Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
S	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.
*#	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).

DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOE0230

Prepared 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 #:	IOE0230
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	General Minerals
QC Level:	Level IV
No. of Samples:	1
Reviewer:	P. Meeks
Date of Review:	June 15, 2005

The sample listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 160.2, 260.5, 180.1, 350.2, 405.1, 413.1, and 418.1*, *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	IOE0230-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for ammonia, total recoverable hydrocarbons, and oil and grease, the seven day holding time for total dissolved solids and total suspended solids, the 48-hour holding time for turbidity and BOD, and the 24-hour holding time for settleable solids were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995. Initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, the LCS recovery was within the CCV control limits. For BOD, no information regarding the calibration of the oxygen meter was provided. As the BOD LCS recovery was above the CCV control limits (90-110%), BOD reported in Outfall 012 was qualified as estimated, "J." Calibration is not applicable to total dissolved solids, total suspended solids, or total settleable solids. No further qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5E05095-BLK1 and oil and grease was detected in method blank 5E06041-BLK1, but neither were at sufficient concentration to qualify the site sample. 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

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

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

Laboratory duplicate analyses were performed on sample Outfall 012 for turbidity. The RPD was within the laboratory-established control limit of ≤20% and no qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of 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. BOD 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: 1OE0230

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

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water) - cont.					**Sampled: 05/03/05**						
Reporting Units: mg/l											
Ammonia-N (Distilled)	EPA 350.2	5E05091	0.30	0.50	ND	1	05/05/05	05/05/05		U	
Biochemical Oxygen Demand	EPA 405.1	5E04069	0.59	2.0	**1.5**	1	05/04/05	05/09/05		J	J R, DN
Oil & Grease	EPA 413.1	5E06041	0.94	5.0	ND	1	05/06/05	05/18/05		U	
Total Dissolved Solids	SM2540C	5E04104	10	10	**250**	1	05/04/05	05/04/05			
Total Suspended Solids	EPA 160.2	5E08025	10	10	**11**	1	05/08/05	05/08/05			
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**						
Reporting Units: ml/l/hr											
Total Settleable Solids	EPA 160.5	5E05078	0.10	0.10	**0.10**	1	05/05/05	05/05/05			
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**						
Reporting Units: NTU											
Turbidity	EPA 180.1	5E05095	0.040	1.0	**30**	1	05/05/05	05/05/05			
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**						
Reporting Units: ug/l											
Perchlorate	EPA 314.0	5E10060	0.80	4.0	ND	1	05/10/05	05/10/05		*	C

* Analysis not validated

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test
Report Number: IOE0230

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

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0230-01 (DRAFT: Outfall 012 - Water)					**Sampled: 05/03/05**				Rev Qual / Qual Code
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5E12040	0.34	1.1	**5.2**	1	05/12/05	05/12/05	

AMEC VALIDATED

LEVEL D

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

7

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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: 05/17/05
Received: 05/17/05
Issued: 07/08/05 12:08

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

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. No results were reported for the MS and MSD for 1,4-Dioxane by EPA 8260 due to instrument failure. Batch was accepted based on Blank Spike (LCS) recoveries.

LABORATORY ID	CLIENT ID	MATRIX
IOE1098-01	Outfall 012	Water
IOE1098-02	Trip Blank	Water

Reviewed By:

Michele Harper

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test
Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: IOE1098-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5E18081	0.31	1.0	**2.6**	1	05/18/05	05/18/05	

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Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: IOE1098-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5E19055	0.082	0.50	**0.52**	0.98	05/19/05	05/21/05	
Surrogate: n-Octacosane (40-125%)					*62 %*				

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Project ID: Alfa Outfall 012 - During Test
Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: IOE1098-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E23004	0.050	0.10	**0.22**	1	05/23/05	05/23/05	
Surrogate: 4-BFB (FID) (65-140%)					*84 %*				
Sample ID: IOE1098-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E23004	0.050	0.10	ND	1	05/23/05	05/23/05	
Surrogate: 4-BFB (FID) (65-140%)					*90 %*				

