in this SDG; 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 ICP/MS metals and 80-120% for mercury. Antimony was not recovered in the 0.2 ppb reporting limit check standard and was recovered below the control limit in the 1.0 ppb reporting limit check standard; therefore, nondetected antimony in sample Ambient was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

There were detects reported in the method blanks and CCBs associated with the site sample; however, none required samples qualifications

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, selenium, thallium, and lead were not spiked into the ICSAB solution. The results for potassium were above the calibration range of the instrument in all the ICSA and ICSAB analyses and aluminum was below the calibration range in the ICSA and ICSAB analyses; however, as these analytes were not reported in the site sample, no qualifications were required. Copper and cadmium were detected above the applicable reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the 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 sample was analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. In the ICSA analyses there was a result for nickel that was above the reporting limit. 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 sample was identified as 5C08106-BS1 and the ICP LCS sample was identified as 5C09086-BS1. The mercury LCS sample was identified as 5C09050-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

MS/MSD analyses were performed on sample Ambient for mercury only. The recoveries were within the AMEC control limits of 75-125% and no qualifications were required. ICP and ICP/MS 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."

Antimony was reported by the laboratory as a nondetect at the reporting limit. The raw data review indicated that the sample result was actually $-0.47 \mu\text{g/L}$. Due to this negative result and the poor reporting limit check standard recoveries, the reviewer raised the antimony MDL to $1.0 \mu\text{g/L}$. No further qualifications were required.

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0456-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	1.0	2.0	ND	1	03/08/05	03/09/05	UJ
Arsenic	EPA 200.7	5C09086	3.8	5.0	ND	1	03/09/05	03/11/05	U
Barium	EPA 200.7	5C09086	2.8	10	ND	1	03/09/05	03/11/05	
Beryllium	EPA 200.7	5C09086	0.62	2.0	ND	1	03/09/05	03/11/05	
Boron	EPA 200.7	5C09086	7.4	50	ND	1	03/09/05	03/11/05	
Cadmium	EPA 200.8	5C08106	0.015	1.0	ND	1	03/09/05	03/11/05	
Chromium	EPA 200.7	5C09086	0.68	5.0	0.70	1	03/08/05	03/09/05	
Cobalt	EPA 200.7	5C09086	0.89	10	ND	1	03/09/05	03/11/05	J J DNR
Copper	EPA 200.8	5C08106	0.49	2.0	0.65	1	03/08/05	03/09/05	J J DNR
Iron	EPA 200.7	5C09086	8.8	40	15	1	03/09/05	03/11/05	J J DNR
Lead	EPA 200.8	5C08106	0.13	1.0	0.26	1	03/08/05	03/09/05	J J
Manganese	EPA 200.7	5C09086	3.2	20	ND	1	03/09/05	03/11/05	J J
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	J J
Nickel	EPA 200.7	5C09086	2.0	10	2.5	1	03/09/05	03/11/05	J J DNR
Selenium	EPA 200.8	5C08106	0.36	2.0	ND	1	03/08/05	03/09/05	
Silver	EPA 200.8	5C08106	0.089	1.0	ND	1	03/08/05	03/09/05	
Thallium	EPA 200.8	5C08106	0.075	1.0	ND	1	03/08/05	03/09/05	
Vanadium	EPA 200.7	5C09086	1.4	10	ND	1	03/09/05	03/11/05	
Zinc	EPA 200.7	5C09086	3.7	20	ND	1	03/09/05	03/11/05	

am 4/5/05

AMEC VALIDATED

LEVEL IV

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

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Data Qualifier Reference Table

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

Qualification Code Reference Table

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

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC0456

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 #: IOC0456
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
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 160.2, 160.5 and 300.0*, 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
Ambient	Ambient	IOC0456-01	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 below the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 1°C ; however, the sample was not noted to have been damaged. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for chloride, the seven-day holding time for total suspended solids, and the 48-hour holding time for total settleable solids were met. No qualifications were required.

2.2 CALIBRATION

For the chloride analysis, the initial calibration correlation coefficient was ≥ 0.995 . Chloride initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. Calibration is not applicable to total suspended solids or total settleable solids. No qualifications were required.

2.3 BLANKS

The 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 SAMPLE

The laboratory control samples were within the laboratory-established control limits. The LCS is not applicable to total settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

MS/MSD analyses were performed for chloride on sample Ambient with an RPD within the control limits of $\leq 20\%$. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were performed for chloride on sample Ambient. Recoveries were within laboratory-established control limits and no qualifications were required.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of 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. 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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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater
 Report Number: IOC0456

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

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0456-01 (Ambient - Water) - cont. Reporting Units: mg/l									
Chloride	EPA 300.0	5C07055	0.26	0.50	0.97	1	03/07/05	03/07/05	REV 10/01/04 QUALICAD
Total Suspended Solids	EPA 160.2	5C08093	10	10	ND	1	03/08/05	03/08/05	U
Sample ID: IOC0456-01 (Ambient - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C04096	0.10	0.10	ND	1	03/04/05	03/04/05	U

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LEVEL IV

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

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LABORATORY REPORT

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

Project: Ambient Stormwater

Sampled: 03/04/05
Received: 03/04/05
Issued: 03/15/05 09:22

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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This entire report was reviewed and approved for release.*

SAMPLE CROSS REFERENCE

LABORATORY ID
IOC0456-01

CLIENT ID
Ambient

MATRIX
Water

Reviewed By:

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



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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0456-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	ND	1	03/08/05	03/09/05	
Arsenic	EPA 200.7	5C09086	3.8	5.0	ND	1	03/09/05	03/11/05	
Barium	EPA 200.7	5C09086	2.8	10	ND	1	03/09/05	03/11/05	
Beryllium	EPA 200.7	5C09086	0.62	2.0	ND	1	03/09/05	03/11/05	
Boron	EPA 200.7	5C09086	7.4	50	ND	1	03/09/05	03/11/05	
Cadmium	EPA 200.8	5C08106	0.015	1.0	ND	1	03/08/05	03/09/05	
Chromium	EPA 200.7	5C09086	0.68	5.0	0.70	1	03/09/05	03/11/05	J
Cobalt	EPA 200.7	5C09086	0.89	10	ND	1	03/09/05	03/11/05	
Copper	EPA 200.8	5C08106	0.49	2.0	0.65	1	03/08/05	03/09/05	J
Iron	EPA 200.7	5C09086	8.8	40	15	1	03/09/05	03/11/05	J
Lead	EPA 200.8	5C08106	0.13	1.0	0.26	1	03/08/05	03/09/05	J
Manganese	EPA 200.7	5C09086	3.2	20	ND	1	03/09/05	03/11/05	
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	
Nickel	EPA 200.7	5C09086	2.0	10	2.5	1	03/09/05	03/11/05	J
Selenium	EPA 200.8	5C08106	0.36	2.0	ND	1	03/08/05	03/09/05	
Silver	EPA 200.8	5C08106	0.089	1.0	ND	1	03/08/05	03/09/05	
Thallium	EPA 200.8	5C08106	0.075	1.0	ND	1	03/08/05	03/09/05	
Vanadium	EPA 200.7	5C09086	1.4	10	ND	1	03/09/05	03/11/05	
Zinc	EPA 200.7	5C09086	3.7	20	ND	1	03/09/05	03/11/05	

