Project: SDG No.: Analysis: NPDES Multiple D/F

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of 4° C $\pm 2^{\circ}$ C. The samples were shipped to Alta for dioxin/furan analysis and were received below the temperature limits of 4° C $\pm 2^{\circ}$ C at 0° C and 1.1° C; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, the samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

Project: SDG No.: Analysis: NPDES Multiple D/F

2.3 CALIBRATION

2.3.1 Initial Calibration

The initial calibration was analyzed 05/09/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs ≤20% for the 16 native compounds (calibration by isotope dilution) and ≤35% for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6789-MB001) was extracted and analyzed with the samples in these SDGs. There were no target compound detects reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6789-OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

Project: SDG No.: Analysis: NPDES Multiple D/F

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. In five of the six SDGs, the laboratory noted that detects above the low point of the calibration curve but below the EPA Method 1613 minimum level were denoted by an "A" laboratory qualifier. However, all results with "A" qualifier were actually below the low point of the calibration curve and should have been flagged as "J." Also, one of the detects which should have been flagged as "A" was incorrectly flagged as "J" by the laboratory. Any detects below the method minimum level were qualified as estimated, "J." If the concentration of any component of the total was below the lower method calibration level (MCL), the total detect was qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." The results and reporting limits were reported in µg/L except for the results in sample Outfall 010 which were reported in ng/L. No further qualifications were required.

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		Laboratory Data	Lab Sample: 26117-001 QC Batch No.: 6780	Date Analyzed DB-5: 19-May-05	Labeled Standard	1S 13C 23 7 9 TCBS		13C-1 2 3 4 2 0 H. Chr.	13C-12.3 6.7 8-HVCDD	13C-1,2,3,4,6,7,8-HnCDD	13C-0CDD	13C-2.3.7.8.TCDF	13C-1.2.3.7.8-PeCDF	13C-2,3,4,7,8-PeCDF	13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	13C-OCDF	3/CI-2,3,7,8-TCDD	Footnotes	a. Sample specific estimated detection limit,	 Estimated maximum possible concentration, 	c. Method detection limit,	d. Lower control limit - upper courrol limit.	AMEC VALIDATED	LEVE 1
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Sample In.		Client Data	Project Date Collected	Time Collected	Analyte	2,3,7,8-TCDD	1,2,3,7,8-PeCDD	1,4,3,4,7,8-HxCDD	1,2,3,0,7,8-HXCDD 1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD	2,3,7,8-TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	1,2,3,4,7,8-HXCDF	1,4,3,6,7,8-HxCDF	4,3,4,0,7,8-HXCDF	1,4,3, (,8,9-HXCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF 3CDE	/E	E .	Total TCDD	Total PeCDD	Total HxCDD	Total TCDF	Total PeCDF	Total HxCDF	Fotal HpCDF	E KAS
		J ;	. £ 5	1	Cake Ai	<u>.</u> .	- F	4		DNO 1,2	<u> </u>	(d) -			7.	c Ā t	, t.	, c	7, -	1,4,5,4		1 orals	Tota	Tota			Total	***	Fotal	Analyst
			Alle anne y aptron		χ	ゴ		Marriago (Marriago (Marria	-	古り	***	ζ —		erine sande as subject			er old demonstrations on				·		 \	o de mario de la companya de la comp) h		<u>۲</u>	9 <u>10</u>	<u></u>	
				ç 1	- 1																				•				•	

Approved By:

William J. Luksemburg 20-May-2005 11:05

Sample ID:	10D2058-01 Outfall	010			
Client Data	ANTONIO BETTOVOLUME CONTINUES INTERNATIONAL INTERNATIONAL CONTINUES INTERNATIO		A COMPANY OF THE PASSAGE AND A COMPANY OF THE	The second state of the se	EFA Method 1613
Name	Del Mar Analytical, Irvine	Sample Data		Laboratory Data	en de la companya de
Project	IOD2058	Walnx		Lab Sample: 26116-001	Date Received: 30-Apr-05
Time Collected:	Z8-Apr-05 1205	Sample Size;	ze: 0.957 L	OC Batch No.: 6789 Date Anglyzed DB 5: 10 Mo.: Oc	Date Extracted: 17-May-05
Code Analyte	Conc. (ng/l.)	N a Even	q's	Care russing tea DB-5; 19-1May-05	Date Analyzed DB-225: NA
2378.TCDD	and distance and appropriate was professor or appropriate programment of the particular		Cuamers	Labeled Standard	%R LCL-UCL ^d Qualifiers
12.3.7 8-PeCm	ON OR	0.00139		IS 13C-2,3,7,8-TCDD	1
1.23.4.7.8-HxCDD		0.00165		13C-1,2,3,7,8-PeCDD	
1.2.3 6.7.8-HxCDD		0.00301		13C-1,2,3,4,7,8-HxCDD	
1,2,3,7,8,9-HxCDD		0.00283		13C-1,2,3,6,7,8-HxCDD	
123.4 6.7 8-HnCDD		0.00298		13C-1,2,3,4,6,7,8-HpCDD	52.7 23 - 140
DNA OCDD		0.007/4		13C-OCDD	
*/	#0CO!A		Status	13C-2,3,7,8-TCDF	
10318, p.C.		0.00166		13C-1,2,3,7,8-PeCDF	
TO TO TO THE		0.00262		13C-2,3,4,7,8-PeCDF	
122400000000000000000000000000000000000		0.00218		13C-1,2,3,4,7,8-HxCDF	
		0.000772		13C-1,2,3,6,7,8-HxCDF	
XXX-0,,,0,,,,		0.000738		13C-2,3,4,6,7,8-HxCDF	
4,2,4,0,7,0-mXCDF		0.000842		13C-1,2,3,7,8,9-HxCDF	
1,4,5,1,6,9-HXCDF		0.00149		13C-1.23 4 6 7 8-HmCDF	
1,2,3,4,6,7,8-HpCDF		0.00231		13C-1.2.3.4.7.8.9-HnCDF	531 35 130
1,2,3,4,7,6,7-mpc.UF OCDE		0.00224	and the second	13C-OCDF	
Samuel Company	ON I	0.00980		CRS 37CI-2,3,7,8-TCDD	
retais				Footnotes	
Total TCDD	Q.	0.00139		Sample energic serimond for the	
Total PeCDD	QZ	0.00165		Example special estimated detection imat.	
Total HXCDD	2	0.00293		o. Estudated maximum possible concentration.	
Total HpCDD	2	0.0137	*******	C. Method defection limit,	
Total TCDF	2	99100		u. Lower control innt - apper control limit.	
Total PeCDF	ND	0.00239			
Total HxCDF	\mathbf{S}	0.000911		AMEC VALIDATE	
		•	_		

Approved By:

William J. Luksemburg 20-May-2005 11:07

Analyst RAS

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA AMEC Earth & Environmental Package ID <u>T711MT89</u> 355 South Teller Street Task Order <u>313150010</u>, 313150012 Suite 300 SDG No. <u>IOD2031, 2053, 2055</u> Lakewood, CO 80226 No. of Analyses 3 Laboratory Del Mar Analytical Date: 06/27/05 Reviewer P. Meeks Reviewer's Signature Analysis/Method Metals ACTION ITEMS* Case Narrative **Deficiencies** 2. Out of Scope Analyses 3. Analyses Not Conducted 4. Missing Hardcopy **Deliverables** 5. Incorrect Hardcopy Deliverables 6. Deviations from Detects below the reporting limit. Analysis Protocol, e.g., **Holding Times** GC/MS Tune/Inst. Performance Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard

	VIII. 1014 1114 1114 1114 1114 1114 1114 111	
COMMENTS ^b		
^a Subcontracted analytical lab	onatory is not meeting contr	act and/or method requirements.

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

Performance Compound Identification and Quantitation

System Performance

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.
លរ	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.
₹	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
Н	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards us for the calibration was incorrect
С	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within conti limits.
В	Presumed contamination from preparation (method) blank.	Presumed contamination from preparati (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was number within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
Ε	Not applicable.	Duplicates showed poor agreement.
	Internal standard performance was unsatis- factory.	ICP ICS results were unsatisfactory.
4	Not applicable.	ICP Serial Dilution %D were not with control limits.
A.	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
r	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.
	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.
ı	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 use because another more technically soun analysis is available.
	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
NQ	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOD2051, IOD2053, IOD2055

Prepared by

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

SDG No.: Analysis:

NPDES IOD2051, 3, 5 MET

1. INTRODUCTION

Task Order Title:

NPDES Monitoring

Contract Task Order #:

313150010, 313150012

SDG#:

IOD205, IOD2053, IOD2055

Project Manager:

B. McIlvaine

Matrix:

Water

Analysis:

Metals

QC Level:

Level IV

No. of Samples:

3

No. of Reanalyses/Dilutions:

Reviewer:

P. Meeks

Date of Review:

June 29, 2005

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

Project:

NPDES

SDG No.;

IOD2051, 3, 5

Analysis:

MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 003	Outfall 003	IOD2051-01	water	ILM04
Outfall 004	Outfall 004	IOD2053-01	water	ILM04
Outfall 006	Outfall 006	IOD2055-01	water	ILM04

DATA VALIDATION REPORT

Project: SDG No.: NPDES IOD2051, 3, 5

Analysis:

MET

DATA VALIDATION REPORT

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. A duplicate sample was listed on the COCs for all samples; however, duplicate analyses were not necessary. As the samples were delivered to the laboratory by courier, custody seals were not required. No sample qualifications were required.

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

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

Project:

NPDES

SDG No.: Analysis:

IOD2051, 3, 5 MET

DATA VALIDATION REPORT

2.4 BLANKS

Lead was not detected in any of the blank analyses associated with the samples in these SDGs. No qualifications were required.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride. Lead was not spiked into the ICSAB solution. Potassium in both the ICSA and ICSAB and sodium in the ICSA were recovered above the linear range of the calibration. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No further qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5D29095-BS1. The LCS result on the summary form and in the raw data were within the laboratory-established ICP/MS control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

Project:

NPDES

SDG No.: Analysis: IOD2051, 3, 5 MET

DATA VALIDATION REPORT

2.10 ICP/MS AND ICP SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

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

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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



17461 Derian Ave., Suite 100, Invine, CA 91614 (949) 261-1022 FAX 9491 360 301-1014 £ Cooley Dr., Suite A, Colton CA 92314 (900) 170-4661 r.SX 9460 770-1340 9404 Chisapeake Dr., Suite 303, San Diego, CA 92123 (858) 361-8596 FAX 8300 500 1640 9830 South 51st St., Suite B-120, Phoenix, AZ 83044 (480) 780-0043 FAX (480) 785-0854 2520 £. Sunset Rd. #2, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3624

MWH-Pasadena/Boeing

Attention: Bronwyn Kelly

Project ID: Routine Outfall 003

300 North Lake Avenue, Suite 1200 Pasadena, CA 91101

Report Number: IOD2051

Sampled: 04/28/05

Received: 04/28/05

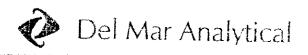
DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit			Date Extracted	Date Analyzed	Data Qualifiers	. 1
Sample ID: IOD2051-01 (DRAF Reporting Units: ug/l	T: Outfall 003 - V	Vater)							- G . i . i .	dial
Lead	EPA 200.8	5D29095	0.13	1.0	3.5	l	04/29/05	05/03/05		