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Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: IOE1098-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5E18021	0.32	2.0	ND	1	05/18/05	05/18/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E18021	0.32	5.0	ND	1	05/18/05	05/18/05	
1,2,3-Trichloropropane	EPA 624	5E18021	0.85	10	ND	1	05/18/05	05/18/05	
Di-isopropyl Ether (DIPE)	EPA 624	5E18021	0.25	5.0	ND	1	05/18/05	05/18/05	C
tert-Butanol (TBA)	EPA 624	5E18021	3.1	25	ND	1	05/18/05	05/18/05	
Surrogate: Dibromofluoromethane (80-120%)					*101 %*				
Surrogate: Toluene-d8 (80-120%)					*99 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*92 %*				
Sample ID: IOE1098-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5E18021	0.32	2.0	ND	1	05/18/05	05/18/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E18021	0.32	5.0	ND	1	05/18/05	05/18/05	
1,2,3-Trichloropropane	EPA 624	5E18021	0.85	10	ND	1	05/18/05	05/18/05	
Di-isopropyl Ether (DIPE)	EPA 624	5E18021	0.25	5.0	ND	1	05/18/05	05/18/05	C
tert-Butanol (TBA)	EPA 624	5E18021	3.1	25	ND	1	05/18/05	05/18/05	
Surrogate: Dibromofluoromethane (80-120%)					*100 %*				
Surrogate: Toluene-d8 (80-120%)					*98 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: IOE1098-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Naphthalene	EPA 625	5E18044	4.5	10	**9.1**	0.962	05/18/05	05/23/05	J
N-Nitrosodimethylamine	EPA 625	5E18044	3.7	20	ND	0.962	05/18/05	05/23/05	
Surrogate: 2-Fluorophenol (30-120%)					*54 %*				
Surrogate: Phenol-d6 (35-120%)					*62 %*				
Surrogate: 2,4,6-Tribromophenol (45-120%)					*87 %*				
Surrogate: Nitrobenzene-d5 (45-120%)					*69 %*				
Surrogate: 2-Fluorobiphenyl (45-120%)					*79 %*				
Surrogate: Terphenyl-d14 (45-120%)					*72 %*				

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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE1098-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E19076	0.30	0.50	ND	1	05/19/05	05/19/05	
Biochemical Oxygen Demand	EPA 405.1	5E18058	0.59	2.0	**4.0**	1	05/18/05	05/23/05	
Oil & Grease	EPA 413.1	5E20083	0.94	5.0	ND	1	05/20/05	05/20/05	
Total Dissolved Solids	SM2540C	5E18111	10	10	**270**	1	05/18/05	05/18/05	
Total Suspended Solids	EPA 160.2	5E23060	10	10	**12**	1	05/23/05	05/23/05	
Sample ID: IOE1098-01 (Outfall 012 - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5E18060	0.10	0.10	ND	1	05/18/05	05/18/05	
Sample ID: IOE1098-01 (Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5E18074	0.040	1.0	**15**	1	05/18/05	05/18/05	
Sample ID: IOE1098-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5E24062	0.80	4.0	ND	1	05/24/05	05/24/05	

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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: IOE1098-01 (Outfall 012 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5E2019	0.49	1.0	ND	1	05/20/05	05/20/05	
Surrogate: Dibromofluoromethane (80-125%)					*124 %*				

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Sampled: 05/17/05
Received: 05/17/05

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 (IOE1098-01) - Water					
EPA 160.5	2	05/17/2005 13:56	05/17/2005 18:50	05/18/2005 10:00	05/18/2005 11:00
EPA 180.1	2	05/17/2005 13:56	05/17/2005 18:50	05/18/2005 11:00	05/18/2005 12:00
EPA 405.1	2	05/17/2005 13:56	05/17/2005 18:50	05/18/2005 16:00	05/23/2005 16:00

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METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E18081 Extracted: 05/18/05											
Blank Analyzed: 05/18/2005 (5E18081-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 05/18/2005 (5E18081-BS1)											M-NR1
Total Recoverable Hydrocarbons	4.51	1.0	0.31	mg/l	5.00		90	65-120			
LCS Dup Analyzed: 05/18/2005 (5E18081-BSD1)											
Total Recoverable Hydrocarbons	4.54	1.0	0.31	mg/l	5.00		91	65-120	1	20	

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METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E19055 Extracted: 05/19/05											
Blank Analyzed: 05/20/2005 (5E19055-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	*0.151*			*mg/l*	*0.200*		*75*	*40-125*			
LCS Analyzed: 05/20/2005 (5E19055-BS1)											
EFH (C13 - C40)	0.572	0.50	0.082	mg/l	0.775		74	40-120			
Surrogate: n-Octacosane	*0.161*			*mg/l*	*0.200*		*80*	*40-125*			
LCS Dup Analyzed: 05/20/2005 (5E19055-BSD1)											
EFH (C13 - C40)	0.505	0.50	0.082	mg/l	0.775		65	40-120	12	25	
Surrogate: n-Octacosane	*0.146*			*mg/l*	*0.200*		*73*	*40-125*			