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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: Ambient Stormwater

Report Number: IOC0456

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

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0456-01 (Ambient - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C07055	0.26	0.50	0.97	1	03/07/05	03/07/05	
Total Suspended Solids	EPA 160.2	5C08093	10	10	ND	1	03/08/05	03/08/05	
Sample ID: IOC0456-01 (Ambient - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C04096	0.10	0.10	ND	1	03/04/05	03/04/05	

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC0456

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

SHORT HOLD TIME DETAIL REPORT

Sample ID: Ambient (IOC0456-01) - Water EPA 160.5	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 15:00	03/04/2005 17:50	03/04/2005 19:00	03/04/2005 20:00

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 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C08106 Extracted: 03/08/05										
Blank Analyzed: 03/09/2005 (5C08106-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
Selenium	ND	2.0	0.36	ug/l						
Silver	ND	1.0	0.089	ug/l						
Thallium	ND	1.0	0.075	ug/l						
LCS Analyzed: 03/09/2005 (5C08106-BS1)										
Antimony	90.7	2.0	0.18	ug/l	80.0		113		85-115	
Cadmium	86.3	1.0	0.015	ug/l	80.0		108		85-115	
Copper	78.1	2.0	0.49	ug/l	80.0		98		85-115	
Lead	84.0	1.0	0.13	ug/l	80.0		105		85-115	
Selenium	84.1	2.0	0.36	ug/l	80.0		105		85-115	
Silver	84.0	1.0	0.089	ug/l	80.0		105		85-115	
Thallium	86.1	1.0	0.075	ug/l	80.0		108		85-115	
Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1) Source: IOC0448-01										
Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115		70-130	
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101		70-130	
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96		70-130	
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99		70-130	
Selenium	79.9	2.0	0.36	ug/l	80.0	0.48	99		70-130	
Silver	81.3	1.0	0.089	ug/l	80.0	ND	102		70-130	
Thallium	81.5	1.0	0.075	ug/l	80.0	0.23	102		70-130	
Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1) Source: IOC0448-01										
Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114	70-130	1	20
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101	70-130	0	20
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20
Selenium	81.1	2.0	0.36	ug/l	80.0	0.48	101	70-130	1	20
Silver	79.9	1.0	0.089	ug/l	80.0	ND	100	70-130	2	20
Thallium	82.1	1.0	0.075	ug/l	80.0	0.23	102	70-130	1	20

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 Project Manager

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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C09050 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09050-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/09/2005 (5C09050-BS1)											
Mercury	8.21	0.20	0.063	ug/l	8.00		103	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09050-MS1)											
						Source: IOC0456-01					
Mercury	8.33	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09050-MSD1)											
						Source: IOC0456-01					
Mercury	8.17	0.20	0.063	ug/l	8.00	ND	102	70-130	2	20	
Batch: 5C09086 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09086-BLK1)											
Arsenic	ND	5.0	3.8	ug/l							
Barium	ND	10	2.8	ug/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	11.0	50	7.4	ug/l							
Chromium	ND	5.0	0.68	ug/l							J
Cobalt	ND	10	0.89	ug/l							
Iron	ND	40	8.8	ug/l							
Manganese	ND	20	3.2	ug/l							
Nickel	ND	10	2.0	ug/l							
Vanadium	ND	10	1.4	ug/l							
Zinc	ND	20	3.7	ug/l							
LCS Analyzed: 03/09/2005 (5C09086-BS1)											
Arsenic	952	5.0	3.8	ug/l	1000		95	85-115			
Barium	1000	10	2.8	ug/l	1000		100	85-115			
Beryllium	985	2.0	0.62	ug/l	1000		98	85-115			
Boron	960	50	7.4	ug/l	1000		96	85-115			
Chromium	962	5.0	0.68	ug/l	1000		96	85-115			
Cobalt	936	10	0.89	ug/l	1000		94	85-115			
Iron	976	40	8.8	ug/l	1000		98	85-115			
Manganese	960	20	3.2	ug/l	1000		96	85-115			
Nickel	984	10	2.0	ug/l	1000		98	85-115			
Vanadium	1000	10	1.4	ug/l	1000		100	85-115			

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 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C09086 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09086-BS1)											
Zinc	967	20	3.7	ug/l	1000		97	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09086-MS1)											
						Source: IOC0257-01					
Arsenic	1000	5.0	3.8	ug/l	1000	ND	100	70-130			
Barium	1020	10	2.8	ug/l	1000	43	98	70-130			
Beryllium	999	2.0	0.62	ug/l	1000	ND	100	70-130			
Boron	1000	50	7.4	ug/l	1000	16	98	70-130			
Chromium	973	5.0	0.68	ug/l	1000	ND	97	70-130			
Cobalt	881	10	0.89	ug/l	1000	ND	88	70-130			
Iron	981	40	8.8	ug/l	1000	ND	98	70-130			
Manganese	958	20	3.2	ug/l	1000	ND	96	70-130			
Nickel	919	10	2.0	ug/l	1000	ND	92	70-130			
Vanadium	1040	10	1.4	ug/l	1000	ND	104	70-130			
Zinc	953	20	3.7	ug/l	1000	ND	95	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09086-MSD1)											
						Source: IOC0257-01					
Arsenic	1000	5.0	3.8	ug/l	1000	ND	100	70-130	0	20	
Barium	1030	10	2.8	ug/l	1000	43	99	70-130	1	20	
Beryllium	1000	2.0	0.62	ug/l	1000	ND	100	70-130	0	20	
Boron	1020	50	7.4	ug/l	1000	16	100	70-130	2	20	
Chromium	973	5.0	0.68	ug/l	1000	ND	97	70-130	0	20	
Cobalt	890	10	0.89	ug/l	1000	ND	89	70-130	1	20	
Iron	991	40	8.8	ug/l	1000	ND	99	70-130	1	20	
Manganese	968	20	3.2	ug/l	1000	ND	97	70-130	1	20	
Nickel	930	10	2.0	ug/l	1000	ND	93	70-130	1	20	
Vanadium	1050	10	1.4	ug/l	1000	ND	105	70-130	1	20	
Zinc	964	20	3.7	ug/l	1000	ND	96	70-130	1	20	

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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C07055 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07055-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
LCS Analyzed: 03/07/2005 (5C07055-BS1)											
Chloride	4.64	0.50	0.26	mg/l	5.00		93	90-110			
Matrix Spike Analyzed: 03/07/2005 (5C07055-MS1)											
Chloride	5.50	0.50	0.26	mg/l	5.00	0.97	91	80-120			
Matrix Spike Dup Analyzed: 03/07/2005 (5C07055-MSD1)											
Chloride	5.62	0.50	0.26	mg/l	5.00	0.97	93	80-120	2	20	
Batch: 5C08093 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08093-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/08/2005 (5C08093-BS1)											
Total Suspended Solids	1000	10	10	mg/l	1000		100	85-115			
Duplicate Analyzed: 03/08/2005 (5C08093-DUP1)											
Total Suspended Solids	17.0	10	10	mg/l		12			34	10	R-4

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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

DATA QUALIFIERS AND DEFINITIONS

- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- R-4** Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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Wendy Kirkeeng For Michele Harper
Project Manager



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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	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

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.