AMEC VALIDATED

CVEL

DRAFT REPORT
DATA SUBJECT TO CHANGE



1746 (Derian Ave., Suite 180, Irvine, CA 92814 (849) 281-18022 FAX (349) 280-1907 1814 E. Conley Dr., Suite A. Cokon, CA 32324 (969) 171-1881 FAX (349) 280-1914 (969) 171-1889 FAX (349) 360-1914 (969) 171-189 (9 5/830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0043 2526 E. Sunset Rd. #3, Las Vegas, NV 89129 (702) 708-3620 FAX (702) 7/8-3023

MWH-Pasadena/Boeing

Project ID: Routine Outfall 004

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

Report Number: IOD2053

Sampled: 04/28/05 Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit			Date Extracted	Date Analyzed	_	_	
Sample ID: IOD2053-01 (D Reporting Units: ug/l	RAFT: Outfall 004 - W	ater)							Rei Que		on one
l.ead	EPA 200.8	5D29095	0.13	1.0	0.68	y verse.	04/29/05	05/03/05	j	T D	NQ



DRAFT REPORT DRAFT REPORT DATA SUBJECT TO CHANGE



17461 Derian Ave., Suite 100, Irvine, CA 92614 (649) 163-1623 FAX (949) 260-317 1014 E. Cooley Dr., Suite A. Colon, CA 92324 (900, 501-308) FAX (949) 370-3217 19484 Chosapeake Or., Suite 805, San Diego, CA 92123 (858) 363-3396 FAX (859) 560-9667 19484 Chosapeake Or., Suite 805, San Diego, CA 92123 (858) 363-3396 FAX (859) 560-9667 19484 Chosapeake Or., Suite 8-120, Phoenix, AZ 85644 (480) 783-9043 FAX (480) 785-9537 2520 E. Sonset Rd. #3 Las Vegas, NV 89120 (702) 798-3626 FAX (702) 798-3601

MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

riojeci izr. Neamie Oanan oo

Report Number: IOD2055

Sampled: 04/28/05

Received: 04/28/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit		Dilution Factor l		Date Analyzed	Data Qualifiers	
Sample ID: IOD2055-01 (DRAF Reporting Units: ug/l	T: Outfall 006 - W	ater)							Rev	1
Lead	EPA 200.8	5D29095	0.13	0.1	0.44	7	04/29/05	05/03/05	J <u>1</u>	ong

AMEC VALIDATED

EVEL

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

APPENDIX G

Section 5

Outfall 005

Del Mar Analytical Laboratory Reports

AMEC Data Validation Reports



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Cotton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 81-120, 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

H-Pasadena/Boeing Project: Routine Outfall 005

300 North Lake Avenue, Suite 1200 Pasadena, CA 91101

Attention: Bronwyn Kelly Sampled: 04/28/05

Received: 04/28/05 Issued: 06/20/05 16:58

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

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

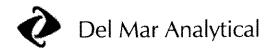
LABORATORY ID CLIENT ID MATRIX
IOD2054-01 Outfall 005 Water

Reviewed By:

Del Mar Analytical, Irvine

Michell Harper

Michele Harper Project Manager



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

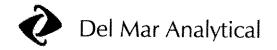
Attention: Bronwyn Kelly

Report Number: IOD2054

Sampled: 04/28/05

Received: 04/28/05

METALS									
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2054-01 (Outfall 00	5 - Water)								
Reporting Units: ug/l									
Antimony	EPA 200.8	5D29095	0.18	2.0	0.31	1	04/29/05	05/03/05	j
Cadmium	EPA 200.8	5D29095	0.015	1.0	0.058	1	04/29/05	05/03/05	J
Copper	EPA 200.8	5D29095	0.49	2.0	2.0	1	04/29/05	05/03/05	
Lead	EPA 200.8	5D29095	0.13	1.0	0.24	1	04/29/05	05/03/05	J
Mercury	EPA 245.1	5D29061	0.063	0.20	ND	1	04/29/05	04/29/05	



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MWH-Pasadena/Boeing

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly Report Number: IOD2054

Sampled: 04/28/05

Received: 04/28/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result		Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2054-01 (Outfall 005 -	Water) - cont.								
Reporting Units: mg/l									
Chloride	EPA 300.0	5D28116	0.26	0.50	2.9	The state of the s	04/28/05	04/29/05	
Nitrate/Nitrite-N	EPA 300.0	5D28116	0.072	0.26	4.2	1	04/28/05	04/29/05	
Oil & Grease	EPA 413.1	5E04036	0.94	5.0	ND	1	05/04/05	05/04/05	
Sulfate	EPA 300.0	5D28116	0.18	0.50	5.0	1	04/28/05	04/29/05	
Total Dissolved Solids	SM2540C	5E01033	10	10	94	1	05/01/05	05/01/05	
Total Suspended Solids	EPA 160.2	5E04071	10	10	ND	1	05/04/05	05/04/05	



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) S05-8596 FAX (858) 505-9689
9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200 Pasadena, CA 91101

Report Number: IOD2054

Sampled: 04/28/05

Received: 04/28/05

Attention: Bronwyn Kelly

SHORT HOLD TIME DETAIL REPORT

	Hold Time	Date/Time	Date/Time	Date/Time	Date/Time
	(in days)	Sampled	Received	Extracted	Analyzed
Sample ID: Outfall 005 (IOD2054-01) - Water	er				•
EPA 300.0	2	04/28/2005 10:52	04/28/2005 18:15	04/28/2005 21:30	04/29/2005 01:48



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MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly Project ID: Routine Outfall 005

Report Number: IOD2054

Sampled: 04/28/05 Received: 04/28/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Batch: 5D29061 Extracted: 04/29/05											
Blank Analyzed: 04/29/2005 (5D29061-BI	.K1)										
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 04/29/2005 (5D29061-BS1)										
Mercury	8.06	0.20	0.063	ug/I	8.00		101	85-115			
Matrix Spike Analyzed: 04/29/2005 (5D29	061-MS1)				Sour	ce: IOD2	2033-03				
Mercury	7.76	0.20	0.063	ug/l	8.00	ND	97	70-130			
Matrix Spike Dup Analyzed: 04/29/2005 (5D29061-MS	D 1)			Sour	ce: IOD2	033-03				
Mercury	7.82	0.20	0.063	ug/l	8.00	ND	98	70-130	1	20	
Batch: 5D29095 Extracted: 04/29/05											
Blank Analyzed: 05/03/2005 (5D29095-BL	K1)										
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 05/03/2005 (5D29095-BS1)											
Antimony	87.8	2.0	0.18	ug/l	80.0		110	85-115			
Cadmium	87.8	1.0	0.015	ug/l	80.0		110	85-115			
Copper	78.5	2.0	0.49	ug/l	80.0		98	85-115			
Lead	81.9	1.0	0.13	ug/l	80.0		102	85-115			
Matrix Spike Analyzed: 05/03/2005 (5D290	95-MS1)				Sourc	e: IOD20)54-01				
Antimony	98.9	2.0	0.18	ug/l	80.0	0.31	123	70-130			
Cadmium	86.7	1.0	0.015	ug/l	80.0	0.058	108	70-130			
Copper	79.4	2.0	0.49	ug/l	80.0	2.0	97	70-130			
i.ead	80.9	1.0	0.13	ug/l	80.0	0.24	101	70-130			

Del Mar Analytical, Irvine Michele Harper

Project Manager



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9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly Project ID: Routine Outfall 005

Report Number: IOD2054

Sampled: 04/28/05 Received: 04/28/05

METHOD BLANK/QC DATA

METALS

Analyte Batch: 5D29095 Extracted: 04/29/05	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Analyzed: 05/03/2005 (5D2	9095-MS2)				Sou	rce: IOD	2149-03				
Antimony	100	10	0.90	ug/l	80.0	ND	125	70-130			
Cadmium	76.0	5.0	0.075	ug/l	80.0	0.45	94	70-130			
Copper	90.1	10	2.4	ug/l	80.0	17	91	70-130			
Lead	73.5	5.0	0.65	ug/l	80.0	1.1	90	70-130			
Matrix Spike Dup Analyzed: 05/03/2005	(5D29095-MS	5D1)			Soui	rce: IOD2	2054-01				
Antimony	99.6	2.0	0.18	ug/I	80.0	0.31	124	70-130	1	20	
Cadmium	87.7	1.0	0.015	ug/l	80.0	0.058	110	70-130	I	20	
Copper	81.3	2.0	0.49	ug/l	80.0	2.0	99	70-130	2	20	
Lead	81.0	1.0	0.13	ug/l	80.0	0.24	101	70-130	0	20	



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MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly Project ID: Routine Outfall 005

Report Number: IOD2054

Sampled: 04/28/05 Received: 04/28/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D28116 Extracted: 04/28/05	-										
Blank Analyzed: 04/28/2005 (5D28116-Bl	LK1)										
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 04/28/2005 (5D28116-BS1)										
Chloride	4.82	0.50	0.26	mg/l	5.00		96	90-110			M-3
Sulfate	9.63	0.50	0.18	mg/l	10.0		96	90-110			M-3
Batch: 5E01033 Extracted: 05/01/05											
Blank Analyzed: 05/01/2005 (5E01033-BI	.K1)										
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 05/01/2005 (5E01033-BS1)										
Total Dissolved Solids	956	10	10	mg/l	1000		96	90-110			
Duplicate Analyzed: 05/01/2005 (5E01033	-DUP1)				Sour	ce: IOD2	237-01				
Total Dissolved Solids	285	10	10	mg/l		290			2	10	
Batch: 5E04036 Extracted: 05/04/05											
Blank Analyzed: 05/04/2005 (5E04036-BL	K1)										
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 05/04/2005 (5E04036-BS1)	•										M-NRI
Oil & Grease	18.5	5.0	0.94	mg/l	20.0		92	65-120			1-4 17454



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MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

Project ID: Routine Outfall 005

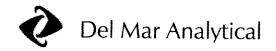
Report Number: IOD2054

Sampled: 04/28/05 Received: 04/28/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E04036 Extracted: 05/04/05	-										
LCS Dup Analyzed: 05/04/2005 (5E04036	5-BSD1)										
Oil & Grease	18.9	5.0	0.94	mg/l	20.0		94	65-120	2	20	
Batch: 5E04071 Extracted: 05/04/05	•										
Blank Analyzed: 05/04/2005 (5E04071-Bl	LK1)										
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 05/04/2005 (5E04071-BS1)										
Total Suspended Solids	1000	10	10	mg/l	1000		100	85-115			
Duplicate Analyzed: 05/04/2005 (5E0407)	-DUP1)				Sour	ce: IOD2	054-01				
Total Suspended Solids	ND	10	10	mg/l		ND				10	



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MWH-Pasadena/Boeing

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200 Pasadena, CA 91101

Report Number: IOD2054

Sampled: 04/28/05

Attention: Bronwyn Kelly

Received: 04/28/05

Compliance Check

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

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOD2054-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.096	5.0	15
IOD2054-01	Antimony-200.8	Antimony	ug/l	0.31	2.0	6.00
IOD2054-01	Cadmium-200.8	Cadmium	ug/l	0.058	1.0	4.00
IOD2054-01	Chloride - 300.0	Chloride	mg/l	2.90	0.50	150
IOD2054-01	Copper-200.8	Copper	ug/l	2.00	2.0	14
IOD2054-01	Mercury - 245.1	Mercury	ug/l	0.019	0.20	0.20
IOD2054-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	4.20	0.26	10.00
IOD2054-01	Sulfate-300.0	Sulfate	mg/l	5.00	0.50	250
IOD2054-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	94	10	850



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MWH-Pasadena/Boeing

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200

Sampled: 04/28/05 Pasadena, CA 91101 Report Number: IOD2054 Received: 04/28/05

Attention: Bronwyn Kelly

DATA QUALIFIERS AND DEFINITIONS

J Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.

