

Appendix D

Laboratory Case Narrative

USEPA - CLP
COVER PAGE

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW06047

Lab Code: CHEM Case No.: [REDACTED] NRAS No.: 1629.0 SDG No.: [REDACTED]

SOW No.: ILM05.4

EPA Sample No.

[REDACTED]

Lab Sample ID

[REDACTED]

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	<u>YES</u>	<u> </u>
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	<u>YES</u>	<u> </u>
If yes, were raw data generated before application of background corrections?	(Yes/No)	<u>NO</u>	<u> </u>

Comments:

THE "E" QUALIFIERS ON FORM I AND VIII FOR SODIUM INDICATE CHEMICAL OR PHYSICAL INTERFERENCE EFFECTS WHICH WERE SUSPECTED DURING THAT ELEMENT'S ANALYSES ONLY.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette (or via an alternate means of electronic transmission, if approved in advance by USEPA) has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature:

Signature: [REDACTED]

Name: [REDACTED]

Date: 9/16/76

Title: EPA PROJECT MANAGER

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # [REDACTED]
CASE # [REDACTED]
CONTRACT # EPW06047
LAB NAME: CHEMTECH CONSULTING GROUP
LAB CODE: CHEM [REDACTED]
CHEMTECH PROJECT [REDACTED]
MODIFIED ANALYSIS: 1629.0

A. Number of Samples and Date of Receipt

20 Water Samples were delivered to the laboratory intact on 09/03/2008.

B. Parameters

Test requested for ICP- AES Metals CLP12= (Al,Ca,Fe,Mg,K,Na)+B+MO & HG.

C. Cooler Temp

Indicator Bottle: Presence/Absence
Cooler: 4°C

**D. Detail Documentation (related to Sample Handling
Shipping, Analytical Problem, Temp of Cooler etc):**

E. Corrective Action taken for above:

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ILM05.4

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

G. Calculation:

Calculation example for ICP-AES Water Sample:

Results reported in Ug/L = Results in ppm X 1000 X Dilution Factor (if any) X Fraction of Sample Amount Taken in ICP Water- Prep

Fraction of Sample Amount Taken in ICP Water- Prep = 100/100 or 50/50 =1
(if 100 ml Initial Volume taken and Final Volume was made to 100 ml or 50 ml Initial Volume and Final Volume made to 50 ml in ICP-AES Water Digestion procedure)

Calculation example for Hg Water Sample:

Results reported in Ug/L = Results in ppb X Dilution Factor (if any) X Fraction of Sample Amount Taken in Water Hg-Prep.

Fraction of Sample Amount Taken in Water Hg-Prep = 100/100 =1
(if 100 ml Initial Volume taken and made it to Final Volume as 100 ml)

H. QA/QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements. Duplicate sample did meet requirements. Serial Dilution did meet requirements except for Sodium.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature


Date 9/16/02

Name:



Title: Project Manager

Request for Quote (RFQ) for Modified Analysis

Date: August 27, 2008

Subject: Modification Reference Number: 1629.0
Title: ICP-AES Metals with Boron and Molybdenum
Sample Matrix: Water and Soil
Fraction Affected: Metals
Statement of Work: ILM05.4

Purpose:

The Contractor Laboratory is requested to perform the following modified analyses under the Inorganic Statement of Work (SOW) ILM05.4, based on the additional specifications listed below. Unless specifically modified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in SOW ILM05.4 remain unchanged and in full force and effect. The number of samples requested in this modification is not guaranteed.

Please note that accepting a modified analysis request is voluntary, and that the Laboratory is not required to accept the modified analysis. There will be no adverse effect to the Laboratory for not accepting the modified analysis request. However, once the Laboratory accepts the request for modified analysis, it shall perform the analysis in accordance with this modification and as specified in SOW ILM05.4.

The Laboratory is requested to review the modification described herein, determine whether or not it shall accept the requested modified analyses, and complete the attached response form. The Laboratory shall provide comments in response to the required changes in the designated area, in order to ensure that the modified analysis can be completed in accordance with the specifications described herein.