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E23004 Extracted: 05/23/05											
Blank Analyzed: 05/23/2005 (5E23004-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	*0.00783*			*mg/l*	*0.0100*		*78*	*65-140*			
LCS Analyzed: 05/23/2005 (5E23004-BS1)											
GRO (C4 - C12)	0.732	0.10	0.050	mg/l	0.800		92	70-140			
Surrogate: 4-BFB (FID)	*0.0243*			*mg/l*	*0.0300*		*81*	*65-140*			
Matrix Spike Analyzed: 05/23/2005 (5E23004-MS1)						**Source: IOE1040-01**					
GRO (C4 - C12)	0.218	0.10	0.050	mg/l	0.220	ND	99	60-140			
Surrogate: 4-BFB (FID)	*0.0106*			*mg/l*	*0.0100*		*106*	*65-140*			
Matrix Spike Dup Analyzed: 05/23/2005 (5E23004-MSD1)						**Source: IOE1040-01**					
GRO (C4 - C12)	0.224	0.10	0.050	mg/l	0.220	ND	102	60-140	3	20	
Surrogate: 4-BFB (FID)	*0.0101*			*mg/l*	*0.0100*		*101*	*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 Limit	Data Qualifiers
Batch: 5E18021 Extracted: 05/18/05											
Blank Analyzed: 05/18/2005 (5E18021-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	*24.8*			*ug/l*	*25.0*		*99*	*80-120*			
Surrogate: Toluene-d8	*24.6*			*ug/l*	*25.0*		*98*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*22.4*			*ug/l*	*25.0*		*90*	*80-120*			
LCS Analyzed: 05/18/2005 (5E18021-BS1)											
1,2-Dibromoethane (EDB)	26.2	2.0	0.32	ug/l	25.0		105	70-125			
Methyl-tert-butyl Ether (MTBE)	26.6	5.0	0.32	ug/l	25.0		106	55-140			
1,2,3-Trichloropropane	24.1	10	0.85	ug/l	25.0		96	55-130			
Di-isopropyl Ether (DIPE)	31.2	5.0	0.25	ug/l	25.0		125	60-135			
tert-Butanol (TBA)	142	25	3.1	ug/l	125		114	65-135			
Surrogate: Dibromofluoromethane	*25.6*			*ug/l*	*25.0*		*102*	*80-120*			
Surrogate: Toluene-d8	*24.9*			*ug/l*	*25.0*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.1*			*ug/l*	*25.0*		*100*	*80-120*			
Matrix Spike Analyzed: 05/19/2005 (5E18021-MS1)						**Source: IOE1098-01**					
1,2-Dibromoethane (EDB)	26.7	2.0	0.32	ug/l	25.0	ND	107	65-130			
Methyl-tert-butyl Ether (MTBE)	27.7	5.0	0.32	ug/l	25.0	ND	111	50-150			
1,2,3-Trichloropropane	24.0	10	0.85	ug/l	25.0	ND	96	50-135			
Di-isopropyl Ether (DIPE)	32.5	5.0	0.25	ug/l	25.0	ND	130	60-140			
tert-Butanol (TBA)	149	25	3.1	ug/l	125	ND	119	60-145			
Surrogate: Dibromofluoromethane	*25.6*			*ug/l*	*25.0*		*102*	*80-120*			
Surrogate: Toluene-d8	*24.8*			*ug/l*	*25.0*		*99*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.5*			*ug/l*	*25.0*		*102*	*80-120*			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E18021 Extracted: 05/18/05											
Matrix Spike Dup Analyzed: 05/19/2005 (5E18021-MSD1)						**Source: IOE1098-01**					
1,2-Dibromoethane (EDB)	25.4	2.0	0.32	ug/l	25.0	ND	102	65-130	5	25	
Methyl-tert-butyl Ether (MTBE)	26.6	5.0	0.32	ug/l	25.0	ND	106	50-150	4	25	
1,2,3-Trichloropropane	23.1	10	0.85	ug/l	25.0	ND	92	50-135	4	30	
Di-isopropyl Ether (DIPE)	31.6	5.0	0.25	ug/l	25.0	ND	126	60-140	3	25	
tert-Butanol (TBA)	139	25	3.1	ug/l	125	ND	111	60-145	7	25	
Surrogate: Dibromofluoromethane	*26.5*			*ug/l*	*25.0*		*106*	*80-120*			
Surrogate: Toluene-d8	*24.8*			*ug/l*	*25.0*		*99*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.5*			*ug/l*	*25.0*		*102*	*80-120*			

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E18044 Extracted: 05/18/05											
Blank Analyzed: 05/23/2005 (5E18044-BLK1)											
Naphthalene	ND	10	4.5	ug/l							
N-Nitrosodimethylamine	ND	20	3.7	ug/l							
Surrogate: 2-Fluorophenol	*93.0*			*ug/l*	*200*		*46*	*30-120*			
Surrogate: Phenol-d6	*116*			*ug/l*	*200*		*58*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*139*			*ug/l*	*200*		*70*	*45-120*			
Surrogate: Nitrobenzene-d5	*58.8*			*ug/l*	*100*		*59*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*64.4*			*ug/l*	*100*		*64*	*45-120*			
Surrogate: Terphenyl-d14	*60.6*			*ug/l*	*100*		*61*	*45-120*			
LCS Analyzed: 05/23/2005 (5E18044-BS1)											**M-NR**
Naphthalene	70.9	10	4.5	ug/l	100		71	50-120			
N-Nitrosodimethylamine	54.7	20	3.7	ug/l	100		55	40-120			
Surrogate: 2-Fluorophenol	*100*			*ug/l*	*200*		*50*	*30-120*			
Surrogate: Phenol-d6	*124*			*ug/l*	*200*		*62*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*156*			*ug/l*	*200*		*78*	*45-120*			
Surrogate: Nitrobenzene-d5	*62.6*			*ug/l*	*100*		*63*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*70.9*			*ug/l*	*100*		*71*	*45-120*			
Surrogate: Terphenyl-d14	*66.3*			*ug/l*	*100*		*66*	*45-120*			