M-3 Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was

accepted based on acceptable recovery in the Blank Spike (LCS).

M-NR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike

Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified. ND

RPD Relative Percent Difference



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

MWH-Pasadena/Boeing

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

Report Number: IOD2054

Sampled: 04/28/05

Received: 04/28/05

Certification Summary

Del Mar Analytical, Irvine

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

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

Subcontracted Laboratories

Alta Analytical California Cert #1640, Nevada Cert #CA-413

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 161

1613-Dioxin-HR

Samples: IOD2054-01

Analysis Performed: EDD + Level 4

Samples: IOD2054-01

CHAIN OF CUSTODY FORM Del Mar Analytical Version 02/17/04

45000:

Page 1 of ۵' Comments Field readings: 10 Days Sample Integrity—(Check)
Intact On ice. Turn around Time: (check)
24 Hours 5 Days Perchlorate Only 72 Hours, Metals Only 72 Hours 72 Hours 48 Hours ANALYSIS REQUIRED SST, SQT × CF' 204' NO3+NO5-N × Date/Time このを Oil & Gresse (EPA 413.1) × TCDD (snd all congeners) × Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg × 3A, 3B 2A, 2B 58 Bottle ₹ Ü \$ 5A, Preservative Reseived By Received By Boeing-SSFL NPDES Routine Outfall 005 Stormwater at FSDF-1 HN03 Sampling Preser Date/Time None None None 오 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515 500 Project: Date/Time: 50.82-4 0 # 0 # 0 Project Manager: Bronwyn Kelly 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Container Glass-Glass-Amber Poly-500 Poly-500 Poly-1L Poly-1L Client Name/Address MWH-Pasadena Sample Matrix Sampler: 16U ≥ ₹ ₹ 3 ≥ Jennished By Sample Description Ouffall 005-Outfall 005 Outfall 005 Outfall 005 Outfall 005 Outfall 005

17461 Derian Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunser Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

June 20, 2005

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

Attention:

Bronwyn Kelly

Project:

Routine Outfall 005

Sampled: 04/28/05

Del Mar Analytical Number: IOD2054

Dear Ms. Kelly:

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

MWH ID	Del Mar ID	Alta ID
Outfall 005	IOD2054-01	26113-001

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

Sincerely yours,

DEL MAR ANALYTICAL

Project Manager

Enclosure



May 20, 2005

Alta Project I.D.: 26113

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

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on April 30, 2005 under your Project Name "IOD2054". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

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

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

Sincerely,

Martha M. Maier

Director of HRMS Services

Marthe More



Also Analement Enhancement verifies that the report herein meets all the requirements set forth by NEFAC for those applicable rest methods this report should not be reportableed except to full without the weither approval of ALFA.





Section I: Sample Inventory Report

Date Received: 4/30/2005

Alta Lab. ID

Client Sample ID

26113-001

IOD2054-01



SECTION II

Project 26113



Matrix: Aqueous									
		QC Batch No.:	6829		Lab Sample: 0-	0-MB001			
Sample Size: 1.000 L		Date Extracted:	17-N	17-May-05	Date Analyzed DB-5: 19	19-May-05	Date And	Date Analyzed DB-225:	NA A
Analyte Conc. (ug/L)	L)	DL a	EMPC b	Qualifiers	Labeled Standard		%R	O pTOT-TOT	Oualifiers
CDD	N ON	0.00000124	Aministrative descriptions of the second		IS 13C-2,3,7,8-TCDD	West of the second seco	6.69	25 - 164	
QC	2	0.00000166			13C-1,2,3,7,8-PeCDD	۵	84.1	25 - 181	
Q	S	0.00000186			13C-1,2,3,4,7,8-HxCDD	OC.	72.5	32 - 141	
	£	0.00000179			13C-1,2,3,6,7,8-HxCDD	QQ;	75.3	28 - 130	
	S	0.00000186		v.	13C-1,2,3,4,6,7,8-HpCDD	CDD	65.8	}	
Q	R	0.00000303			13C-0CDD		58.4	17 - 157	
	N ON	0.00000677			13C-2,3,7,8-TCDF		81.1	1	
-TCDF	S	0.000000924			13C-1,2,3,7,8-PeCDF	L	79.5	24 - 185	
<u> </u>	R	0.00000226		*	13C-2,3,4,7,8-PeCDF	ĮĮ.	82.4	21 - 178	
	S	0.00000193			13C-1,2,3,4,7,8-HxCDF	.DF	72.6	26 - 152	
)F	S	0.000000785			13C-1,2,3,6,7,8-HxCDF	:DF	75.4	26 - 123	
	Q	0.000000731			13C-2,3,4,6,7,8-HxCDF	:DF	92.3	28 - 136	
	9	0.000000672			13C-1,2,3,7,8,9-HxCDF	:DF	68.4	29 - 147	
	QN	0.00000158			13C-1,2,3,4,6,7,8-HpCDF	CDF	63.5	28 - 143	
H	Ð	69600000000			13C-1,2,3,4,7,8,9-HpCDF	CDF	52.9	26 - 138	
	S	0.00000192			13C-OCDF		49.2	17 - 157	
	N ON	0.00000476			CRS 37CI-2,3,7,8-TCDD	ng-allochtesanssyteriteilichtheilige stage jahet	6.68	35 - 197	a propiesta de la constanta de
Totals					Footnotes ·	asvenadas de processos de la constitución de la con	-		
Total TCDD N	£	0.00000124	-		a. Sample specific estimated detection limit	tion limit.			
Total PeCDD N	ND	0.00000166			b. Estimated maximum possible concentration.	sncentration.			
Total HxCDD N	9	0.00000183			c. Method detection limit.				
Total HpCDD N	N Q	0.00000303			d. Lower control limit - upper control limit.	rol limit.			
Total TCDF N	웊	0.000000924							
Total PeCDF N	N ON	0.00000209							
Total HxCDF N	S S	0.000000872							
Total HpCDF	QN.	0.00000132	:						

Analyst

William J. Luksemburg 20-May-2005 10:59

Approved By:



OPR Results	n v skal sin kezi injenejaring za indekezini za kezingan ar begin zakezini dekezin				EPA Mei	EPA Method 1613
Matrix: Aqueous Sample Size: 1.000 L	Andrew Control of the	QC Batch No.: Date Extracted:	6789 17-May-05	Lab Sample: 0-OPR001 Date Analyzed DB-5: 19-May-05	Date Analyzed DB-225:	F-225: NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits	Labeled Standard	%R L	TOLLUCE
2,3,7,8-TCDD	10.0	10.3	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	66.3 2	25 - 164
1,2,3,7,8-PeCDD	50.0	51.8	35 71	13C-1,2,3,7,8-PeCDD	82.1 2.	25 - 181
1,2,3,4,7,8-HxCDD	50.0	50.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	69.4	32 - 141
1,2,3,6,7,8-HxCDD	50.0	52.2	38 67	13C-1,2,3,6,7,8-HxCDD	74.5	28 - 130
1,2,3,7,8,9-HxCDD	50.0	54.3	32-81	13C-1,2,3,4,6,7,8-HpCDD	64.6	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	40.2	17 - 157
OCDD	100	1.66	78 - 144	13C-2,3,7,8-TCDF	71.3	24 - 169
2,3,7,8-TCDF	10.0	10.1	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	78.8 2	24 - 185
1,2,3,7,8-PeCDF	50.0	49.0	40 - 67	13C-2,3,4,7,8-PeCDF	85.0 2	21 - 178
2,3,4,7,8-PeCDF	50.0	49.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	72.8 2	26 - 152
1,2,3,4,7,8-HxCDF	50.0	48.2	36-67	13C-1,2,3,6,7,8-HxCDF	78.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	48.8	42 - 65	13C-2,3,4,6,7,8-HxCDF	82.5	28 - 136
2,3,4,6,7,8-HxCDF	50.0	48.4	35-78	13C-1,2,3,7,8,9-HxCDF	69.8	29 - 147
1,2,3,7,8,9-HxCDF	50.0	49.7	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	58.1 2	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	49.7	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	45.9	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	50.6	39 - 69	13C-OCDF	36.3	17-157
OCDF	100	93.6	63 - 170	CRS 37CI-2,3,7,8-TCDD	85.6 3	35 - 197 ·

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 10:59



Sample ID: IOD2	IOD2054-01					m myse teterenissymmetelle myself fan medialelle	a de la constitución de la const	EPA M	EPA Method 1613
Client Data Name: Project: Date Collected: 28-Apr-0 Time Collected: 1652	Del Mar Analytical, Irvine 10D2054 28-Apr-05 1052		Sample Data Matrix: Sample Size:	Aqueous 0.943 L	Laboratory Data Lab Sample: QC Batch No.: Date Analyzed DB-5:	26113-001 6789 19-May-05	Date Received: Date Extracted: Date Analyz	Date Received: Date Extracted: Date Analyzed DB-225: NA	30-Apr-05 17-May-05 5: NA
Analyte	Conc. (ug/L)	DI a	EMPCb	Qualifiers	Labeled Standard		%R I	מכר-מכדק כ	Oualifiers
2,3,7,8-TCDD	ND	0.00000162	52		IS 13C-2,3,7,8-TCDD	Andrew Commencer of the Andrew Commencer of the Commencer	65.2	25 - 164	
1,2,3,7,8-PeCDD	QN	0.00000196	96		13C-1,2,3,7,8-PeCDD	D	6.89	25 - 181	
1,2,3,4,7,8-HxCDD	QN	0.00000297	97		13C-1,2,3,4,7,8-HxCDD	QQ;	6.09	32 - 141	
1,2,3,6,7,8-HxCDD	S	0.00000286	98		13C-1,2,3,6,7,8-HxCDD	QQ:	64.2	28 - 130	
1,2,3,7,8,9-HxCDD	S	0.00000297	26		13C-1,2,3,4,6,7,8-HpCDD	CDD	55.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	2	0.00000421	21		13C-OCDD		36,4	17 - 157	
OCDD	S	0.0000161	, -1		13C-2,3,7,8-TCDF		8.79	24 - 169	
2,3,7,8-TCDF	Q.	0.00000194	94		13C-1,2,3,7,8-PeCDF	ĹĮ,	64.5	24 - 185	
1,2,3,7,8-PeCDF	Q	0.00000278	78		13C-2,3,4,7,8-PeCDF	F	66.5	21 - 178	·
2,3,4,7,8-PeCDF	Ð	0.00000232	32		13C-1,2,3,4,7,8-HxCDF	:DF	9.69	26 - 152	
1,2,3,4,7,8-HxCDF	Q	0.000000933	933		13C-1,2,3,6,7,8-HxCDF	:DF	66.1	26 - 123	
1,2,3,6,7,8-HxCDF	S	0.000000917	217		13C-2,3,4,6,7,8-HxCDF	:DF	66.2	28 - 136	
2,3,4,6,7,8-HxCDF	R	0.000000991	991		13C-1,2,3,7,8,9-HxCDF	:DF	27.6	29 - 147	***********
1,2,3,7,8,9-HxCDF	S	0.00000193	93		13C-1,2,3,4,6,7,8-HpCDF	oCDF	46.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	8	0.00000135	35		13C-1,2,3,4,7,8,9-HpCDF	PCDF	41.9	26 - 138	***************************************
1,2,3,4,7,8,9-HpCDF	QN	0.00000263	63		13C-OCDF		34.7	17 - 157	
OCDF.	S	0.00000485	85		CRS 37Cl-2,3,7,8-TCDD		87.2	35 - 197	
Totals		-			Footnotes		٠		
Total TCDD	Q.	0.00000162	62		a. Sample specific estimated detection limit.	ection limit.			
Total PeCDD	N ON	0.00000196	96	. , .	b. Estimated maximum possible concentration	concentration.			
Total HxCDD	QN	0.00000293	93		c. Method detection limit.				
Total HpCDD	2	0.00000421	21		d. Lower control limit - upper control limit.	introl limit.			
Total TCDF	2	0.00000194	94						on a party of the second
Total PeCDF	S	0.00000254	54						
Total HxCDF	QN	0.00000112	12						
Total HpCDF	N ON	0.00000185	85						

