CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
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Package ID T711MT42
Task Order 313150010
SDG No. IOB1006/1011/1012
No. of Analyses 3

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

Date: 03/23/05
Reviewer's Signature L Jarusewic

ACTION ITEMS[a]	
1. **Case Narrative Deficiencies**	
2. **Out of Scope Analyses**	
3. **Analyses Not Conducted**	
4. **Missing Hardcopy Deliverables**	
5. **Incorrect Hardcopy Deliverables**	
6. **Deviations from Analysis Protocol, e.g.,** Holding Times GC/MS Tune/Inst. Performance Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications were applied for: 1) Method and calibration blank contamination 2) Detects below the reporting limit 3) ICSA/AB low recoveries 4) Reporting limit check standards low recoveries 5) Change of MDL and sample result by reviewer

COMMENTS[b]	

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

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. (Note: Analyte may or may not be present).

Qualification Code Reference Table

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

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

DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOB1006, IOB1011, & IOB1012

Prepared by

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1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
SDG#:	IOB1006/1011/1012
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Metals
QC Level:	Level IV
No. of Samples:	3
No. of Reanalyses/Dilutions:	0
Reviewer:	L. Jarusewic
Date of Review:	March 22, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0), AMEC Data Validation Procedure for Levels III and IV ICP Metals* (DVP-5, Rev. 0), SW-846 *Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, SW-846 *Method 6010B for Inductively Coupled Plasma* , SW-846 *Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the USEPA CLP *National Functional Guidelines for Inorganic Data Review* (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Ambient	Ambient	IOB1012-01	Water	ILM04
HC-1	HC-1	IOB1011-01	Water	ILM04
RP-1	RP-1	IOB1006-01	Water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

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

2.1.2 Chain of Custody

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

2.1.3 Holding Times

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

2.2 ICP-MS TUNING

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

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP and ICP/MS and 80-120% for mercury. Antimony was not recovered in the ICP/MS 0.2 µg/L reporting limit check standard associated with HC-1; therefore, antimony detected in sample HC-1 was qualified as estimated, "UJ," (see section 2.4). Antimony was not recovered for the ICP/MS 0.2 µg/L reporting limit check standard and below the control limits in the 1.0 and 2.0 µg/L reporting limit check standards associated with sample Ambient at 22.1% and 66.4%, respectively; therefore, nondetected antimony was qualified as estimated, "UJ." Silver and thallium were not recovered in the ICP/MS 0.1 µg/L reporting limit check

standard; therefore, nondetected silver and thallium in sample Ambient were qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further qualifications were required.

The low reporting limit check standard recoveries indicated the laboratory could not detect antimony at the level reported on the summary results form for sample Ambient. The reviewer, therefore, raised the MDL for antimony to the reporting limit, 2.0 µg/L and raised the nondetected result for sample Ambient to the same level. No further qualifications were required due to reporting limit check standards.

2.4 BLANKS

There were detects and negative results reported for the method blanks and bracketing CCBs associated with the samples in these SDGs. Boron was detected in the ICP method blank (5B16093-BLK1) at 0.0430 mg/L; therefore, detected boron in samples RP-1 and HC-1 was qualified as estimated, "UJ." Antimony was detected in bracketing CCBs for the ICP/MS runs at 0.80 and 0.65 µg/L; therefore, detected antimony in samples RP-1 and HC-1 was qualified as estimated, "UJ." Arsenic was detected in a bracketing ICP CCB at 0.0040 mg/L; therefore, arsenic detected in sample RP-1 was qualified as estimated, "UJ." Nickel was reported in a bracketing ICP CCB at -0.0025 mg/L; therefore, nickel detected in sample RP-1 was qualified as estimated, "J." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

Results were not provided for the ICP/MS spiked interferents phosphorus, sulfur, carbon, chloride, and titanium. The reviewer noted that positive results for cadmium and copper above the reporting limit were reported in the ICSA analyses. The results for potassium and sodium were above the calibration range of the instrument in the ICSA/AB analyses associated with samples RP-1 and HC-1. The results for aluminum exceeded the calibration range of the instrument for ICSA/AB analyses associated with RP-1 and HC-1 and were low with a recovery of 77.1% for sample Ambient in the ICSA analyses. The results for aluminum were low with recoveries of 78.3% for samples RP-1 and HC-1 and were recovered within control limits for sample Ambient in the ICSAB analyses. Selenium, antimony, lead, and thallium were not spiked into the ICSAB solution for all samples; therefore, the ICSAB recoveries could not be assessed at validation. Silver was recovered below the control limits in the ICSAB analyses at 70.9% and 75.5%; therefore, nondetected silver in samples RP-1 and Ambient was qualified as estimated, "UJ," and detected silver in sample HC-1 was qualified as estimated, "J." The validator reviewed the raw data for the site samples ICS/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the concentration of interferents was not high enough to cause matrix effects. No assessment could be made with respect to possible interference from phosphorus, sulfur, carbon, chloride, and titanium.