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 Project Manager



LABORATORY REPORT

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

Project: Ambient Stormwater

Sampled: 03/04/05
Received: 03/04/05
Issued: 03/15/05 09:22

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

SAMPLE CROSS REFERENCE

LABORATORY ID
IOC0456-01

CLIENT ID
Ambient

MATRIX
Water

Reviewed By:

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



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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0456-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	ND	1	03/08/05	03/09/05	
Arsenic	EPA 200.7	5C09086	3.8	5.0	ND	1	03/09/05	03/11/05	
Barium	EPA 200.7	5C09086	2.8	10	ND	1	03/09/05	03/11/05	
Beryllium	EPA 200.7	5C09086	0.62	2.0	ND	1	03/09/05	03/11/05	
Boron	EPA 200.7	5C09086	7.4	50	ND	1	03/09/05	03/11/05	
Cadmium	EPA 200.8	5C08106	0.015	1.0	ND	1	03/08/05	03/09/05	
Chromium	EPA 200.7	5C09086	0.68	5.0	0.70	1	03/09/05	03/11/05	J
Cobalt	EPA 200.7	5C09086	0.89	10	ND	1	03/09/05	03/11/05	
Copper	EPA 200.8	5C08106	0.49	2.0	0.65	1	03/08/05	03/09/05	J
Iron	EPA 200.7	5C09086	8.8	40	15	1	03/09/05	03/11/05	J
Lead	EPA 200.8	5C08106	0.13	1.0	0.26	1	03/08/05	03/09/05	J
Manganese	EPA 200.7	5C09086	3.2	20	ND	1	03/09/05	03/11/05	
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	
Nickel	EPA 200.7	5C09086	2.0	10	2.5	1	03/09/05	03/11/05	J
Selenium	EPA 200.8	5C08106	0.36	2.0	ND	1	03/08/05	03/09/05	
Silver	EPA 200.8	5C08106	0.089	1.0	ND	1	03/08/05	03/09/05	
Thallium	EPA 200.8	5C08106	0.075	1.0	ND	1	03/08/05	03/09/05	
Vanadium	EPA 200.7	5C09086	1.4	10	ND	1	03/09/05	03/11/05	
Zinc	EPA 200.7	5C09086	3.7	20	ND	1	03/09/05	03/11/05	

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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: Ambient Stormwater

Report Number: IOC0456

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

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0456-01 (Ambient - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C07055	0.26	0.50	0.97	1	03/07/05	03/07/05	
Total Suspended Solids	EPA 160.2	5C08093	10	10	ND	1	03/08/05	03/08/05	
Sample ID: IOC0456-01 (Ambient - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C04096	0.10	0.10	ND	1	03/04/05	03/04/05	

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC0456

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

SHORT HOLD TIME DETAIL REPORT

Sample ID: Ambient (IOC0456-01) - Water EPA 160.5	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 15:00	03/04/2005 17:50	03/04/2005 19:00	03/04/2005 20:00

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Project ID: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

METALS

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

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

Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
Selenium	ND	2.0	0.36	ug/l							
Silver	ND	1.0	0.089	ug/l							
Thallium	ND	1.0	0.075	ug/l							

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

Antimony	90.7	2.0	0.18	ug/l	80.0		113	85-115			
Cadmium	86.3	1.0	0.015	ug/l	80.0		108	85-115			
Copper	78.1	2.0	0.49	ug/l	80.0		98	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115			
Selenium	84.1	2.0	0.36	ug/l	80.0		105	85-115			
Silver	84.0	1.0	0.089	ug/l	80.0		105	85-115			
Thallium	86.1	1.0	0.075	ug/l	80.0		108	85-115			

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

Source: IOC0448-01

Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115	70-130			
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101	70-130			
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96	70-130			
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99	70-130			
Selenium	79.9	2.0	0.36	ug/l	80.0	0.48	99	70-130			
Silver	81.3	1.0	0.089	ug/l	80.0	ND	102	70-130			
Thallium	81.5	1.0	0.075	ug/l	80.0	0.23	102	70-130			

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

Source: IOC0448-01

Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114	70-130	1	20	
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101	70-130	0	20	
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20	
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20	
Selenium	81.1	2.0	0.36	ug/l	80.0	0.48	101	70-130	1	20	
Silver	79.9	1.0	0.089	ug/l	80.0	ND	100	70-130	2	20	
Thallium	82.1	1.0	0.075	ug/l	80.0	0.23	102	70-130	1	20	

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 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

METALS

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

Batch: 5C09050 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09050-BLK1)

Mercury	ND	0.20	0.063	ug/l							
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LCS Analyzed: 03/09/2005 (5C09050-BS1)

Mercury	8.21	0.20	0.063	ug/l	8.00		103	85-115			
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Matrix Spike Analyzed: 03/09/2005 (5C09050-MS1)

Mercury	8.33	0.20	0.063	ug/l	8.00	ND	104	70-130			
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Source: IOC0456-01

Matrix Spike Dup Analyzed: 03/09/2005 (5C09050-MSD1)

Mercury	8.17	0.20	0.063	ug/l	8.00	ND	102	70-130	2	20	
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Source: IOC0456-01

Batch: 5C09086 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09086-BLK1)

Arsenic	ND	5.0	3.8	ug/l							
Barium	ND	10	2.8	ug/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	11.0	50	7.4	ug/l							
Chromium	ND	5.0	0.68	ug/l							J
Cobalt	ND	10	0.89	ug/l							
Iron	ND	40	8.8	ug/l							
Manganese	ND	20	3.2	ug/l							
Nickel	ND	10	2.0	ug/l							
Vanadium	ND	10	1.4	ug/l							
Zinc	ND	20	3.7	ug/l							

LCS Analyzed: 03/09/2005 (5C09086-BS1)