Analyst: RAS

William J. Luksemburg 20-May-2005 10:59

Approved By:

Project 26113



APPENDIX

Project 26113 Page 7 of 227



DATA QUALIFIERS & ABBREVIATIONS

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

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

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

CURRENT CERTIFICATIONS



NELAP — (Primary AA: California, Certificate No. 02102CA)

Department of the Navy

U.S. Army Corps of Engineers

U.S. EPA Region 5

Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)

Commonwealth of Kentucky — (Certificate No. 90063)

Commonwealth of Virginia — (Certificate No. 00013)

State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)

State of Arizona — (Certificate No. AZ0639)

State of Arkansas, Department of Health — (Approval granted through CA certification)

State of Arkansas, Department of Environmental Quality

State of California — (Certificate No. 1640)

State of Colorado

State of Connecticut — (Certificate No. PH-0182)

State of Florida — (Certificate No. 87456)

State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)

State of Louisiana, Department of Environmental Quality

State of Maine

State of Michigan (Certificate No. 81178087)

State of Mississippi — (Approval granted through CA certification)

State of Nevada — (Certificate No. CA413)

State of New Jersey — (Certificate No. CA003)

State of New York, Department of Health — (Certificate No. 11411)

State of North Carolina — (Certification No. 06700)

State of North Dakota, Department of Health — (Certificate No. R-078)

State of New Mexico

State of Oklahoma - (D9919)

State of Oregon - (Certificate No. CA413)

State of Pennsylvania — (Certificate No. 68-490)

State of South Carolina — (Certificate No. 87002001)

State of Tennessee — (Certificate No. 02996)

State of Texas — (Certificate No. TX247-1000A

State of Utah — (Certificate No. E-201)

State of Washington - (Certification No. C091)

State of Wisconsin — (Certificate No. 998036160)

State of Wyoming — (USEPA Region 8 Ref. 8TMS-O)



17461 Derian Ave. Suite 100, Irvine, CA 92614 1014 E. Cooley Dr., Suite A, Cotton, CA 92324

9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (949) 261-1022 Fr Ph (909) 370-4667 Fr Ph (619) 505-9596 Fr

Fax (909) 370-1046 Fax (619) 505-9689

Ph (480) 785-0043 Fax (480) 785-0851 Ph (702) 798-3620 Fex (702) 798-3621

SUBCONTRACT ORDER - PROJECT #IOD2054

,	IDING LABORATORY:	RECEIVING LABORATORY:	-
Del Mar Analytical, Irv	ine	Alta Analytical	
17461 Derian Avenue.	Suite 100	1104 Windfield Way d6//3	
Irvine, CA 92614		1104 Windfield Way El Dorado Hills, CA 95762 Phane (010 032 1640	
Phone: (949) 261-1022		Phone :(916) 933-1640	
Fax: (949) 261-1228		Fax: (916) 673-0106	
Project Manager: Miche	le Harper		
Standard TAT is reque	ested unless specific due date is reques		
*	Expiration	Comments	
Sample ID: 10D2054-01 1613-Dioxin-HR EDD + Level 4		Instant Nofication J flags,17 congeners,no TEQ,sub=Alta, DP to AMEC Excel EDD email to pm,Include Std logs for Lyl IV	
Sample ID: 1OD2054-01 1613-Dioxin-HR	Water Sampled: 04/28/05 10:52 05/05/05 10:52	Instant Nofication J flags,17 congeners,no TEQ,sub=Alta, DP to AMEC	

			SAMPLE	INTEGRIT	Γ Y :	-		
All containers intact: Custody Seals Present:	☐ Yes ☐ N		ple labels/COC agree; ples Preserved Properly:	☐ Yes ☐ Yes	□ No □ No	Samples Received		☐ Yes ☐ No
		1296	15-17:00	M.	Telle	X- 4	130/05	0915
Released By		Date		Received By	·		Date'	Time
Released By		Date	Time	Received By	1		Date	Time

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 26//3

				-
1.	Date Samples Arrived: 4/30/05 0915 Initials: MUT Location	n: UM	′. ブ	
2.	Time / Date logged in: 0925 5/2/05 Initials: 48 Location	n: (WR-	J_
3.	Samples Arrived By: (circle) FedEx UPS World Courier Other:			
4.	Shipping Preservation: (circle) (Ice Blue Ice / Dry Ice / None Temp °C / /			,,
5.	Shipping Container(s) Intact"? If not, describe condition in comment section.	YES	NO	NA
6.	Shipping Container(s).Custody Seals Present?		1	
	Intact? If not intact, describe condition in comment section.			V
7.	Shipping Documentation Present? (circle) Shipping Label Airbill Tracking Number 79 (6 (353 \$ 260	/		
8.	Sample Custody Seal(s) Present? No. of Seals or Seal No. Intact? If not intact, describe condition in comment section.			
9.	Sample Container Intact? If no, indicate sample condition in comment section.			
11). Chain of Custody (COC) or other Sample Documentation Present?	V	[
1	. COC/Documentation Acceptable? If no, complete COC Anomaly Form.		<u> </u>	
1	2. Shipping Container (circle): ALTA Client Retain or Return or D	isposed		<u>/</u>
1	3. Container(s) and/or Bottle(s) Requested?			
1	Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			

comments fampler's initials found on sample lakely

ALTA Analytical Laboratory El Dorado Hills, CA 95762

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA AMEC Earth & Environmental Package ID T711DF47

AMEC Earth & Environmental		Package ID	T711DF47
550 South Wadsworth Boulevan	rd		313150012
Suite 500		SDG No.	
Lakewood, CO 80226		No. of Analyses	3
Laboratory_Alta		Date: May 31	, 2005
Reviewer H. Chan	g	Reviewer's Si	
Analysis/Method Dioxin&	Furans/1613	A. Ohn	&

ACTION ITEMS*		<u> </u>	
1. Case Narrative			
Deficiencies	***************************************		
		······································	
2. Out of Scope			
Analyses			
. Eddiy Ses			
3. Analyses Not Conducted			
5. Amazyses Not Conducted			
4. Missing Hardcopy			
Deliverables			
Denver ables			
5. Incorrect Hardcopy			
Deliverables			
Denver ables			
6. Deviations from Analysis	Detects below the calibration	rango wayo analifi a	1 64 \$ 77
Protocol, e.g.,	EMPCs were qualified "UJ."	range were quannec	. J.
Holding Times	EMPCs were quantied "UJ."		
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			
CONTRIVED		***************************************	

8 Subcontracted analytical laboratorial	and a second sec		
 Subcontracted analytical laboratory is not m Differences in protocol have been adopted b 			

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
С	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.
В	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.
Ī	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
4	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
Ţ	Presumed contamination from trip blank.	Not applicable.
-	False positive – reported compound was not present. Not applicable.	approducto.
	False negative – compound was present but not reported.	Not applicable.
ı	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.
	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.
	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
NQ	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.

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

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOD2051, IOD2054, & IOD2055

Prepared by

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

DATA VALIDATION REPORT

1. INTRODUCTION

Task Order Title:

NPDES Monitoring

Contract Task Order #:

313150010

Sample Delivery Group #:

IOD2051, IOD2054, & IOD2055

Project Manager:

B. McIlvaine

Matrix:

Water

Analysis:

Dioxins/Furans

QC Level:

Level IV

No. of Samples:

3

No. of Reanalyses/Dilutions:

H. Chang

1

Reviewer: Date of Review:

May 31, 2005

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

NPDES Multiple D/F

DATA VALIDATION REPORT

Table 1. Sample Identification

Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
IOD2051-01	26119-001	water	1613
IOD2054-01	26113-001	water	1613
IOD2055-01	26114-001		1613
	(Del Mar) IOD2051-01 IOD2054-01	(Del Mar) (Alta) IOD2051-01 26119-001 IOD2054-01 26113-001	(Del Mar) (Alta) IOD2051-01 26119-001 water IOD2054-01 26113-001 water

NPDES Multiple D/F

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of 4° C $\pm 2^{\circ}$ C. The samples were shipped to Alta for dioxin/furan analysis and were received below the temperature limits of 4° C $\pm 2^{\circ}$ C at 1.1° C; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, the samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

Project:

NPDES Multiple

DATA VALIDATION REPORT

SDG No.: Analysis:

2.3 CALIBRATION

2.3.1 Initial Calibration

The initial calibration was analyzed 05/19/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs ≤20% for the 16 native compounds (calibration by isotope dilution) and ≤35% for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6789-MB001) was extracted and analyzed with the samples in these SDGs. There were no target compound detects reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6789-OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

Project:

DATA VALIDATION REPORT

SDG No.: Analysis:

NPDES Multiple

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

2.8 INTERNAL STANDARDS

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

2.9 COMPOUND IDENTIFICATION

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

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Detects above the low point of the calibration curve but below the EPA Method 1613 minimum level were denoted by the laboratory with an "A," flag and were qualified as estimated, "J." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." If the concentration of any component of the total was below the lower method calibration level (MCL), the total detect was qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." The results and reporting limits were reported in ug/L for samples Outfall 003 and Outfall 005 and in ng/L for sample Outfall 006. No further qualifications were required.