The recoveries for the interferents and spiked analytes were within the control limits of 80-120% for the ICP analyses. Detects for arsenic and zinc and negative results for chromium that were greater than the applicable reporting limits were reported in the ICSA analyses; however, the validator reviewed the raw data for the site sample ICP analysis for the level of reported interferents, Al, Ca, Fe, and Mg, and

determined that the concentration of interferents was not high enough to cause matrix affects. No further sample qualifications were required due to the ICP ICS analysis.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS samples were identified as 5B16093-BS1 and 5B15046-BS1. The ICP/MS LCS samples were identified as 5B16085-BS1, 5B18058-BS1, and 5B15069-BS1. The mercury LCS sample was identified as 5B15070-BS1. The ICP/MS LCS result for antimony in LCS 5B18058-BS1 was above the control limits at 123%; however, as antimony was not detected in associated sample RP-1, no qualifications were required (see section 2.4). The remaining LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

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

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS SERIAL DILUTION

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

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP and ICP/MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits except for scandium; however, scandium was not associated with the site samples and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

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

2.13 FIELD QC SAMPLES

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

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

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

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

Project ID: Ambient Stormwater
Ambient
Report Number: IOB1012

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

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers REV QUAL	QUAL CODE
Sample ID: IOB1012-01 (Ambient - Water)										
Reporting Units: mg/l										
Barium	EPA 200.7	5B15046	0.0028	0.010	ND	1	02/15/05	02/15/05	U	
Boron	EPA 200.7	5B15046	0.0074	0.050	ND	1	02/15/05	02/15/05	↓	
Cobalt	EPA 200.7	5B15046	0.00089	0.010	ND	1	02/15/05	02/15/05		
Iron	EPA 200.7	5B15046	0.0088	0.040	ND	1	02/15/05	02/15/05		
Manganese	EPA 200.7	5B15046	0.0032	0.020	ND	1	02/15/05	02/15/05		
Vanadium	EPA 200.7	5B15046	0.0014	0.010	ND	1	02/15/05	02/15/05	↓	
Sample ID: IOB1012-01 (Ambient - Water)										
Reporting Units: ug/l										
Antimony	EPA 200.8	5B15069	~~C18~~ 2.0	2.0	ND	1	02/15/05	02/16/05	UJ	*3,$
Arsenic	EPA 200.7	5B15046	3.8	5.0	ND	1	02/15/05	02/15/05	U	
Beryllium	EPA 200.7	5B15046	0.62	2.0	ND	1	02/15/05	02/15/05	↓	
Cadmium	EPA 200.8	5B15069	0.015	1.0	ND	1	02/15/05	02/16/05	↓	
Chromium	EPA 200.7	5B15046	0.68	5.0	**0.70**	1	02/15/05	02/15/05	J	DNQ
Copper	EPA 200.8	5B15069	0.49	2.0	ND	1	02/15/05	02/16/05	U	
Lead	EPA 200.8	5B15069	0.13	1.0	ND	1	02/15/05	02/16/05	↓	
Mercury	EPA 245.1	5B15070	0.063	0.20	**0.12**	1	02/15/05	02/15/05	J	DNQ
Nickel	EPA 200.7	5B15046	2.0	10	ND	1	02/15/05	02/15/05	U	
Selenium	EPA 200.8	5B15069	0.36	2.0	ND	1	02/15/05	02/16/05	↓	
Silver	EPA 200.8	5B15069	0.089	1.0	ND	1	02/15/05	02/16/05	UJ	*3,I
Thallium	EPA 200.8	5B15069	0.075	1.0	ND	1	02/15/05	02/16/05	UJ	*3
Zinc	EPA 200.7	5B15046	3.7	20	ND	1	02/15/05	02/15/05	U	

3/23/05
JJ

AMEC VALIDATED

LEVEL IV

Del Mar Analytical, Irvine
Michele Harper
Project Manager