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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: 5E18058 Extracted: 05/18/05											
Blank Analyzed: 05/23/2005 (5E18058-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 05/23/2005 (5E18058-BS1)											
Biochemical Oxygen Demand	220	100	30	mg/l	198		111	85-115			
LCS Dup Analyzed: 05/23/2005 (5E18058-BSD1)											
Biochemical Oxygen Demand	217	100	30	mg/l	198		110	85-115	1	20	
Batch: 5E18074 Extracted: 05/18/05											
Blank Analyzed: 05/18/2005 (5E18074-BLK1)											
Turbidity	ND	1.0	0.040	NTU							
Duplicate Analyzed: 05/18/2005 (5E18074-DUP1)						**Source: IOE1011-01**					
Turbidity	ND	1.0	0.040	NTU		ND				20	
Batch: 5E18111 Extracted: 05/18/05											
Blank Analyzed: 05/18/2005 (5E18111-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 05/18/2005 (5E18111-BS1)											
Total Dissolved Solids	950	10	10	mg/l	1000		95	90-110			
Duplicate Analyzed: 05/18/2005 (5E18111-DUP1)						**Source: IOE1098-01**					
Total Dissolved Solids	274	10	10	mg/l		270			1	10	

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E19076 Extracted: 05/19/05											
Blank Analyzed: 05/19/2005 (5E19076-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 05/19/2005 (5E19076-BS1)											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
Matrix Spike Analyzed: 05/19/2005 (5E19076-MS1)						**Source: IOE1098-01**					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	ND	101	70-120			
Matrix Spike Dup Analyzed: 05/19/2005 (5E19076-MSD1)						**Source: IOE1098-01**					
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0	ND	98	70-120	3	15	
Batch: 5E20083 Extracted: 05/20/05											
Blank Analyzed: 05/20/2005 (5E20083-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 05/20/2005 (5E20083-BS1)											**M-NR1**
Oil & Grease	14.9	5.0	0.94	mg/l	20.0		74	65-120			
LCS Dup Analyzed: 05/20/2005 (5E20083-BSD1)											
Oil & Grease	15.3	5.0	0.94	mg/l	20.0		76	65-120	3	20	
Batch: 5E23060 Extracted: 05/23/05											
Blank Analyzed: 05/23/2005 (5E23060-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E23060 Extracted: 05/23/05											
LCS Analyzed: 05/23/2005 (5E23060-BS1)											
Total Suspended Solids	975	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 05/23/2005 (5E23060-DUP1)						**Source: IOE1114-01**					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5E24062 Extracted: 05/24/05											
Blank Analyzed: 05/24/2005 (5E24062-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 05/24/2005 (5E24062-BS1)											
Perchlorate	48.1	4.0	0.80	ug/l	50.0		96	85-115			
Matrix Spike Analyzed: 05/24/2005 (5E24062-MS1)						**Source: IOE1503-01**					
Perchlorate	47.9	4.0	0.80	ug/l	50.0	ND	96	80-120			
Matrix Spike Dup Analyzed: 05/24/2005 (5E24062-MSD1)						**Source: IOE1503-01**					
Perchlorate	47.3	4.0	0.80	ug/l	50.0	ND	95	80-120	1	20	

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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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: P5E2019 Extracted: 05/20/05											
Blank Analyzed: 05/20/2005 (P5E2019-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	*1.18*			*ug/l*	*1.00*		*118*	*80-125*			
LCS Analyzed: 05/20/2005 (P5E2019-BS1)											**N-1**
1,4-Dioxane	11.0	1.0	0.49	ug/l	10.0		110	70-130			
Surrogate: Dibromofluoromethane	*1.17*			*ug/l*	*1.00*		*117*	*80-125*			
LCS Dup Analyzed: 05/20/2005 (P5E2019-BSD1)											
1,4-Dioxane	9.99	1.0	0.49	ug/l	10.0		100	70-130	10	20	
Surrogate: Dibromofluoromethane	*1.18*			*ug/l*	*1.00*		*118*	*80-125*			

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

DATA QUALIFIERS AND DEFINITIONS

C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
J	Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
M-NR	No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
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.
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

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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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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	N/A	X
EPA 350.2	Water		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, Arizona Cert #AZ0426, Nevada Cert #AZ-907*
9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B
Samples: IOE1098-01

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
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9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOE1098