<	"Management of the Parket of t	V.1. 1 V

		Sample ID:	10D2051-01 Outfall	fall 003	And the results of the last of			7	ALTA
		Client Data	Trigorium en de philannessum, erronningsport de filia, fer errodosistembritation de conference um p. de ballande en balla,	1	***************************************			EPA Method 1613	1613
		Name	Dei Mar Analytical Irving	The state of the s	Sample Data		Laboratory Data		
	***************************************	Project Date Collected:	IOD2051 28-Am-05	не (объевно опроставления). Поставления	Matrix: A	Aqueous		Date Received: 30-AI	30-Apr-05
ð	Sual	Time Collected.	1340	and was deep more deep		0.901 L	UC Batch No.; 6789 Date Analyzad DD 6, 10.16	Date Extracted; 17-M	17-May-05
Teles.	3	Analyte	Conc. (ug/L)	DL a EN	EMPC	Oneithe	See Amary 25 US-3; 19-May-05	Date Analyzed DB-225: NA	
ے ک		2,3,7,8-TCDD	AN CONTRACTOR OF THE PROPERTY	0.100000	-			%R LCL-UCL ^d Qualifiers	r.s
		1,2,3,7,8-PeCDD		0.00000210			LS 13C-2,3,7,8-TCDD	61.5 25 - 164	
		1,2,3,4,7,8-HxCDD	2	0.00000331			13C-1,2,3,7,8-PeCDD	67.1 25 - 181	· · · · · · · · · ·
		1,2,3,6,7,8-HxCDD	ON O	0.00000325			13C-1,2,3,4,7,8-HxCDD	65.3 32 - 141	
→ I		1,2,3,7,8,9-HxCDD	QN G	0.00000335			13C-1,2,3,6,7,8-HxCDD	68,4 28 - 130	
1	a a	1,2,3,4,6,7,8-HpCDD	DD 0.0000247			<	13C-1,2,3,4,6,7,8-HpCDD	57.8 23 - 140	······································
•	~	OCDD	0.000242			ζ	13C-0CDD	49.8 17 - 157	
వ –	**************************************	2,3,7,8-TCDF	S	0.00000141			13C-2,3,7,8-TCDF	66.9 24 - 169	*************
		1,2,3,7,8-PeCDF	N N	0.00000196			13C-1,2,3,7,8-PeCDF	67.7 24 - 185	
	***************************************	2,3,4,7,8-PeCDF	QN	0.00000167			15C-2,3,4,7,8-PeCDF	68.2 21 - 178	V
	-	1,2,3,4,7,8-HxCDF	QN.	0.000000587			13C-1,2,3,4,7,8-HxCDF	68.1 26 - 152	~~
		1,2,3,6,7,8-HxCDF	NB	0.000000571		······································	13C-1,2,3,6,7,8-HxCDF	68.1 26-123	***************************************
	TOTAL ASSESSED CON	2,3,4,6,7,8-HxCDF	ON.	0.00000000			13C-2,3,4,6,7,8-HxCDF	71.4 28 - 136	•
······································		1,2,3,7,8,9-HxCDF	QN (0.00000117			13C-1,2,3,7,8,9-HxCDF	63.3 29 - 147	····
		1,2,3,4,6,7,8-HpCDF	ND ND	0.000000979			13C-1,2,3,4,6,7,8-HpCDF	53.2 28 - 143	***************************************
	*****	1,2,3,4,7,8,9-HpCDF	JF ND	0.00000182		***************************************	13C-1,2,3,4,7,8,9-HpCDF	47.7 26 - 138	~
ŀ,	# 9	OCDI	ON	!	0.00000663	<u> </u>	CRS 32 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	41.7 17-157	
		Totals	Period dis un vista managata di vista d	AND THE PROPERTY OF THE PROPER		,	3/C/-2,3,/,8-ICDD	83.1 35 - 197	
₹.	*	Total TCDD	CIV	0.0000010	***************************************		Footnotes		
		Total PeCDD	2	0.00000118		ra .	a. Sample specific estimated detection limit.	en e	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Total HxCDD	8	0.00000230			<ul> <li>b. Estimated maximum possible concentration.</li> </ul>		
-	CNO	Total HpCDD	0.0000494			:>	c. Method detection limit.		***************************************
۲		Total TCDF	Q	0.00000141		7	d. Lower control limit - upper control limit.		
<u>ا</u> ۲		Total PeCDF	2	0.00000181					
B D	L ONG	Total HxCDF Total HpCDF	0.00000136			<b>W</b> ( <b>W</b> ( <b>W</b> ) <b>W</b> ( <b>W</b> ) <b>W</b> ( <b>W</b> )	AMEC V	AMEC VALIDATED	···
······································	J	A St. A. C. A.	0.00000				LEVEL IN	A	·····
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Approved By:

William J. Luksemburg 20-May-2005 11:12

Clent Data	1002054-01 Outfall	2005			. Performent des la company de	And the second of the second o
Name	STREAM CONTINUES OF THE STREAM OF THE STREET ST	D. C.			EPA Method 1613	hod 1613
Project: Date Collected: Time Collected:	Del Mar Analyticai, Irvine IOD2054 28-Apr-05	Natrix Sample Size:	Aqueeus 0.943 L	Lab Sample:         26113-001           QC Batch No.:         6789	Date Received:	30-Apr-05
Code Analyte	Conc. (ug/L.)	DI a Cresco		Date Analyzed DB-5: 19-May-05	Date Analyzed DB-225: NA	1/-May-05 NA
2,3,7,8-TCDD		EWFC	Qualifiers	Labeled Standard	%R LCL-UCL ^d On	Onsliffere
1,2,3,7,8-PeCDD		0.0000162		<u>IS</u> 13C-2,3,7,8-TCDD	1	400000
1,2,3,4,7,8-HxCDD		0.00000196		13C-1,2,3,7,8-PeCDD		
1,2,3,6,7,8-HxCDD		0.00000297		13C-1,2,3,4,7,8-HxCDD		
1,2,3,7,8,9-HxCDD		0.00000286		13C-1,2,3,6,7,8-HxCDD		
1.2,3,4,6,7,8-HpCDD		0.00000297		13C-1,2,3,4,6,7,8-HpCDD		······································
OCDD		0.0000471		13C-0CDD		
2,3,7,8-TCDF	9	0.0000161	Ora dingra	13C-2,3,7,8-TCDF		
1,2,3,7,8-PeCDF		0.0000194		13C-1,2,3,7,8-PeCDF		•
2,3,4,7,8-PeCDF		0.00000278		13C-2,3,4,7,8-PeCDF		
1,2,3,4,7.8-HxCDF	<u>;</u> ;	0.00000232	***************************************	13C-1,2,3,4,7,8-HxCDF		
1.2.3.6.7.8-HxCDF		0.000000933		13C-1.2.3.6.7.8-HxCDF		
23.4.6.7.8-HvCDE		0.00000017		13C-2.3.4.6.7.8-HyCDE		•
123789-HACDE		0.000000091		13C-1 2 3 7 8 9 HyCDE		
133 (6203)		0.00000193	***************************************	130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 - 130 -	57.6 29 - 147	····
1,2,3,4,0,7,8-HpCDF	CDF ND	0.00000135		13C 1.2.3,4,6,7,8-HpCDF	46.3 28 - 143	
1,2,5,4,7,8,9-HpCDF	CDF ND	0.00000263	<del></del>	13C-1,2,3,4,7,8,9-HpCDF	41.9 26 - 138	
1000	QN	0.00000485		SCOCUF	34.7 17-157	***************************************
Totals				3/CF2,3,7,8-1CDD	87.2 35 - 197	
Total TCDD	antiques extremental analysis is to be a superior and the	0.0000		Footnotes		
Total PeCDD		0.0000162	Approximate and	a. Sample specific estimated detection fimit	THE PARTY OF THE P	
Total HxCDD		0.00000196		b. Estimated maximum possible concentration		***************************************
Total HnCDD		0.00000293		c. Method detection limit		
Total Tene		0.00000421		Lower control limit		
Total Been		0.00000194	-	de la control anna de la control limit.		····
Total recur		0.00000254	***************************************			<del></del>
Total HXCDF		0.00000112		くとはいい	を置いくをしている。	
Lotal HpCDF	) ON	0.00000185	Pr			

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William J. Luksemburg 20-May-2005 10:59

ALTA EPA Method 1612	30-Apr-05	NA	aliffers					***************************************					- <del></del>	<del></del>	<del></del>	***************************************		<del></del>
FPA Mot	Date Received: Date Extracted:	Date Analyzed DB-225: NA	%R LCL-UCL ^d Qualifiers	68.4 25 - 164		68.7 28 - 130				69.9 24 - 185	73.1 21-178	69.2 26 - 152	70.4 26 - 123		62.8 29-147	54.0 28 - 143	49.5 26 - 138	39.5 17-157
	Laboratory Data         26114-001           QC Batch No.:         6789	Date Analyzed DB-5: 19-May-05		13C-2,3,7,8-TCDD	13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7 R-HxCDD	13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,7,8-HpCDD	13C-OCDD	13C-2,3,7,8-TCDF	13C-1,2,3,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,7,8-HpCDF	,7,8,9-HpCDF	13C-0CDF CRS 37CL2 3 4 9 TCDE
	Sample Data  Matrix: Aqueous  Sample Size: 0.930 L	EMPC	Cuamilers		Silvanian paga garaga			<b>*</b>	ring.									
Outfall 006		DL a EMI	0510	0.00212	0.00247	0.00236	0.00240	The same of the same of	0.00144	0.00282	0.00224	0.000746	0.000691	0.000794	0.00142	0.00103	0.00205	0.00715
IOD2055-01 Outfo	Del Mar Analytical, Irvine 10D2055 28-Apr-05	Conc. (ng/L)	NO	QN	9	Q S		0.0294	GN	2	S	ON	S	QN	S	R	2	ÖN
Sample ID: IO		Analyte	2,3,7,8-TCDD	1,2,3,7,8-PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD	2,3,7,8-TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCD
	Zev Qua	Was Code	3					Q Q	<u>-</u>		a Vidinassa sa sagi	a *			The death of your ar			<u>~                                      </u>

39.5 17 - 157									EVEL IV
CRS 37CI-2,3,7,8-TCDD	Footnotes	a. Sample specific estimated detection limit.	b. Estimated maximum possible concentration.	c. Method detection limit.	d. Lower control limit - upper control limit.	1			
0.00715		0.00159	0.00243	0.00542	0.00144	0.00251	0.000864	0.00143	
ND	The state of the s	2 2	S	2	ON	ON	ON	SN	The designation of the state of
Totals	Toal TCD	Total PeCDD	Total HxCDD	Total HpCDD	Total TCDF	Total PeCDF	1 otal HXCDF	Liotal HpCDF	Analyst: RAS

Approved By:

William J. Luksemburg 20-May-2005 11:00

# CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environ		Package ID	T711MT88
550 South Wadsworth B	loulevard	Task Order	
Suite 500		SDG No.	IOD2043, 2049, 2054,
Lakewood, CO 80226		,	2056, 2058
	int N.C. A. S. C. S.	No. of Analyses	5/2 reanalyses
Reviewer L.	el Mar Analytical	Date: 06/06/0	
		Reviewer's Si	gnature
Analysis/Method M	etais	L+au	useins
ACTION ITEMS*		<u> </u>	
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.s	Qualifications were app		
·	*/ OCD negative result		
Holding Times	2) Change of MDL by		
GC/MS Tune/Inst.	3) Rejected reanalyses	in favor of original analysis	
Performance	4) Detects below the re	porting limit	
Calibrations Blanks			
Surrogates			
Matrix Spike/Dup LCS			
Field QC			
Internal Standard			
Performance Compound Identification	^^		
and Quantitation			
System Performance			
OMMENTS ^b			
<u> </u>			
Subcontracted analytical laboratory	is not meeting contract and/or method	1 rawieronat	
Differences in protocol have been a	dopted by the laboratory but no action	n avainst the laboratory is provided	

# Data Qualifier Reference Table

Qualifier	Organics	Inorganies
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.
31	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.
	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	Organies	Inorganies
Н	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards us for the calibration was incorrect
С	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within contr limits.
В	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 no within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
4	Not applicable.	ICP Serial Dilution %D were not within control limits.
1 -	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
•	Presumed contamination from trip blank.	Not applicable.
	False positive – reported compound was not present. Not applicable.	the application.
	False negative – compound was present but not reported.	Not applicable.
	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.
	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.
	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
<b>V</b> Q	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.
	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).



# DATA VALIDATION REPORT

# NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOD2043, IOD2049, IOD2054,

IOD2056, IOD2058

Prepared by

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

SDG No.: Analysis:

**NPDES** Multiple **METALS** 

### 1. INTRODUCTION

Task Order Title:

**NPDES Monitoring** 

Contract Task Order #:

313150010

SDG#:

IOD2043, IOD2049, IOD2054, IOD2056, IOD2058

Project Manager:

B. McIlvaine

Matrix:

Water

Analysis:

Metals

QC Level:

Level IV

No. of Samples:

No. of Reanalyses/Dilutions:

Reviewer:

Date of Review:

L. Jarusewic June 6, 2005

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

Project:

SDG No.: Analysis: NPDES Multiple METALS

DATA VALIDATION REPORT

## Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 001	Outfall 001	IOD2043-01	water	ILM04
Outfall 001RE1	Outfall 001RE1	IOD2043-01RE1	water	ILM04
Outfall 001RE2	Outfall 001RE2	IOD2043-01RE2	water	ILM04
Outfall 005	Outfall 005	IOD2054-01	water	ILM04
Outfall 009	Outfall 009	IOD2056-01	water	ILM04
Outfall 010	Outfall 010	IOD2058-01	water	ILM04
Outfall 018	Outfall 018	IOD2049-01	water	ILM04

NPDES Multiple METALS

DATA VALIDATION REPORT

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

## 2.1.1 Sample Preservation, Handling, and Transport

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

### 2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. The laboratory did not include the "RE1" and "RE2" client ID suffixes for the iron reanalyses on the Form I for sample Outfall 001. The reviewer appended the Form I with the correct suffixes to reflect this information. No sample qualifications were required.