Arsenic	952	5.0	3.8	ug/l	1000		95	85-115			
Barium	1000	10	2.8	ug/l	1000		100	85-115			
Beryllium	985	2.0	0.62	ug/l	1000		98	85-115			
Boron	960	50	7.4	ug/l	1000		96	85-115			
Chromium	962	5.0	0.68	ug/l	1000		96	85-115			
Cobalt	936	10	0.89	ug/l	1000		94	85-115			
Iron	976	40	8.8	ug/l	1000		98	85-115			
Manganese	960	20	3.2	ug/l	1000		96	85-115			
Nickel	984	10	2.0	ug/l	1000		98	85-115			
Vanadium	1000	10	1.4	ug/l	1000		100	85-115			

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: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
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Batch: 5C09086 Extracted: 03/09/05

LCS Analyzed: 03/09/2005 (5C09086-BS1)

Zinc	967	20	3.7	ug/l	1000		97	85-115			
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Matrix Spike Analyzed: 03/09/2005 (5C09086-MS1)

Source: IOC0257-01

Arsenic	1000	5.0	3.8	ug/l	1000	ND	100	70-130			
Barium	1020	10	2.8	ug/l	1000	43	98	70-130			
Beryllium	999	2.0	0.62	ug/l	1000	ND	100	70-130			
Boron	1000	50	7.4	ug/l	1000	16	98	70-130			
Chromium	973	5.0	0.68	ug/l	1000	ND	97	70-130			
Cobalt	881	10	0.89	ug/l	1000	ND	88	70-130			
Iron	981	40	8.8	ug/l	1000	ND	98	70-130			
Manganese	958	20	3.2	ug/l	1000	ND	96	70-130			
Nickel	919	10	2.0	ug/l	1000	ND	92	70-130			
Vanadium	1040	10	1.4	ug/l	1000	ND	104	70-130			
Zinc	953	20	3.7	ug/l	1000	ND	95	70-130			

Matrix Spike Dup Analyzed: 03/09/2005 (5C09086-MSD1)

Source: IOC0257-01

Arsenic	1000	5.0	3.8	ug/l	1000	ND	100	70-130	0	20	
Barium	1030	10	2.8	ug/l	1000	43	99	70-130	1	20	
Beryllium	1000	2.0	0.62	ug/l	1000	ND	100	70-130	0	20	
Boron	1020	50	7.4	ug/l	1000	16	100	70-130	2	20	
Chromium	973	5.0	0.68	ug/l	1000	ND	97	70-130	0	20	
Cobalt	890	10	0.89	ug/l	1000	ND	89	70-130	1	20	
Iron	991	40	8.8	ug/l	1000	ND	99	70-130	1	20	
Manganese	968	20	3.2	ug/l	1000	ND	97	70-130	1	20	
Nickel	930	10	2.0	ug/l	1000	ND	93	70-130	1	20	
Vanadium	1050	10	1.4	ug/l	1000	ND	105	70-130	1	20	
Zinc	964	20	3.7	ug/l	1000	ND	96	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: Ambient Stormwater

Report Number: IOC0456

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

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C07055 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07055-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
LCS Analyzed: 03/07/2005 (5C07055-BS1)											
Chloride	4.64	0.50	0.26	mg/l	5.00		93	90-110			
Matrix Spike Analyzed: 03/07/2005 (5C07055-MS1)											
Chloride	5.50	0.50	0.26	mg/l	5.00	0.97	91	80-120			
Matrix Spike Dup Analyzed: 03/07/2005 (5C07055-MSD1)											
Chloride	5.62	0.50	0.26	mg/l	5.00	0.97	93	80-120	2	20	
Batch: 5C08093 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08093-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/08/2005 (5C08093-BS1)											
Total Suspended Solids	1000	10	10	mg/l	1000		100	85-115			
Duplicate Analyzed: 03/08/2005 (5C08093-DUP1)											
Total Suspended Solids	17.0	10	10	mg/l		12			34	10	R-4

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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

DATA QUALIFIERS AND DEFINITIONS

- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- R-4** Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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

Project ID: Ambient Stormwater

Report Number: IOC0456

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

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	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

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.

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

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT82
 Task Order 313150010
 SDG No. IOC2192

No. of Analyses 1

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

Date: 05/02/05

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 were applied for:

1. Detects below the reporting limit.

2. ICSAB recovery outlier

3. Reporting limit check standard recovery outlier

4. Negative result in the method blank

5. Antimony MDL raised due to detects in the CCBs

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 GROUP: IOC2192

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#: IOC2192
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: May 02, 2005

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

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Ambient	Ambient	IOC2192-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The sample was received at the laboratory on HOLD. The analyses presented in this SDG were requested during a telephone conversation, dated 4/01/05, between the laboratory and MWH personnel. 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. Antimony was not recovered in the 0.2 ppb reporting limit check standard; therefore, nondetected antimony in the sample Ambient was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Boron was detected in the CCBs bracketing the site sample analysis; however, as boron was not reported in the site sample, no qualifications were required.

Antimony was detected in every CCB in the ICP/MS analytical sequence from which the site sample antimony result was reported. As this indicated that the laboratory could not detect antimony at the reported MDL of 0.18 µg/L, the reviewer raised the MDL of antimony to the level of the highest CCB detect, 0.91 µg/L. Antimony was reported in the method blank at -0.504 µg/L; therefore, nondetected antimony in the sample Ambient was qualified as estimated, "UJ." No further qualifications were required.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP analyses, but were not analyzed on the same day the sample was analyzed. The recoveries were within the control limits of 80-120% and no qualifications were required.

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. Copper and cadmium were detected above the reporting limit in the ICSA. Selenium, thallium, antimony and lead were not spiked into the ICSAB solution. Silver was recovered below the control limit, at 78.5%, in the ICSAB analysis; therefore, nondetected silver in the sample Ambient was qualified as estimated, "UJ." Potassium was recovered above the linear range of the calibration in all the ICSA and ICSAB analyses associated with the site sample. Sodium was recovered above the linear range of the calibration in both ICSA analyses and in the ICSAB analysis associated with all sample results except silver. 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 further qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS sample was identified as 5D01104-BS1 and the ICP/MS LCS sample was identified as 5D05084-BS1. The mercury LCS sample was identified as 5D01103. The LCS results on the summary form 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 for the ICP/MS metals on the sample Ambient. All RPDs were within the control limits of ±20%. No MS/MSD or laboratory duplicate analyses were performed for the ICP metals or mercury; therefore, no assessment could be made with respect to this criterion. No qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed for the ICP/MS metals on the sample Ambient. All recoveries were within the AMEC control limits of 75-125%. No MS/MSD analyses were performed for the ICP metals or mercury; therefore, no assessment could be made with respect to this criterion. ICP and mercury method accuracy was assessed based on LCS results. No qualifications were required.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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