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: IOE1098-01 Water	**Sampled: 05/17/05 13:56**		
Dioxane-8260B-out	05/31/05 13:56	05/26/05 12:00	Boeing-permit,sub DMAP, J flags,ID=DMA+Outfall 012
Level 4 Data Package - Out	06/14/05 13:56	05/26/05 12:00	Boeing

Containers Supplied:
40 ml VOA w/HCL (IOE1098-01H)
40 ml VOA w/HCL (IOE1098-01I)
40 ml VOA w/HCL (IOE1098-01J)

P0E0522-01

SAMPLE INTEGRITY:

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

Released By	Date	Time	Received By	Date	Time
[signature]	5-18-05	1700	[signature]	5/19/5	
Released By	Date	Time	Received By	Date	Time
			[signature]	5/19/5	10:15

4727 IOE1098

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

Client Name/Address:

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

Project Manager: Bronwyn Kelly

Sampler: Pollock

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

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 #	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-TCP, MTBE, DPE, TBA)	BOD5(20 degrees C)	625 Naphthalene +NDMA analysis	Ammonia-N, Titr. (350.2) w/ dist	Perchlorate	Turbidity,TDS, TSS	Settleable Solids	Comments
Outfall 012	W	1L Amber	1	5.17.05 13:56	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		H2S04	9A									X				
Outfall 012	W	1L Poly	1		None	10A										X	X		
Outfall 012	W	1L Poly	1		None	11A												X	
Trip Blank	W	VOAs	6		HCl	12A, 12B, 12C, 12D, 12E, 12F			X			X							

Field readings:
Temp = 72.5
pH = 7.3

Relinquished By: [signature] Date/Time: 5/17/05 1515
Received By: L De Lacy Date/Time: 5/17/05 1515

Relinquished By: L De Lacy Date/Time: 5/17/05 1850
Received By: Stacy Gunawan Date/Time: 5/17/05 1850

Relinquished By: Date/Time:
Received By: Date/Time:

Turn around Time: (check)
24 Hours _____ 5 Days _____
48 Hours _____ 10 Days _____
72 Hours _____ Normal _____
Perchlorate Only 72 Hours _____
Metals Only 72 Hours _____

Sample Integrity: (Check)
Intact ✓ On Ice: ✓ 6°C

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Semivolatiles

Package ID T711SV59
Task Order 313150010
SDG No. IOE1098
No. of Analyses 1

Date: July 5, 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: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOE1098

Prepared 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#:	IOE1098
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:	July 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	IOE1098-01	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 05/04/05. The average RRFs were ≥0.05 and the %RSDs were ≤35% for both 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 05/23/05. 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 (5E18044-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (5E18044-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 naphthalene and n-nitrosodimethylamine by EPA Method 625. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

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

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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

Del Mar Analytical

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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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	REV QUAL	QUAL CODE
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ug/l										
Naphthalene	EPA 625	5E18044	4.5	10	**9.1**	0.962	05/18/05	05/23/05	J	J DNQ
N-Nitrosodimethylamine	EPA 625	5E18044	3.7	20	ND	0.962	05/18/05	05/23/05	U	
Surrogate: 2-Fluorophenol (30-120%)					*54 %*					
Surrogate: Phenol-d6 (35-120%)					*62 %*					
Surrogate: 2,4,6-Tribromophenol (45-120%)					*87 %*					
Surrogate: Nitrobenzene-d5 (45-120%)					*69 %*					
Surrogate: 2-Fluorobiphenyl (45-120%)					*79 %*					
Surrogate: Terphenyl-d14 (45-120%)					*72 %*					

AMEC VALIDATED

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

LEVEL IV

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
355 South Teller Street
Suite 300
Lakewood, CO 80226

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

Package ID T711TF72
Task Order 313150010
SDG No. IOE1098
No. of Analyses 2
Date: July 6, 2005
Reviewer's Signature L Calvin

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

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

DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/Purgeable

SAMPLE DELIVERY GROUP: IOE1098

Prepared 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#:	IOE1098
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:	July 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	IOE1098-01	water	8015M/GRO
Trip Blank	Trip Blank	IOE1098-02	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°C ±2°C, at 6°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. 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 samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

One gasoline standard initial calibration dated 08/20/04 was associated with the sample analyses. The %RSD for GRO (C4-C12) was within the QC limit of ≤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 ≤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 (5E23004-BLK1) was associated with the sample analyses. GRO (C4-C12) was not detected above the MDL in the method blank. Review of the raw data indicated no false negative result. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5E23004-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140%. 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. 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 required.