#### 2.1.3 Holding Times

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

#### 2.2 ICP-MS TUNING

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

#### 2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP and ICP-MS metals and 80-120% for mercury. The  $0.2~\mu g/L$  ICP-MS reporting limit check standard was not recovered for antimony; however, as the antimony MDL was raised to  $0.61~\mu g/L$ , no qualifications were required (see section 2.4). The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

NPDES Multiple METALS

### DATA VALIDATION REPORT

#### 2.4 BLANKS

Cadmium was reported in a bracketing ICP-MS CCB at -0.028  $\mu$ g/L; therefore, cadmium detected in samples Outfall 009 and Outfall 010 was qualified as estimated, "J." Antimony was detected in a bracketing ICP-MS CCB at 0.61  $\mu$ g/L; however, as antimony was not detected in Outfall 009 or Outfall 010, no qualifications were required. The remaining method blank and CCB results were nondetects at the reporting limit.

There were antimony detects in both the bracketing ICP-MS CCBs at concentrations  $\geq 3 \times MDL$ . The antimony CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer, therefore, raised the MDLs for antimony to the highest level reported in the CCBs, 0.61  $\mu g/L$ . No further qualifications were required due to the method and calibration blank results.

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

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and titanium. Antimony and lead were not spiked into the ICSAB solution. Potassium exceeded the calibration range of the instrument in both the ICSA/AB solutions associated with the Outfall 005, Outfall 009 and Outfall 010 analyses. Sodium exceeded the calibration range of the instrument in the ICSA solution for all associated analyses, and was recovered within the control limits in the ICSAB solution associated with the Outfall 005 analysis. Copper and cadmium were detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP-MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, titanium, and chloride.

ICSA and ICSAB analyses were included in the raw data for the ICP analyses and were analyzed the same day the samples. The recoveries were within the control limits of 80-120% and no qualifications were required.

# 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS sample was identified as 5D29098-BS1 and the ICP-MS LCS sample was identified as 5D29095-BS1. The mercury LCS sample was identified as 5D29061-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established control limits of 85-115% for the ICP, ICP-MS, and mercury analyses. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed in association with the ICP-MS analyses on sample Outfall 005 for lead. The RPD was within the control limits of  $\leq$ 20% and no qualifications were required.

NPDES Multiple METALS

DATA VALIDATION REPORT

A VALIDATION REPORT

#### 2.8 MATRIX SPIKE

MS/MSD analyses were performed in association with the ICP/MS analyses on sample Outfall 005 for lead. The recoveries were within the control limits of 70-130% and no qualifications were required.

## 2.9 FURNACE ATOMIC ABSORPTION QC

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

## 2.10 ICP/MS AND ICP SERIAL DILUTION

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

## 2.11 INTERNAL STANDARDS PERFORMANCE

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

### 2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. The laboratory reanalyzed sample Outfall 001 for iron. As the Outfall 001RE1 and Outfall 002RE2 results were similar to the original result, the Outfall 001RE1 and Outfall 002RE2 iron results were rejected, "R," in favor of the original iron analysis. Lead in Outfall 005, cadmium in Outfall 009 and Outfall 010, and mercury in Outfall 010 detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

### 2.13 FIELD QC SAMPLES

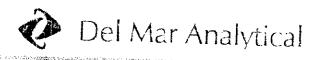
Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

## 2.13.1 Field Blanks and Equipment Rinsates

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

### 2.13.2 Field Duplicates

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



17461 Derian Ave., Suite 100, Invine, CA 92614 (94#) 260-0122 FAX (940); 260-0267 1014 E. Cooley Dr., Suite A, Collon, CA 92324 (909) 370-4667 FAX (940) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858, 505-8396 FAX (858) 505-9669 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-643 FAX (480) 785-6551 2720 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Project ID: Routine Outfall 001

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly

Report Number: IOD2043

Sampled: 04/28/05 Received: 04/28/05

### DRAFT: METALS

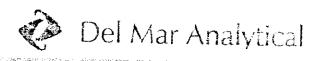
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result		n Date Extracted	Date Analyz	Da ed Quali	
Sample ID: IOD2043-01 (DR. Reporting Units: mg/l	AFT: Outfall 001 - W	'ater)							REV	Qul
Iron	EPA 200.7 Outfall (	5D29098	0.0088	0.040	0.36	1	04/29/05	05/02/05		
Sample ID: IOD2043-01RE1 ( Reporting Units: mg/l	DRAFT: Outfall 801	- Water)								
Iron Sample ID. JODANA CARRY	EPA 200.7 Outfall	5E17078	0.0088	0.040	0.34	1	04/29/05	05/17/05	R	D
Sample ID: IOD2043-01RE2 ( Reporting Units: mg/l	DRAFT: Outfall 001	- Water)								
Iron	EPA 200.7	5D29098	0.0088	0.040	0.36	1	04/29/05	05/17/05	R	Y

J 06/06/05

AMEC VALIDATED

LEVEL IV

DRAFT REPORT DRAFT REPORT DATA SUBJECT TO CHANGE



17461Derbus seri, Suite 100, Irvine, CA 92616 (849) 261-1622 (643) (4 (6.2nc.)) 3 181-1 (2. Cooley Dr., Suite 4, Colon, CA 9232) (868) 376-4667 (50) 14 e 1760 (3 For a Characteristic State 865, San Diego, CA 92123 (858) 505-0396 (14X, 858) 305-036 9839 South \$13 St., Suite 5-126, Phoenix, 4Z 63040 (480-785 (443-14A) (400, 705-96) 2525; E. Sunsee Rd. #3, Las Vegas, NV 89120; 702: 798-3620; FAX 702: 798-462

MWH-Pasadena/Boeing

roject ID: Quarterly Outfall 018

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

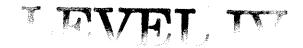
Report Number: IOD2049

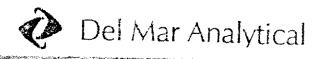
Sampled: 04/28/05 Received: 04/28/05

DRAFT: METALS

Analyte Sample ID: IOD2049-01 (DRAF) Reporting Units: ug/l	Method Γ: Outfall 018 - V	Batch	Limit	Reporting Limit	Sample Result	Dilution Factor E			Da ed Oyali REV Dukl	
Copper Lead Mercury	EPA 200.8 EPA 200.8 EPA 245.1	5D29095 5D29095 5D29061	0.49 0.13 0.063	2.0 1.0 0.20	3.7 1.9 ND	1	04/29/05	05/03/05 05/03/05 04/29/05		

**AMEC VALIDATED** 





17461 Derian Ave., Suite 100, Invine, CA 92614 (949) 361-1022 FAX (949) 360-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-4646 9404 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9699 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (490) 785-0043 FAX (480) 785-0837 2520 E. Sunset Rd. #3, Las Vegas, NV 69120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Pı

Project ID: Routine Outfall 005

300 North Lake Avenue, Suite 1200 Pasadena, CA 91101

Analyte

Attention: Bronwyn Kelly

Report Number: 10D2054

Sampled: 04/28/05 Received: 04/28/05

DRAFT: METALS

DRAFT: METALS

1.0

MDL Reporting Sample Dilution Date
Limit Limit Result Factor Extracted Analyzed O

Analyzed Qualifiers

Sample ID: IOD2054-01 (DRAFT: Outfall 005 - Water)

Reporting Units: ug/l

Lead

EPA 200.8

Method

5D29095

Batch

.13

0.24

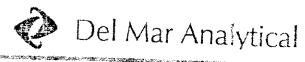
1 04/29/05 05/03/05 J

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J DNQ

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LEVEL IV



17461 Derian Ave., Suite 100, Indine, CA 92614 (949) 261-1022 FAX (949) 261-3224 (949) 370-4667 FAX (949) 261-3224 (909) 370-4667 FAX (949) 370-1046 9484 Chesapeuke Dr., Suite 805, San Diego, CA 92123 (858) 505-6596 FAX (858) 503-3669 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0831 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

Project ID: Routine Outfail 009

Report Number: IOD2056

Sampled: 04/28/05 Received: 04/28/05

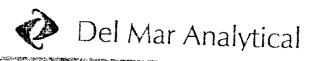
# DRAFT: METALS

			rr. I · T.	METAT2					
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor E		Date	Data
Sample ID: 10D2056-01 (DRAF Reporting Units: ug/l		Vater)	0.61				ALI AC (CU	Analyzed (	A COCE
Antimony Cadmium Copper Lead Mercury	EPA 200.8 EPA 200.8 EPA 200.8 EPA 200.8 EPA 245.1	5D29095 5D29095 5D29095 5D29095 5D29061	0.015 0.49	2.0 1.0 2.0 1.0 0.20	ND 0.024 3.2 1.1 ND	1 ( 1 (	04/29/05 04/29/05 04/29/05	05/03/05 UJ 05/03/05 J 05/03/05 05/03/05 04/29/05 U	

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# AMEC VALIDATED

# EVEL IV



17461 Derían Ave., Suite 100, Irvina, CA 92614 (949) 261-1622 FAX (949-260-2591-1614 E. Cocley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949-370-1646-9434 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858-505-9689-9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480, 785-0651-2520 E. Stinset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702-798-3621-

MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly Project ID: Routine Outfall 010

Report Number: IOD2058

Sampled: 04/28/05

Received: 04/28/05

# DRAFT: METALS

		DIC	FT. T.	ATT LYT?						
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor E		Date	_	ata
Sample ID: IOD2058-01 (DRAFT Reporting Units: ug/l Antimony Cadmium Copper Lead Mercury	EPA 200.8 EPA 200.8 EPA 200.8 EPA 200.8 EPA 200.8 EPA 245.1	5D29095 5D29095 5D29095 5D29095 5D29061		2.0 1.0 2.0 1.0 0.20	ND 0.084 6.0 3.0 0.18	1 1 1 (1	04/29/05 04/29/05 04/29/05 04/29/05	F	Ĵ.	10ut

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AMEC VALIDATED

LEVEL IV

# APPENDIX G - VOLUME 3 (Part 2 of 3) TABLE OF CONTENTS

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- 6 Outfall 006 Del Mar Analytical Laboratory Reports, AMEC Data Validation Reports.
- Outfall 009 Del Mar Analytical Laboratory Reports, AMEC Data Validation
   Reports.
- 8 Outfall 010 Del Mar Analytical Laboratory Reports, AMEC Data Validation Reports.
- 9 Outfall 012 Del Mar Analytical Laboratory Reports, AMEC Data Validation Reports.

# APPENDIX G

# **Section 6**

Outfall 006

Del Mar Analytical Laboratory Reports

AMEC Data Validation Reports

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

## LABORATORY REPORT

Prepared For:

MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

Project: Routine Outfall 006

Sampled: 04/28/05

Received: 04/28/05

Issued: 07/01/05 15:32

#### NELAP #01108CA California ELAP#1197 CSDLAC #10117

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

This entire report was reviewed and approved for release.