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

Project ID: Ambient Stormwater

Report Number: IOC2192

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

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qua Cod
Sample ID: IOC2192-01 (Ambient - Water)											
Reporting Units: mg/l											
Barium	EPA 200.7	5D01104	0.0028	0.010	ND	1	04/01/05	04/02/05		J	DNC
Boron	EPA 200.7	5D01104	0.0074	0.050	ND	1	04/01/05	04/02/05		J	DNC
Iron	EPA 200.7	5D01104	0.0088	0.040	0.039	1	04/01/05	04/02/05		J	DNC
Sample ID: IOC2192-01 (Ambient - Water)											
Reporting Units: ug/l											
Antimony	EPA 200.8	5D05084	0.91	2.0	ND	1	04/05/05	04/08/05		J	\$, *3
Arsenic	EPA 200.7	5D01104	3.8	5.0	ND	1	04/01/05	04/02/05		J	DNC
Beryllium	EPA 200.7	5D01104	0.62	2.0	ND	1	04/01/05	04/02/05		J	DNC
Cadmium	EPA 200.8	5D05084	0.015	1.0	0.033	1	04/05/05	04/08/05		J	DNC
Chromium	EPA 200.7	5D01104	0.68	5.0	1.1	1	04/01/05	04/02/05		J	DNC
Cobalt	EPA 200.7	5D01104	0.89	10	ND	1	04/01/05	04/02/05		J	DNC
Copper	EPA 200.8	5D05084	0.49	2.0	0.72	1	04/05/05	04/08/05		J	DNC
Lead	EPA 200.8	5D05084	0.13	1.0	0.19	1	04/05/05	04/08/05		J	DNC
Manganese	EPA 200.7	5D01104	3.2	20	ND	1	04/01/05	04/02/05		J	DNC
Mercury	EPA 245.1	5D01103	0.063	0.20	ND	1	04/01/05	04/02/05		J	DNC
Nickel	EPA 200.7	5D01104	2.0	10	ND	1	04/01/05	04/02/05		J	DNC
Selenium	EPA 200.8	5D05084	0.36	2.0	ND	1	04/05/05	04/08/05		J	DNC
Silver	EPA 200.8	5D05084	0.089	1.0	ND	1	04/05/05	04/11/05		J	DNC
Thallium	EPA 200.8	5D05084	0.075	1.0	ND	1	04/05/05	04/08/05		J	DNC
Vanadium	EPA 200.7	5D01104	1.4	10	ND	1	04/01/05	04/02/05		J	DNC
Zinc	EPA 200.7	5D01104	3.7	20	5.8	1	04/01/05	04/02/05		J	DNC

Mm 5/2/05

AMEC VALIDATED
LEVEL IV

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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Data Qualifier Reference Table

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

Qualification Code Reference Table

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

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC2192

Prepared by

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

I. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC2192
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: May 2, 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, 160.2 and 160.5*, 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
Ambient	Ambient	IOC2192-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The COC accounted for all analyses presented in this SDG. The COC stated the sample was received on "HOLD." A telephone conversation dated 04/01/05 from MWH personnel to Del Mar Analytical requested the sample be taken off "HOLD" and analyzed. No sample qualifications were required.

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for chloride was met. The seven-day holding time for total suspended solids was exceeded; therefore, nondetected total suspended solids was qualified as estimated, "UJ." The 48-hour holding time for total settleable solids was exceeded by more than a factor of three; however, as the laboratory confirmed that the sample was well agitated prior to analysis, the result was not rejected. Nondetected total settleable solids was qualified as estimated, "UJ." No further qualifications were required.

2.2 CALIBRATION

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

2.3 BLANKS

The method blank and CCB results reported on the summary forms and in the raw data for the blank analyses associated with the sample were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recoveries were within the laboratory-established control limits. The LCS is not applicable to total settleable solids. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

A laboratory duplicate analysis was performed on sample Ambient for total suspended solids. The RPD was within the laboratory-established control limit of $\leq 10\%$ and no qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form I were verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Ambient Stormwater

Report Number: IOC2192

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

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	
									REV	QUAL
Sample ID: IOC2192-01 (Ambient - Water) - cont.										
Reporting Units: mg/l										
Chloride	EPA 300.0	5C30051	0.26	0.50	0.71	1	03/30/05	03/30/05		
Total Suspended Solids	EPA 160.2	5D01093	10	10	ND	1	04/01/05	04/01/05	UJ	H-1 H
Sample ID: IOC2192-01 (Ambient - Water)										
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5D01087	0.10	0.10	ND	1	04/01/05	04/01/05	UJ	H-1 H

AMEC VALIDATED

LEVEL IV

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



LABORATORY REPORT

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

Project: Ambient Stormwater

Sampled: 03/23/05
Received: 03/23/05
Issued: 04/14/05 18:10

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

SAMPLE CROSS REFERENCE

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

LABORATORY ID
IOC2192-01

CLIENT ID
Ambient

MATRIX
Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater

Report Number: IOC2192

Sampled: 03/23/05

Received: 03/23/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2192-01 (Ambient - Water)									
Reporting Units: mg/l									
Barium	EPA 200.7	5D01104	0.0028	0.010	ND	1	04/01/05	04/02/05	
Boron	EPA 200.7	5D01104	0.0074	0.050	ND	1	04/01/05	04/02/05	
Iron	EPA 200.7	5D01104	0.0088	0.040	0.039	1	04/01/05	04/02/05	J
Sample ID: IOC2192-01 (Ambient - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5D05084	0.18	2.0	ND	1	04/05/05	04/08/05	
Arsenic	EPA 200.7	5D01104	3.8	5.0	ND	1	04/01/05	04/02/05	
Beryllium	EPA 200.7	5D01104	0.62	2.0	ND	1	04/01/05	04/02/05	
Cadmium	EPA 200.8	5D05084	0.015	1.0	0.033	1	04/05/05	04/08/05	J
Chromium	EPA 200.7	5D01104	0.68	5.0	1.1	1	04/01/05	04/02/05	J
Cobalt	EPA 200.7	5D01104	0.89	10	ND	1	04/01/05	04/02/05	
Copper	EPA 200.8	5D05084	0.49	2.0	0.72	1	04/05/05	04/08/05	J
Lead	EPA 200.8	5D05084	0.13	1.0	0.19	1	04/05/05	04/08/05	J
Manganese	EPA 200.7	5D01104	3.2	20	ND	1	04/01/05	04/02/05	
Mercury	EPA 245.1	5D01103	0.063	0.20	ND	1	04/01/05	04/02/05	
Nickel	EPA 200.7	5D01104	2.0	10	ND	1	04/01/05	04/02/05	
Selenium	EPA 200.8	5D05084	0.36	2.0	ND	1	04/05/05	04/08/05	
Silver	EPA 200.8	5D05084	0.089	1.0	ND	1	04/05/05	04/11/05	
Thallium	EPA 200.8	5D05084	0.075	1.0	ND	1	04/05/05	04/08/05	
Vanadium	EPA 200.7	5D01104	1.4	10	ND	1	04/01/05	04/02/05	
Zinc	EPA 200.7	5D01104	3.7	20	5.8	1	04/01/05	04/02/05	J