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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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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers ver qual	qual code
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water) - cont.										
Reporting Units: mg/l										
GRO (C4 - C12)	EPA 8015 Mod.	5E23004	0.050	0.10	0.22	1	05/23/05	05/23/05		
Surrogate: 4-BFB (FID) (65-140%)					*84 %*					
Sample ID: IOE1098-02 (DRAFT: Trip Blank - Water)										
Reporting Units: mg/l										
GRO (C4 - C12)	EPA 8015 Mod.	5E23004	0.050	0.10	ND	1	05/23/05	05/23/05	U	
Surrogate: 4-BFB (FID) (65-140%)					*90 %*					

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
355 South Teller Street
Suite 300
Lakewood, CO 80226

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

Package ID T711TF73
Task Order 313150010
SDG No. IOE1098
No. of Analyses 1

Date: July 6, 2005
Reviewer's Signature L Calvin

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

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

DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/Extractable

SAMPLE DELIVERY GROUP: IOE1098

Prepared 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#:	IOE1098
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:	July 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 8015B, 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	IOE1098-01	water	8015B

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical laboratory on ice within the temperature limits of 4°C ±2°C. The Del Mar Analytical case narrative noted that the sample containers were received intact. No qualifications were required.

2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel, and accounted for the analysis presented in this SDG. 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 04/01/05. The %RSD was within the QC limit of ≤20%. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were ≤15%. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required

2.4 METHOD BLANKS

One method blank (5E19055-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 (5E19055-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 ≤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 SW-846 Method 8015B. 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.

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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5E19055	0.082	0.50	**0.52**	0.98	05/19/05	05/21/05	
Surrogate: n-Octacosane (40-125%)					*62 %*				

ver qual qual code

AMEC VALIDATED
LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
355 South Teller Street
Suite 300
Lakewood, CO 80226

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

Package ID T711VO111
Task Order 313150010
SDG No. IOE1098
No. of Analyses 1

Date: July 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: IOE1098

Prepared 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 #:	IOE1098
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:	July 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. Del Mar, CA	Matrix	Method
Outfall 012	Outfall 012	IOE1098-01	water	8260B

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the Del Mar within the temperature limits of 4°C ±2°C. The sample was subcontracted to Del Mar (Phoenix) for 1,4-dioxane analysis, and the sample was received within the temperature limits of 4°C ±2°C. The sample was properly preserved. The COC and transfer COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COC and transfer COC were signed by field and laboratory personnel. As the sample was couriered directly to the laboratory from the field, custody seals were not required. According to the transfer COC, there were no custody seals present on the cooler received by Del Mar Analytical in Arizona. 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 03/19/05, was associated with this SDG. The average RRF for 1,4-dioxane was ≥0.05 and the %RSD was ≤15%. The laboratory reported the continuing calibration and the blank spike (P5E2019-BS1) from the same analysis. As the analysis cannot be reported as both a CCV and a blank spike, the reviewer evaluated P5E2019-BS1 as the continuing calibration. The RRF for 1,4-dioxane was ≥0.05; and, the %D was ≤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 (P5E2019-BLK1) was associated with this SDG. Target compound 1,4-dioxane was not detected above the MDL 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 (P5E2019-BS1/BS1D) with this SDG; however, P5E2019-BS1 was reported as the CCV (see section 2.3); therefore, P5E2019-BS1D was evaluated as a single blank spike. The recovery for 1,4-dioxane was within the QC limits of 70-130%. The recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.8 FIELD QC SAMPLES

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

2.8.1 Trip Blanks

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

2.8.1.1 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 standard: +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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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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

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

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water) - cont.										
Reporting Units: ug/l										
1,4-Dioxane	EPA 8260B	P5E2019	0.49	1.0	ND	1	05/20/05	05/20/05	U	
Surrogate: Dibromofluoromethane (80-125%)					*124 %*					

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

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Volatiles

Package ID T711VO112
Task Order 313150010
SDG No. IOE1098
No. of Analyses 2

Date: July 5, 2005
Reviewer's Signature

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

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

DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOE1098

Prepared 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#:	IOE1098
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:	July 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* 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	IOE1098-01	water	624
Trip Blank	Trip Blank	IOE1098-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 GC/MS TUNING

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

2.3 CALIBRATION

One initial calibration dated 05/10/05 was associated with this SDG. The average RRFs were ≥0.05 for the target compounds listed on the sample result summaries. The %RSDs were ≤35% for all applicable target compounds. One continuing calibration dated 05/18/05 was associated with the sample analyses in this SDG. For the continuing calibration dated 05/18/05, the %Ds for all target compounds were ≤20% in the continuing calibration except for the %D for DIPE. Sample Outfall 012 had DIPE qualified as an estimated nondetect, "UJ." The trip blank required no qualification. The RRFs were ≥0.05 for the target compounds listed on the sample result summaries. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

One water method blank (5E18021-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 (5E18021-BS1) were associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

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

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 012 was the MS/MSD analyzed 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. There were no target compounds detected above the MDLs in the trip blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

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

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 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 standard and by the MDL study. As there were no sample detects in this SDG, compound quantitation was verified by recalculating a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in µg/L (ppb). No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