#### SAMPLE CROSS REFERENCE

SUBCONTRACTED:

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

LABORATORY ID

CLIENT ID

MATRIX

IOD2055-01

Outfall 006

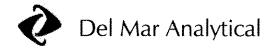
Water

Reviewed By:

Del Mar Analytical, Irvine

Michell Harper

Michele Harper Project Manager



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Suiset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Pasadena, CA 91101

Project ID: Routine Outfall 006

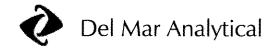
300 North Lake Avenue, Suite 1200

Report Number: IOD2055 Sampled: 04/28/05
Received: 04/28/05

Attention: Bronwyn Kelly

#### **METALS**

			1788282						
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2055-01 (Outfall 00	6 - Water)								
Reporting Units: ug/l									
Antimony	EPA 200.8	5D29095	0.18	2.0	ND	1	04/29/05	05/03/05	
Cadmium	EPA 200.8	5D29095	0.015	1.0	ND	1	04/29/05	05/03/05	
Copper	EPA 200.8	5D29095	0.49	2.0	2.0	1	04/29/05	05/03/05	
Lead	EPA 200.8	5D29095	0.13	1.0	0.44	1	04/29/05	05/03/05	J
Mercury	EPA 245.1	5D29061	0.063	0.20	ND	1	04/29/05	04/29/05	



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Sampled: 04/28/05

MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Report Number: IOD2055

Attention: Bronwyn Kelly

Pasadena, CA 91101

OD2055 Received: 04/28/05

#### **INORGANICS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2055-01 (Outfall 006 -	Water) - cont.								
Reporting Units: mg/l									
Chloride	EPA 300.0	5D28116	0.26	0.50	4.4	1	04/28/05	04/29/05	
Nitrate/Nitrite-N	EPA 300.0	5D28116	0.072	0.26	1.9	1	04/28/05	04/29/05	
Oil & Grease	EPA 413.1	5E04036	0.94	5.0	ND	1	05/04/05	05/04/05	
Sulfate	EPA 300.0	5D28116	0.18	0.50	5.3	1	04/28/05	04/29/05	
Total Dissolved Solids	SM2540C	5D29129	10	10	100	1	04/29/05	04/29/05	
<b>Total Suspended Solids</b>	EPA 160.2	5E04071	10	10	17	1	05/04/05	05/04/05	



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MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly -

Report Number: IOD2055

Sampled: 04/28/05 Received: 04/28/05

#### SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 006 (IOD2055-01) - Wat	er				
EPA 300.0	2	04/28/2005 11:10	04/28/2005 18:15	04/28/2005 21:30	04/29/2005 02:29



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

Pasadena, CA 91101

Attention: Bronwyn Kelly

300 North Lake Avenue, Suite 1200

Report Number: IOD2055

Sampled: 04/28/05

Received: 04/28/05

## METHOD BLANK/QC DATA

#### **METALS**

		Reporting			Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	MDL	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5D29061 Extracted: 04/29/05											
	•										
Blank Analyzed: 04/29/2005 (5D29061-Bl	LKI)										
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 04/29/2005 (5D29061-BSI	)										
Mercury	8.06	0.20	0.063	ug/l	8.00		101	85-115			
Matrix Spike Analyzed: 04/29/2005 (5D2)	0061-MS1)				Sour	ce: IOD2	2033.03				
Mercury	7.76	0.20	0.063	ug/l	8.00	ND	97	70-130			
•	/#D308/1 3#C										
Matrix Spike Dup Analyzed: 04/29/2005	7.82	′	0.072	A		ce: IOD2		20 120		20	
Mercury	1.82	0.20	0.063	ug/l	8.00	ND	98	70-130	1	20	
Batch: 5D29095 Extracted: 04/29/05	•										
Blank Analyzed: 05/03/2005 (5D29095-BI	.K1)										
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 05/03/2005 (5D29095-BS1	)										
Antimony	87.8	2.0	0.18	ug/l	80.0		110	85-115			
Cadmium	87.8	1.0	0.015	ug/l	80.0		110	85-115			
Copper	78.5	2.0	0.49	ug/l	80.0		98	85-115			
Lead	81.9	1.0	0.13	ug/l	80.0		102	85-115			
Matrix Spike Analyzed: 05/03/2005 (5D29	095-MS1)				Sour	ce: IOD2	054-01				
Antimony	98.9	2.0	0.18	ug/l	80.0	0.31	123	70-130			
Cadmium	86.7	1.0	0.015	ug/l	80.0	0.058	108	70-130			
Copper	79.4	2.0	0.49	ug/l	80.0	2.0	97	70-130			
Lead	80.9	1.0	0.13	ug/l	80.0	0.24	101	70-130			

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



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Attention: Bronwyn Kelly Report Number: IOD2055

Sampled: 04/28/05

Received: 04/28/05

## METHOD BLANK/QC DATA

#### **METALS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5D29095 Extracted: 04/29/05	•										
Matrix Spike Analyzed: 05/03/2005 (5D2	9095-MS2)				Sou	rce: IOD	2149-03				
Antimony	100	10	0.90	ug/l	80.0	ND	125	70-130			
Cadmium	76.0	5.0	0.075	ug/l	80.0	0.45	94	70-130			
Copper	90.1	10	2,4	ug/l	80.0	17	91	70-130			
Lead	73.5	5.0	0.65	ug/l	80.0	1.1	90	70-130			
Matrix Spike Dup Analyzed: 05/03/2005	(5D29095-M	(SD1)			Sou	rce: IOD	2054-01				
Antimony	99.6	2.0	0.18	ug/l	80.0	0.31	124	70-130	ł	20	
Cadmium	87.7	1.0	0.015	ug/l	80.0	0.058	110	70-130	1	20	
Copper	81.3	2.0	0.49	ug/l	80.0	2.0	99	70-130	2	20	
Lead	81.0	1.0	0.13	ug/l	80.0	0.24	101	70-130	0	20	



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MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Report Number: IOD2055

Sampled: 04/28/05 Received: 04/28/05

Attention: Bronwyn Kelly

Pasadena, CA 91101

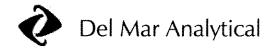
# METHOD BLANK/QC DATA

#### **INORGANICS**

		Reporting			Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	MDL	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5D28116 Extracted: 04/28/05	•										
Blank Analyzed: 04/28/2005 (5D28116-Bl	LKD										
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/I							
LCS Analyzed: 04/28/2005 (5D28116-BS1	)										
Chloride	4.82	0.50	0.26	mg/l	5.00		96	90-110			M-3
Sulfate	9.63	0.50	0.18	mg/l	10.0		96	90-110			M-3
Batch: 5D29129 Extracted: 04/29/05											
Blank Analyzed: 04/29/2005 (5D29129-BI	-K1)										
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 04/29/2005 (5D29129-BS1	)										
Total Dissolved Solids	930	10	10	mg/l	1000		93	90-110			
Duplicate Analyzed: 04/29/2005 (5D29129	-DUP1)				Sour	rce: IOD2	033-01				
Total Dissolved Solids	334	10	10	mg/l		360			7	10	
Batch: 5E04036 Extracted: 05/04/05											
Blank Analyzed: 05/04/2005 (5E04036-BL	.K1)										
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 05/04/2005 (5E04036-BS1)	)										M-NR1
Oil & Grease	18.5	5.0	0.94	mg/l	20.0		92	65-120			

**Del Mar Analytical, Irvine** Michele Harper

Project Manager



17461 Denian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IOD2055

Sampled: 04/28/05

Received: 04/28/05

# METHOD BLANK/QC DATA

#### **INORGANICS**

Amalusta	Danult	Reporting Limit	MDL	¥ factor	Spike	Source	%REC	%REC	nnn	RPD	Data
Analyte	Result	Limit	MDL	Units	Level	Result	70KLC	Limits	RPD	Limit	Qualifiers
Batch: 5E04036 Extracted: 05/04/05	•										
LCS Dup Analyzed: 05/04/2005 (5E04036	-BSD1)										
Oil & Grease	18.9	5.0	0.94	mg/l	20.0		94	65-120	2	20	
Batch: 5E04071 Extracted: 05/04/05	•										
Blank Analyzed: 05/04/2005 (5E04071-Bl	.K1)										
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 05/04/2005 (5E04071-BS1	)										
Total Suspended Solids	1000	10	10	mg/l	1000		100	85-115			
Duplicate Analyzed: 05/04/2005 (5E04071	-DUP1)				Sour	rce: IOD2	2054-01				
Total Suspended Solids	ND	10	10	mg/l		ND				10	

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Report Number: IOD2055

Sampled: 04/28/05

Attention: Bronwyn Kelly

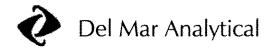
Pasadena, CA 91101

Received: 04/28/05

## **Compliance Check**

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

						Compliance
LabNumber	Analysis	Analyte	Units	Result	MRL	Limit
IOD2055-01	413.1 Oil and Grease	Oil & Grease	mg/l	-1	5.0	15
IOD2055-01	Antimony-200.8	Antimony	ug/l	0	2.0	6.00
IOD2055-01	Cadmium-200.8	Cadmium	ug/l	0.0080	1.0	4.00
IOD2055-01	Chloride - 300.0	Chloride	mg/l	4.40	0.50	150
IOD2055-01	Copper-200.8	Copper	ug/l	2.00	2.0	14
IOD2055-01	Mercury - 245.1	Mercury	ug/l	0.040	0.20	0.20
IOD2055-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.90	0.26	10.00
IOD2055-01	Sulfate-300.0	Sulfate	mg/l	5.30	0.50	250
IOD2055-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	100	10	850



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Sampled: 04/28/05

MWH-Pasadena/Boeing

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101 Report Number: IOD2055 Received: 04/28/05

Attention: Bronwyn Kelly

### DATA QUALIFIERS AND DEFINITIONS

Project ID: Routine Outfall 006

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-3 Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was

accepted based on acceptable recovery in the Blank Spike (LCS).

M-NR1 There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike

Duplicate.

ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.

RPD Relative Percent Difference



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

MWH-Pasadena/Boeing

Project ID: Routine Outfall 006

300 North Lake Avenue, Suite 1200

Pasadena, CA 91101

Report Number: IOD2055

Sampled: 04/28/05

Received: 04/28/05

Attention: Bronwyn Kelly

## **Certification Summary**

#### Del Mar Analytical, Irvine

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

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

#### **Subcontracted Laboratories**

Alta Analytical California Cert #1640, Nevada Cert #CA-413

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613 Samples: IOD2055-01

1613-Dioxin-HR

Analysis Performed:

EDD + Level 4

Samples: IOD2055-01

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

Del Mar Analytical version 02/17/05

ð Comments インス = dwaL Field readings: Sample Integrity: (Check)
Intact On Ice. 10 Days Turn around Time: (check) 24 Hours 5 Da Perchlorate Only 72 Hours Metals Only 72 Hours 72 Hours 48 Hours ANALYSIS REQUIRED CHAIN OF CUSTODY FORM × TDS, TSS CI-' 804' NO3+NO5-N × 20/95 Date/Time: **Date/Time** × Oil & Gresse (EPA 413.1) TCDD (sur all congeners) × SP' Cq' Cri' bp' Ha × Total Recoverable Metals: 2A, 2B 3A, 3B 4A, 4B 58 0 Bottle * ₹ Ş. Received By Received By Preservativ HN03 Sampling Preser Date/Time e Stormwater at FSDF-2 Boeing-SSFL NPDES Routine Outfall 006 None None None 오 Phone Number: (626) 568-6691 (626) 568-6515 Fax Number: 1812 Ja 4.28x 1530 Project: Date/Time: Cont. Project Manager: Bronwyn Kelly 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Sample Container Matrix Type Amber Poly-500 ml Poly-500 Poly-1L Poly-1L Glass-Amber Glass-Sampler: ドゥレんん Client Name/Address: MWH-Pasadena Relinquished Byn ₹ ₹ ₹ ≤ ≥  $\leq$ Relinquished By Refingstoke bed by Sample Description Outfall 006-Outfall 006 Outfall 006 Outfall 006 Outfall 006 Outfall 006

10005t

17461 Derian Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0045 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

June 17, 2005

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

Attention:

Bronwyn Kelly

Project:

Routine Outfall 006

Sampled: 04/28/05

Del Mar Analytical Number: IOD2055

Dear Ms. Kelly:

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

MWH ID	Del Mar ID	Alta ID
Outfall 006	IOD2055-01	26114-001

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

Sincerely yours,

**DEL MAR ANALYTICAL** 

Michele Harper Project Manager

Enclosure



July 06, 2005

Alta Project I.D.: 26114

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

Dear Ms. Harper,

Enclosed are the amended results for the one aqueous sample received at Alta Analytical Laboratory on April 30, 2005 under your Project Name "IOD2055". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The original results were reported in ng/L.