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 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC2192

Sampled: 03/23/05

Received: 03/23/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2192-01 (Ambient - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C30051	0.26	0.50	0.71	1	03/30/05	03/30/05	
Total Suspended Solids	EPA 160.2	5D01093	10	10	ND	1	04/01/05	04/01/05	H-1
Sample ID: IOC2192-01 (Ambient - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5D01087	0.10	0.10	ND	1	04/01/05	04/01/05	H-1

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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MWH-Pasadena/Boeing
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Sampled: 03/23/05

Received: 03/23/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Ambient (IOC2192-01) - Water EPA 160.5	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/23/2005 13:04	03/23/2005 18:36	04/01/2005 13:10	04/01/2005 14:10

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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

Project ID: Ambient Stormwater

Report Number: IOC2192

Sampled: 03/23/05

Received: 03/23/05

METHOD BLANK/QC DATA
METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D01103 Extracted: 04/01/05											
Blank Analyzed: 04/02/2005 (5D01103-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 04/02/2005 (5D01103-BS1)											
Mercury	8.09	0.20	0.063	ug/l	8.00		101	85-115			
Matrix Spike Analyzed: 04/02/2005 (5D01103-MS1) Source: IOC2431-01											
Mercury	8.10	0.20	0.063	ug/l	8.00	ND	101	70-130			
Matrix Spike Dup Analyzed: 04/02/2005 (5D01103-MSD1) Source: IOC2431-01											
Mercury	8.04	0.20	0.063	ug/l	8.00	ND	100	70-130	1	20	
Batch: 5D01104 Extracted: 04/01/05											
Blank Analyzed: 04/02/2005 (5D01104-BLK1)											
Arsenic	ND	5.0	3.8	ug/l							
Barium	ND	0.010	0.0028	mg/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	ND	0.050	0.0074	mg/l							
Chromium	ND	5.0	0.68	ug/l							
Cobalt	ND	10	0.89	ug/l							
Iron	ND	0.040	0.0088	mg/l							
Manganese	ND	20	3.2	ug/l							
Nickel	ND	10	2.0	ug/l							
Vanadium	ND	10	1.4	ug/l							
Zinc	ND	20	3.7	ug/l							
LCS Analyzed: 04/02/2005 (5D01104-BS1)											
Arsenic	505	5.0	3.8	ug/l	500		101	85-115			
Barium	0.506	0.010	0.0028	mg/l	0.500		101	85-115			
Beryllium	507	2.0	0.62	ug/l	500		101	85-115			
Boron	0.475	0.050	0.0074	mg/l	0.500		95	85-115			
Chromium	512	5.0	0.68	ug/l	500		102	85-115			
Cobalt	497	10	0.89	ug/l	500		99	85-115			
Iron	0.511	0.040	0.0088	mg/l	0.500		102	85-115			
Manganese	506	20	3.2	ug/l	500		101	85-115			
Nickel	494	10	2.0	ug/l	500		99	85-115			
Vanadium	509	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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D01104 Extracted: 04/01/05											
LCS Analyzed: 04/02/2005 (5D01104-BS1)											
Zinc	491	20	3.7	ug/l	500		98	85-115			
Matrix Spike Analyzed: 04/02/2005 (5D01104-MS1) Source: IOD0009-01											
Arsenic	511	5.0	3.8	ug/l	500	4.9	101	70-130			
Barium	0.986	0.010	0.0028	mg/l	0.500	0.47	103	70-130			
Beryllium	517	2.0	0.62	ug/l	500	ND	103	70-130			
Boron	0.706	0.050	0.0074	mg/l	0.500	0.21	99	70-130			
Chromium	638	5.0	0.68	ug/l	500	120	104	70-130			
Cobalt	525	10	0.89	ug/l	500	32	99	70-130			
Iron	42.3	0.040	0.0088	mg/l	0.500	40	460	70-130			M-HA
Manganese	1440	20	3.2	ug/l	500	930	102	70-130			
Nickel	661	10	2.0	ug/l	500	160	100	70-130			
Vanadium	620	10	1.4	ug/l	500	100	104	70-130			
Zinc	2000	20	3.7	ug/l	500	1500	100	70-130			
Matrix Spike Dup Analyzed: 04/02/2005 (5D01104-MSD1) Source: IOD0009-01											
Arsenic	517	5.0	3.8	ug/l	500	4.9	102	70-130	1	20	
Barium	0.992	0.010	0.0028	mg/l	0.500	0.47	104	70-130	1	20	
Beryllium	518	2.0	0.62	ug/l	500	ND	104	70-130	0	20	
Boron	0.718	0.050	0.0074	mg/l	0.500	0.21	102	70-130	2	20	
Chromium	644	5.0	0.68	ug/l	500	120	105	70-130	1	20	
Cobalt	531	10	0.89	ug/l	500	32	100	70-130	1	20	
Iron	41.3	0.040	0.0088	mg/l	0.500	40	260	70-130	2	20	M-HA
Manganese	1430	20	3.2	ug/l	500	930	100	70-130	1	20	
Nickel	664	10	2.0	ug/l	500	160	101	70-130	1	20	
Vanadium	626	10	1.4	ug/l	500	100	105	70-130	1	20	
Zinc	2010	20	3.7	ug/l	500	1500	102	70-130	1	20	

Del Mar Analytical, Irvine
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 Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC2192

Sampled: 03/23/05

Received: 03/23/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Data Limit	Qualifiers
Batch: 5D05084 Extracted: 04/05/05										
Blank Analyzed: 04/08/2005-04/11/2005 (5D05084-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						
Selenium	ND	2.0	0.36	ug/l						
Silver	ND	1.0	0.089	ug/l						
Thallium	ND	1.0	0.075	ug/l						
LCS Analyzed: 04/08/2005-04/11/2005 (5D05084-BS1)										
Antimony	90.4	2.0	0.18	ug/l	80.0		113		85-115	
Cadmium	87.7	1.0	0.015	ug/l	80.0		110		85-115	
Copper	80.9	2.0	0.49	ug/l	80.0		101		85-115	
Lead	87.6	1.0	0.13	ug/l	80.0		110		85-115	
Selenium	85.9	2.0	0.36	ug/l	80.0		107		85-115	
Silver	80.5	1.0	0.089	ug/l	80.0		101		85-115	
Thallium	88.4	1.0	0.075	ug/l	80.0		110		85-115	
Matrix Spike Analyzed: 04/08/2005-04/11/2005 (5D05084-MS1) Source: IOC2192-01										
Antimony	95.7	2.0	0.18	ug/l	80.0	ND	120		70-130	
Cadmium	85.5	1.0	0.015	ug/l	80.0	0.033	107		70-130	
Copper	80.7	2.0	0.49	ug/l	80.0	0.72	100		70-130	
Lead	89.8	1.0	0.13	ug/l	80.0	0.19	112		70-130	
Selenium	83.4	2.0	0.36	ug/l	80.0	ND	104		70-130	
Silver	80.4	1.0	0.089	ug/l	80.0	ND	100		70-130	
Thallium	88.3	1.0	0.075	ug/l	80.0	ND	110		70-130	
Matrix Spike Analyzed: 04/08/2005-04/11/2005 (5D05084-MS2) Source: IOC2430-06										
Antimony	102	2.0	0.18	ug/l	80.0	ND	128		70-130	
Cadmium	86.3	1.0	0.015	ug/l	80.0	0.22	108		70-130	
Copper	81.7	2.0	0.49	ug/l	80.0	4.8	96		70-130	
Lead	84.2	1.0	0.13	ug/l	80.0	0.34	105		70-130	
Selenium	83.4	2.0	0.36	ug/l	80.0	0.64	103		70-130	
Silver	77.2	1.0	0.089	ug/l	80.0	ND	96		70-130	
Thallium	88.5	1.0	0.075	ug/l	80.0	0.28	110		70-130	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