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

2.13 SYSTEM PERFORMANCE

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

Del Mar Analytical

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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: IOE1098

Sampled: 05/17/05
Received: 05/17/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL	QUAL CODE
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)											
Reporting Units: ug/l											
1,2-Dibromoethane (EDB)	EPA 624	5E18021	0.32	2.0	ND	1	05/18/05	05/18/05		U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E18021	0.32	5.0	ND	1	05/18/05	05/18/05		↓	
1,2,3-Trichloropropane	EPA 624	5E18021	0.85	10	ND	1	05/18/05	05/18/05			
Di-isopropyl Ether (DIPE)	EPA 624	5E18021	0.25	5.0	ND	1	05/18/05	05/18/05			
tert-Butanol (TBA)	EPA 624	5E18021	3.1	25	ND	1	05/18/05	05/18/05	C	UJ	C
Surrogate: Dibromofluoromethane (80-120%)					*101 %*					L	
Surrogate: Toluene-d8 (80-120%)					*99 %*						
Surrogate: 4-Bromofluorobenzene (80-120%)					*92 %*						
Sample ID: IOE1098-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l											
1,2-Dibromoethane (EDB)	EPA 624	5E18021	0.32	2.0	ND	1	05/18/05	05/18/05		U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E18021	0.32	5.0	ND	1	05/18/05	05/18/05		↓	
1,2,3-Trichloropropane	EPA 624	5E18021	0.85	10	ND	1	05/18/05	05/18/05			
Di-isopropyl Ether (DIPE)	EPA 624	5E18021	0.25	5.0	ND	1	05/18/05	05/18/05			
tert-Butanol (TBA)	EPA 624	5E18021	3.1	25	ND	1	05/18/05	05/18/05	C		C
Surrogate: Dibromofluoromethane (80-120%)					*100 %*						
Surrogate: Toluene-d8 (80-120%)					*98 %*						
Surrogate: 4-Bromofluorobenzene (80-120%)					*91 %*						

AMEC VALIDATED

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

LEVEL IV

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
355 South Teller Street
Suite 300
Lakewood, CO 80226

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

Package ID T711WC157
Task Order 313150010
SDG No. IOE1098
No. of Analyses 1

Date: 07/06/05
Reviewer's Signature L Jarusewic

ACTION ITEMS[a]	
1. **Case Narrative Deficiencies**	
2. **Out of Scope Analyses**	
3. **Analyses Not Conducted**	
4. **Missing Hardcopy Deliverables**	
5. **Incorrect Hardcopy Deliverables**	
6. **Deviations from Analysis Protocol, e.g.,**	Qualifications were applied for:
Holding Times	1) Low ICCS recovery
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: PERCHLORATE

SAMPLE DELIVERY GROUP: IOE1098

Prepared by

AMEC—Denver Operations
355 South Teller Street, Suite 300
Lakewood, Colorado 80226

1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
Sample Delivery Group #:	IOE1098
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Perchlorate
QC Level:	Level IV
No. of Samples:	1
Reviewer:	L. Jarusewic
Date of Review:	July 6, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 314.0,* and 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	IOE1098-01	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°C ± 2°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 associated with this SDG was ≥0.995. The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCVs, and IPC recoveries were within the control limits of 90-110%. The ICCS was recovered below the control limits at 86.2%; therefore, nondetected perchlorate was qualified as estimated, "UJ," in Outfall 012. No further qualifications were required.

2.3 BLANKS

The method blank and CCB results reported on the summary form 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 associated with this SDG was recovered 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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9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers Rev Qual	Qual Code
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5E19076	0.30	0.50	ND	1	05/19/05	05/19/05	*	
Biochemical Oxygen Demand	EPA 405.1	5E18058	0.59	2.0	**4.0**	1	05/18/05	05/23/05		
Oil & Grease	EPA 413.1	5E20083	0.94	5.0	ND	1	05/20/05	05/20/05		
Total Dissolved Solids	SM2540C	5E18111	10	10	**270**	1	05/18/05	05/18/05		
Total Suspended Solids	EPA 160.2	5E23060	10	10	**12**	1	05/23/05	05/23/05		
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ml/l/hr										
Total Settleable Solids	EPA 160.5	5E18060	0.10	0.10	ND	1	05/18/05	05/18/05		
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: NTU										
Turbidity	EPA 180.1	5E18074	0.040	1.0	**15**	1	05/18/05	05/18/05		
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5E24062	0.80	4.0	ND	1	05/24/05	05/24/05	UJ	R

* analysis not validated

AMEC VALIDATED

LEVEL II

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
355 South Teller Street
Suite 300
Lakewood, CO 80226

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

Package ID T711WC158
Task Order 313150010
SDG No. IOE1098
No. of Analyses 1

Date: 07/06/05
Reviewer's Signature L. Jarusewic

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

COMMENTS[b]	Acceptable as reviewed.