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

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

Sincerely,

Martha M. Maier

**Director of HRMS Services** 



Alta Analytical Luberature certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods, this report should not be reproduced except in full wathout the written approval of 41.7.4.



# Section I: Sample Inventory Report Date Received: 4/30/2005

Alta Lab. ID

Client Sample ID

26114-001

IOD2055-01

# SECTION II

Project 26114 Page 3 of 11

Method Blank	-	**************************************			EPA Method 1613
Matrix: Aqueous	ŏ	QC Batch No.:	6829	Lab Sample: 0-MB001	
Sample Size: 1.000 L	ũ	Date Extracted:	17-May-05	Date Analyzed DB-5: 19-May-05	5 Date Analyzed DB-225: NA
Analyte Conc. (ug/L)	\$ )	DL a EMPC b	Qualifiers	Labeled Standard	%R LCL-UCL ^d Oualifiers
2,3,7,8-TCDD ND		0.00000124		<u>IS</u> 13C-2,3,7,8-TCDD	69.9 25 - 164
1,2,3,7,8-PeCDD ND		0.00000166		13C-1,2,3,7,8-PeCDD	84.1 25 - 181
1,2,3,4,7,8-HxCDD ND		0.00000186		13C-1,2,3,4,7,8-HxCDD	72.5 32 - 141
		0.00000179		13C-1,2,3,6,7,8-HxCDD	75.3 28 - 130
		0.00000186		13C-1,2,3,4,6,7,8-HpCDD	65.8 23 - 140
,6,7,8-HpCDD		0.00000303		13C-OCDD	58.4 17 - 157
OCDD		0.00000677		13C-2,3,7,8-TCDF	81.1 24-169
2,3,7,8-TCDF ND		0.000000924		13C-1,2,3,7,8-PeCDF	79.5 24 - 185
1,2,3,7,8-PeCDF ND		0.00000226		13C-2,3,4,7,8-PeCDF	82.4 21 - 178
2,3,4,7,8-PeCDF ND		0.00000193		13C-1,2,3,4,7,8-HxCDF	72.6 26 - 152
1,2,3,4,7,8-HxCDF		0.000000785		13C-1,2,3,6,7,8-HxCDF	75.4 26 - 123
1,2,3,6,7,8-HxCDF ND		0.000000731		13C-2,3,4,6,7,8-HxCDF	92.3 28 - 136
		0.000000672		13C-1,2,3,7,8,9-HxCDF	68.4 29 - 147
1,2,3,7,8,9-HxCDF ND		0.00000158		13C-1,2,3,4,6,7,8-HpCDF	63.5 28 - 143
1,2,3,4,6,7,8-HpCDF		6960000000	٠,	13C-1,2,3,4,7,8,9-HpCDF	52.9 26-138
1,2,3,4,7,8,9-HpCDF ND		0.00000192		13C-OCDF	49.2 17 - 157
OCDF		0.00000476		CRS 37Cl-2,3,7,8-TCDD	89.9 35 - 197
Totals				Footnotes	
Total TCDD ND	_	0.00000124		a. Sample specific estimated detection limit.	
Total PeCDD ND		991000000		b. Estimated maximum possible concentration.	4
Total HxCDD ND		0.00000183		c. Method detection limit.	
Total HpCDD ND		0.00000303	٠.	d. Lower control limit - upper control limit.	
Total TCDF ND		0.000000924			
Total PeCDF ND		0.00000209			
Total HxCDF ND		0.000000872			
Total HpCDF ND	-	0.00000132			
Analyst: RAS				Approved By: William J	William J. Luksemburg 05-Jul-2005 16:09

Project 26114

OPR Results			arian konstant kalaman manan man		EPA	EPA Method 1613
Matrix: Aqueous Sample Size: 1.000 L		QC Batch No.: Date Extracted:	6789 17-May-05	Lab Sample: 0-OPR001 Date Analyzed DB-5: 19-May-05	Date Analyzed DB-225:	d DB-225: NA
Analyte	Spike Conc. Conc. (ng.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	rcrncr
2,3,7,8-TCDD	10.0	10.3	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	6.99	25 - 164
1,2,3,7,8-PeCDD	50.0	51.8	35 - 71	13C-1,2,3,7,8-PeCDD	82.1	25 - 181
1,2,3,4,7,8-HxCDD	50.0	50.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	69.4	32 - 141
1,2,3,6,7,8-HxCDD	50.0	52.2	38 - 67	13C-1,2,3,6,7,8-HxCDD	74.5	28 - 130
1,2,3,7,8,9-HxCDD	50.0	54.3	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	64.6	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-0CDD	40.2	17 - 157
OCDD	8	99.1	78 - 144	13C-2,3,7,8-TCDF	71.3	24 - 169
2,3,7,8-TCDF	10.0	10.1	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	78.8	24 - 185
1,2,3,7,8-PeCDF	50.0	49.0	40 - 67	13C-2,3,4,7,8-PeCDF	85.0	21 - 178
2,3,4,7,8-PeCDF	50.0	49.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	72.8	26 - 152
1,2,3,4,7,8-HxCDF	50.0	48.2	36 - 67	13C-1,2,3,6,7,8-HxCDF	78.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	48.8	42 - 65	13C-2,3,4,6,7,8-HxCDF	82.5	28 - 136
2,3,4,6,7,8-HxCDF	50.0	48.4	35 - 78	13C-1,2,3,7,8,9-HxCDF	8.69	29 - 147
1,2,3,7,8,9-HxCDF	50.0	49.7	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	58.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	49.7	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	45.9	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	9.06	39 - 69	13C-OCDF	36.3	17 - 157
OCDF	100	93.6	63 - 170	CRS 37Cl-2,3,7,8-TCDD	85.6	35 - 197

Analyst: RAS

Approved By: William J. LA

William J. Luksemburg 05-Jul-2005 16:09

William J. Luksemburg 05-Jul-2005 16:09

Approved By:

Sample ID: 10D2055-01	-01							EPA Me	EPA Method 1613
Client Data			Sample Data		Laboratory Data	**************************************		den var angen teasan makamakan pangan pa	The state of the s
	Del Mar Analytical, Irvine	4	Matrix:	Aqueous	Lab Sample: 2611	26114-001	Date Received:	cived:	30-Apr-05
Project: Collected: 28-Apr-05 Time Collected: 1110			Sample Size:	0.930 L	QC Batch No.: 6789 Date Analyzed DB-5: 19-M	6789 19-May-05	Date Extracted:	Date Extracted:  Date Analyzed DB-225: NA	17-May-05
Analyte Conc.	. (ug/L)	DL a	EMPC	Qualifiers	Labeled Standard		%R	CCL-UCL ^d O	Oualifiers
2,3,7,8-TCDD	ON	0.00159	ANTONIO DE LA CONTRACTOR DE LA CONTRACTO		IS 13C-2,3,7,8-TCDD		68.4	25 - 164	
1,2,3,7,8-PeCDD	S	0.00212			13C-1,2,3,7,8-PeCDD		74.2	25 - 181	
1,2,3,4,7,8-HxCDD	Q	0.00247			13C-1,2,3,4,7,8-HxCDD		64.7	32 - 141	
1,2,3,6,7,8-HxCDD	S	0.00236			13C-1,2,3,6,7,8-HxCDD		68.7	28 - 130	
1,2,3,7,8,9-HxCDD	2	0.00246			13C-1,2,3,4,6,7,8-HpCDD	Ω	60.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	Q	0.00323			13C-0CDD		41.3	17 - 157	***************************************
OCDD	0.0294			· · · · · · · · · · · · · · · · · · ·	13C-2,3,7,8-TCDF		68.3	24 - 169	
2,3,7,8-TCDF	S	0.00144			13C-1,2,3,7,8-PeCDF		6.69	24 - 185	************
1,2,3,7,8-PeCDF	R	0.00282			13C-2,3,4,7,8-PeCDF		73.1	21 - 178	, approved to a
2,3,4,7,8-PeCDF	ON	0.00224			13C-1,2,3,4,7,8-HxCDF		69.2	26 - 152	was robernande de
1,2,3,4,7,8-HxCDF	Q	0.000746			13C-1,2,3,6,7,8-HxCDF		70.4	26 - 123	
1,2,3,6,7,8-HxCDF	QN	0.000691			13C-2,3,4,6,7,8-HxCDF		72.7	28 - 136	······································
2,3,4,6,7,8-HxCDF	S	0.000794			13C-1,2,3,7,8,9-HxCDF		62.8	29 - 147	
1,2,3,7,8,9-HxCDF	QN	0.00142			13C-1,2,3,4,6,7,8-HpCDF	Ħ	54.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	O.	0.00103			13C-1,2,3,4,7,8,9-HpCDF	ī	49.5	26 - 138	The section of the se
1,2,3,4,7,8,9-HpCDF	ON	0.00205			13C-OCDF		39.5	17 - 157	
OCDF	QN	0.00715	-		CRS 37Cl-2,3,7,8-TCDD		88.7	35 - 197	
Totals					Footnotes				
Total TCDD	QN	0.00159			a. Sample specific estimated detection limit.	limit.			Naturánian antenover typiciókkykykykykykykykykykykykykykykykykykyk
Total PeCDD	QN	0.00212			b. Estimated maximum possible concentration.	entration.			
Total HxCDD	QN	0.00243			c. Method detection limit.				******
Total HpCDD	Q	0.00542			d. Lower control limit - upper control limit.	Limit.			
Total TCDF	S	0.00144							
Total PeCDF	QN QN	0.00251							
Total HxCDF	ON ON	0.000864							
Total HpCDF	QN	0,00143		***************************************					
		,							

Analyst: RAS

# APPENDIX

Project 26114 Page 7 of 11

# **DATA QUALIFIERS & ABBREVIATIONS**

B This compound was also detected in the method blank.

D The amount reported is the maximum possible concentration due to possible

chlorinated diphenylether interference.

H The signal-to-noise ratio is greater than 10:1.

I Chemical Interference

J The amount detected is below the Lower Calibration Limit of the instrument.

P Homologue totals include any coplanar PCBs detected at concentrations less

than the reporting limit.

* See Cover Letter

Conc. Concentration

DL Sample-specific estimated detection limit

MDL The minimum concentration of a substance that can be measured and

reported with 99% confidence that the analyte concentration is greater

than zero in the matrix tested.

**EMPC** Estimated Maximum Possible Concentration

NA Not applicable

RL Reporting Limit – concentrations that correspond to low calibration point

ND Not Detected

TEQ Toxic Equivalency

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

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