MWH-Pasadena/Boeing
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Attention: Bronwyn Kelly

Project ID: Ambient Stormwater

Report Number: IOC2192

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

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D05084 Extracted: 04/05/05											
Matrix Spike Dup Analyzed: 04/08/2005-04/11/2005 (5D05084-MSD1)						Source: IOC2192-01					
Antimony	97.1	2.0	0.18	ug/l	80.0	ND	121	70-130	1	20	
Cadmium	86.1	1.0	0.015	ug/l	80.0	0.033	108	70-130	1	20	
Copper	81.7	2.0	0.49	ug/l	80.0	0.72	101	70-130	1	20	
Lead	89.7	1.0	0.13	ug/l	80.0	0.19	112	70-130	0	20	
Selenium	82.3	2.0	0.36	ug/l	80.0	ND	103	70-130	1	20	
Silver	80.5	1.0	0.089	ug/l	80.0	ND	101	70-130	0	20	
Thallium	87.5	1.0	0.075	ug/l	80.0	ND	109	70-130	1	20	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater

Report Number: IOC2192

Sampled: 03/23/05

Received: 03/23/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C30051 Extracted: 03/30/05											
Blank Analyzed: 03/30/2005 (5C30051-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
LCS Analyzed: 03/30/2005 (5C30051-BS1)											
Chloride	5.05	0.50	0.26	mg/l	5.00		101	90-110			
Matrix Spike Analyzed: 03/30/2005 (5C30051-MS1)											
						Source: IOC2315-01					
Chloride	18.9	0.50	0.26	mg/l	5.00	13	118	80-120			
Matrix Spike Dup Analyzed: 03/30/2005 (5C30051-MSD1)											
						Source: IOC2315-01					
Chloride	18.9	0.50	0.26	mg/l	5.00	13	118	80-120	0	20	
Batch: 5D01093 Extracted: 04/01/05											
Blank Analyzed: 04/01/2005 (5D01093-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 04/01/2005 (5D01093-BS1)											
Total Suspended Solids	935	10	10	mg/l	1000		94	85-115			
Duplicate Analyzed: 04/01/2005 (5D01093-DUP1)											
						Source: IOC2192-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: Ambient Stormwater

Report Number: IOC2192

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

DATA QUALIFIERS AND DEFINITIONS

- H-1** Sample analysis performed past the method-specified holding time per client's approval.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M-HA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- 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



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

Project ID: Ambient Stormwater

Report Number: IOC2192

Sampled: 03/23/05

Received: 03/23/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 160.5	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

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: IOC2192-01

Analysis Performed: EDD + Level 4

Samples: IOC2192-01

Del Mar Analytical, Irvine

Michele Harper

Project Manager

1002192

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CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:				Project:				ANALYSIS REQUIRED						Field readings:			
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101				Boeing-SSFL NPDES Ambient Sample										Temp = 60.3 pH = 6.2			
Del Mar Contact: Michele Harper				Phone Number: (626) 568-6691										Comments			
Project Manager: Bronwyn Kelly				Fax Number: (626) 568-6515													
Sampler: <i>Pollock</i>																	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals	TCDD (and all congeners)	Settleable Solids	TSS, CP							
Ambient	W	Poly-1L	1	3-23-05 - (3) <i>CP</i>	HNO3	1	X										
Ambient	W	Poly-1L	1		HNO3	1	X										
Ambient	W	Glass- Amber	2		None	2A, 2B		X									
Ambient	W	Poly-1L	1		None	3		X									
Ambient	W	Poly-1L	1	<i>CP</i>	None	4			X								
												Turn around Time: (check) 24 Hours _____ 5 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____ Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____ Sample Integrity: (Check) Intact _____ On Ice _____					
Relinquished By: <i>[Signature]</i>				Date/Time: 3/23/05 1535				Received By: <i>[Signature]</i>						Date/Time: 3/23/05 1535			
Relinquished By: <i>[Signature]</i>				Date/Time: 3/23/05 1830				Received By: <i>[Signature]</i>						Date/Time: 3/23/05 1830			
Relinquished By: <i>[Signature]</i>				Date/Time: _____				Received By: _____				Date/Time: _____					

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Hold until Further Notice

April 27, 2005

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

Attention: Bronwyn Kelly

Project: Ambient Stormwater
Sampled: 03/23/05
Del Mar Analytical Number: IOC2192

Dear Ms. Kelly:

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

MWH ID	Del Mar ID	Alta ID
Ambient	IOC2192-01	25997-001

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

Sincerely yours,

DEL MAR ANALYTICAL


Michele Harper
Project Manager

Enclosure

Section I: Sample Inventory Report

Date Received: 4/2/2005

Alta Lab. ID

Client Sample ID

25997-001

IOC2192-01

SECTION II

Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6707	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	16-Apr-05	Date Analyzed DB-5:	17-Apr-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00000119			13C-2,3,7,8-TCDD	68.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000985			13C-1,2,3,7,8-PeCDD	77.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000193			13C-1,2,3,4,7,8-HxCDD	71.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000188			13C-1,2,3,6,7,8-HxCDD	77.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000190			13C-1,2,3,4,6,7,8-HpCDD	65.3	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.00000164			13C-OCDD	42.9	17 - 157	
OCDD	ND	0.00000457			13C-2,3,7,8-TCDF	72.5	24 - 169	
2,3,7,8-TCDF	ND	0.00000111			13C-1,2,3,7,8-PeCDF	69.4	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000188			13C-2,3,4,7,8-PeCDF	73.5	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000164			13C-1,2,3,4,7,8-HxCDF	70.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000618			13C-1,2,3,6,7,8-HxCDF	81.4	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000620			13C-2,3,4,6,7,8-HxCDF	75.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000756			13C-1,2,3,7,8,9-HxCDF	73.0	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000127			13C-1,2,3,4,6,7,8-HpCDF	70.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00000100			13C-1,2,3,4,7,8,9-HpCDF	58.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000151			13C-OCDF	49.3	17 - 157	
OCDF	ND	0.00000490			CRS 37Cl-2,3,7,8-TCDD	83.2	35 - 197	
Totals								
Total TCDD	ND	0.00000119						
Total PeCDD	ND	0.00000985						
Total HxCDD	ND	0.00000190						
Total HpCDD	ND	0.00000164						
Total TCDF	ND	0.00000111						
Total PeCDF	ND	0.00000176						
Total HxCDF	ND	0.000000785						
Total HpCDF	ND	0.00000121						