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

Data 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: IOE1098

Prepared by

AMEC—Denver Operations
355 South Teller Street, Suite 300
Lakewood, Colorado 80226

1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
Sample Delivery Group #:	IOE1098
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	General Minerals
QC Level:	Level IV
No. of Samples:	1
Reviewer:	L. Jarusewic
Date of Review:	July 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 418.1, 350.2, 405.1, 413.1, 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	IOE1098-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.3 BLANKS

Total dissolved solids were reported in method blank 5E18111-BLK1 at -12 mg/L; however, the method blank result was insufficient to qualify the total dissolved solids 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, total recoverable petroleum hydrocarbons, and oil and grease only) recoveries were within the laboratory-established control limits. The LCS is not applicable to turbidity or 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 ammonia on Outfall 012. The RPD was within the control limit of ≤15%. A laboratory duplicate analysis was performed for total dissolved solids on Outfall 012. The RPD was within the control limit of ≤10%. No qualifications were required due to MS/MSD or laboratory duplicate analyses.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were performed for ammonia on Outfall 012. The recoveries were within the control limits of 70-120% 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 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.

Del Mar Analytical

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5E18081	0.31	1.0	**2.6**	1	05/18/05	05/18/05	

Qual Code

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

Del Mar Analytical

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

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

Project ID: Alfa Outfall 012 - During Test

Report Number: IOE1098

Sampled: 05/17/05
Received: 05/17/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers (Rev Qual / Qual Code)
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E19076	0.30	0.50	ND	1	05/19/05	05/19/05	u
Biochemical Oxygen Demand	EPA 405.1	5E18058	0.59	2.0	**4.0**	1	05/18/05	05/23/05	
Oil & Grease	EPA 413.1	5E20083	0.94	5.0	ND	1	05/20/05	05/20/05	u
Total Dissolved Solids	SM2540C	5E18111	10	10	**270**	1	05/18/05	05/18/05	
Total Suspended Solids	EPA 160.2	5E23060	10	10	**12**	1	05/23/05	05/23/05	
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5E18060	0.10	0.10	ND	1	05/18/05	05/18/05	u
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5E18074	0.040	1.0	**15**	1	05/18/05	05/18/05	
Sample ID: IOE1098-01 (DRAFT: Outfall 012 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5E24062	0.80	4.0	ND	1	05/24/05	05/24/05	*

* analysis not validated

AMEC VALIDATED

LEVEL I

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

Del Mar Analytical

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

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: 05/20/05
Received: 05/20/05
Issued: 07/11/05 09:18

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
IOE1397-01	Outfall 012	Water
IOE1397-02	Trip Blank	Water

Reviewed By:

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Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test
Report Number: IOE1397

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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: IOE1397-01 (Outfall 012 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5E25081	0.31	1.0	**3.2**	1	05/25/05	05/25/05	

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EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE1397-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5E21048	0.082	0.50	**0.59**	0.971	05/21/05	05/21/05	
Surrogate: n-Octacosane (40-125%)					*49 %*				

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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: IOE1397-01 (Outfall 012 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E27034	0.050	0.10	**1.5**	1	05/27/05	05/27/05	
Surrogate: 4-BFB (FID) (65-140%)					*71 %*				
Sample ID: IOE1397-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5E27034	0.050	0.10	ND	1	05/27/05	05/27/05	
Surrogate: 4-BFB (FID) (65-140%)					*74 %*				

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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: IOE1397-01 (Outfall 012 - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5E24011	0.32	2.0	ND	1	05/24/05	05/24/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E24011	0.32	5.0	ND	1	05/24/05	05/24/05	
1,2,3-Trichloropropane	EPA 624	5E24011	0.85	10	ND	1	05/24/05	05/24/05	
Di-isopropyl Ether (DIPE)	EPA 624	5E24011	0.25	5.0	ND	1	05/24/05	05/24/05	
tert-Butanol (TBA)	EPA 624	5E24011	3.1	25	ND	1	05/24/05	05/24/05	
Surrogate: Dibromofluoromethane (80-120%)					*90 %*				
Surrogate: Toluene-d8 (80-120%)					*108 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*100 %*				
Sample ID: IOE1397-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dibromoethane (EDB)	EPA 624	5E24011	0.32	2.0	ND	1	05/24/05	05/24/05	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E24011	0.32	5.0	ND	1	05/24/05	05/24/05	
1,2,3-Trichloropropane	EPA 624	5E24011	0.85	10	ND	1	05/24/05	05/24/05	
Di-isopropyl Ether (DIPE)	EPA 624	5E24011	0.25	5.0	ND	1	05/24/05	05/24/05	
tert-Butanol (TBA)	EPA 624	5E24011	3.1	25	ND	1	05/24/05	05/24/05	
Surrogate: Dibromofluoromethane (80-120%)					*101 %*				
Surrogate: Toluene-d8 (80-120%)					*107 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*102 %*				

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