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

Analyst: JMH

Approved By: Martha M. Maier

18-Apr-2005 14:57



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 17-Apr-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6707	Lab Sample:	0-OPR001	Date Analyzed DB-5:	17-Apr-05
Sample Size:	1.000 L	Date Extracted:	16-Apr-05	Date Analyzed DB-225:	NA	Lab Sample:	0-OPR001
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.00	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	45.9	35 - 71	13C-1,2,3,7,8-PeCDD	70.6	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	46.6	35 - 82	13C-1,2,3,4,7,8-HxCDD	73.8	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	46.6	38 - 67	13C-1,2,3,6,7,8-HxCDD	84.1	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	43.6	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	63.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	48.9	35 - 70	13C-OCDD	46.9	17 - 157	
OCDD	100	98.2	78 - 144	13C-2,3,7,8-TCDF	69.9	24 - 169	
2,3,7,8-TCDF	10.0	9.06	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	68.9	24 - 185	
1,2,3,7,8-PeCDF	50.0	47.8	40 - 67	13C-2,3,4,7,8-PeCDF	71.3	21 - 178	
2,3,4,7,8-PeCDF	50.0	46.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	77.5	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	51.7	36 - 67	13C-1,2,3,6,7,8-HxCDF	89.9	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	48.8	42 - 65	13C-2,3,4,6,7,8-HxCDF	78.6	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	51.4	35 - 78	13C-1,2,3,7,8,9-HxCDF	68.7	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.5	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	50.8	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	66.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	53.6	39 - 69	13C-OCDF	55.0	17 - 157	
OCDF	100	103	63 - 170	<u>CRS</u> 37Cl-2,3,7,8-TCDD	81.7	35 - 197	

Analyst: JMH

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



Sample ID: IOC2192-01		EPA Method 1613					
Client Data		Sample Data		Laboratory Data			
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25997-001	Date Received: 2-Apr-05				
Project: IOC2192	Sample Size: 0.987 L	QC Batch No.: 6707	Date Extracted: 16-Apr-05				
Date Collected: 23-Mar-05		Date Analyzed DB-5: 17-Apr-05	Date Analyzed DB-225: NA				
Time Collected: 1304							
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00000178			50.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000132			52.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000360			48.5	32 - 141	
1,2,3,6,7,8-HxCDD	0.00000660			J	54.9	28 - 130	
1,2,3,7,8,9-HxCDD	0.00000572			J	38.3	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.000239				30.7	17 - 157	
OCDD	0.00342				51.5	24 - 169	
2,3,7,8-TCDF	ND	0.00000157			48.3	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000208			49.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000189			49.7	26 - 152	
1,2,3,4,7,8-HxCDF	0.00000238			J	55.3	26 - 123	
1,2,3,6,7,8-HxCDF	0.00000228			J	51.5	28 - 136	
2,3,4,6,7,8-HxCDF	0.00000224			J	45.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000187			38.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.0000345			A	33.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000413			32.4	17 - 157	
OCDF	0.0000449			J	79.2	35 - 197	
Totals							
Total TCDD	ND	0.00000178					
Total PeCDD	ND	0.00000132					
Total HxCDD	0.0000551						
Total HpCDD	0.000836						
Total TCDF	ND	0.00000157					
Total PeCDF	0.00000917						
Total HxCDF	0.0000690						
Total HpCDF	0.0000858						
Footnotes							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							

Analyst: JMH

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

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS

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



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3620 Fax (702) 796-3621

SUBCONTRACT ORDER - PROJECT # IOC2192

SENDING LABORATORY:	RECEIVING LABORATORY:
Del Mar Analytical, Irvine 17461 Derian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Harper	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone : (916) 933-1640 Fax: (916) 933-0940 <div style="text-align: right; font-size: 1.2em; margin-top: 10px;"> 25997 4.2°C </div>

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

Analysis	Expiration	Comments
Sample ID: IOC2192-01 Water Sampled: 03/23/05 13:04		
1613-Dioxin-HR	03/30/05 13:04	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/20/05 13:04	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC2192-01E)		
1 L Amber (IOC2192-01F)		

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): _____

				4/2/05	0900
Released By	Date	Time	Received By	Date	Time
Released By	Date	Time	Received By	Date	Time
Project 25997					

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25997

1. Date Samples Arrived: <u>4/2/05 0900</u> Initials: <u>CV</u> Location: <u>WR-2</u>			
2. Time / Date logged In: <u>1000 4/5/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>4.2°</u>			
	YES	NO	NA
5. Shipping Container(s) Intact? If not, describe condition in comment section.	✓		
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.		✓	✓
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7909 6835 9524</u>	✓		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. Intact? If not intact, describe condition in comment section.		✓	✓
9. Sample Container Intact? If no, indicate sample condition in comment section.	✓		
10. Chain of Custody (COC) or other Sample Documentation Present?	✓		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.		✓	
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		✓	✓
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓

Comments:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762

STANDARD OPERATING PROCEDURE

Attachment 10.B.4

Client: Del Mar Chain of Custody Anomaly / Sample Acceptance Form
 Project Number: 25997
 Contact: Michele Harper Date Received: 4/2/05
 Fax Number: 261/1228 Documented by/date: BLB 4/5/05

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis. Thank You. (Fax #916-673-0106)

The following information or item is needed to proceed with the analysis:

- Completed Chain-of-Custody
- Test Method Requested
- Analyte List Requested
- Preservative
- Sample Identification
- Sample Collection Date /Time
- Collector's Name
- Sample Type
- Sample Location

The following anomalies were noted. Authorization is needed to proceed with the analysis:

Temperature outside $\pm 2^{\circ}\text{C}$ range	Samples Affected: _____
Temp _____ $^{\circ}\text{C}$	Ice Present? Yes No
Sample ID Discrepancy	Samples Affected: _____
Sample holding time missed	Samples Affected: _____
Custody seals broken	Samples Affected: _____
Insufficient Sample Size	Samples Affected: _____
Sample Container(s) Broken	Samples Affected: _____
Incorrect Container Type	Samples Affected: _____
Other _____	

Client Authorization:
 Proceed With Analysis: YES NO Signature and Date: UH 4/20/05
 Client Comments/Instructions: "PP" per email from M. Harper

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762