Notice to Contractors: Acceptance of Modified Analysis samples will not count against the monthly capacity.

Modification to the SOW Specifications:

The contract Laboratory shall analyze aqueous/water and soil/sediment samples for target analytes and the additional analytes Boron (B, CASRN 7440-42-8) and Molybdenum (Mo, CASRN 7439-98-7) by ICP-AES as indicated on the Traffic Report/Chain of Custody Record.

Analyte	Water CRQL (ug/L)	Soil CRQL (mg/kg)	Water Spike level (ug/L)	Soil Spike level (mg/kg)
B	50	5.0	250	25
Mo	5	0.5	25	2.5

The Laboratory must submit Method Detection Limits (MDL) for Boron and Molybdenum that are less than one-half the CRQLs.

The Laboratory shall not use borosilicate glassware to digest the samples for metals analysis or prepare any sample dilutions to avoid contaminating samples with Boron. Polymer digestion vessels shall be used instead.

Post-digestion Spike requirements are per the SOW.

The Laboratory shall add Boron and Molybdenum to the ICV/CCV solutions at appropriate concentrations.

The Laboratory shall add Boron and Molybdenum to the CRI solution at the requested aqueous CRQLs.

The Laboratory shall add Boron and Molybdenum to the LCSW at the levels requested for Matrix Spike if they are not already present in the solution. The Laboratory is not required to add Boron and Molybdenum to the LCSS if they are not already present.

The Laboratory is not required to add Boron and Molybdenum to the ICSA/ICSAB solutions. The Laboratory shall use a true value of zero (0) and acceptance windows of +/- 2 times the CRQL, unless a non-zero value for these analytes has been determined for the solution(s).

The Laboratory shall add Boron and Molybdenum to Forms 1, 2A, 2B, 3, 4A, 5A, (5B), 6, 8, 9, 10A, 11, and 13

Reporting Requirements:

Hardcopy and electronic data reporting are required as specified per SOW ILM05.4. All hardcopy and electronic data shall be adjusted to incorporate modified specifications. This includes attaching a copy of the requirements for modified analysis to the SDG Narrative. If specific problems occur with incorporation of the modified analysis into the hardcopy and/or electronic deliverable, the Laboratory shall contact the DASS Manager within the Sample

Management Office (SMO) at (703) 818-4233 or via email at CCSSUPPORT@fedcsc.com for resolution.

All samples and/or fractions assigned to an SDG shall be analyzed under the same Modified Analysis requirements as established in this memorandum. The Laboratory shall not include data from multiple Modified Analyses in one SDG.

The Laboratory shall include the Modification Reference Number 1629.0 on each hardcopy data form under the "NRAS No:" header appearing on each form as well as the "NRAS No." field on the Record type 21 of the electronic deliverable (if diskette deliverable is required). The Laboratory shall also document the Modification Reference Number and Solicitation Number on the SDG Coversheet.

Clarifications/Revisions to the RFQ for Modified Analysis:

Laboratory Name:

Laboratory Comments:

Contractor Laboratory Acknowledgment Document

Analysis	Modification Reference Number	Hardcopy Turnaround Requirement	Preliminary Results (Y/N)	PDF Delivery (Y/N)	(A) Estimated No. of Samples by Matrix (including billable QC)	Cost For Modified Analysis	
						(B) New Per Sample Price	(A x B) Total Cost
ICP-AES 5-10 Metals (plus B and Mo)	1629.0	14 days	N	N	149 water	\$ _____	\$ _____
ICP-AES 11-22 Metals (plus B and Mo)	1629.0	14 days	N	N	28 water 39 soil	\$ _____	\$ _____
ICP-MS 11-16 Metals	N/A	14 days	N	N	149 water	\$ _____	\$ _____
Mercury	N/A	14 days	N	N	177 water 39 soil	\$ _____	\$ _____
Total Project Cost						\$ _____	\$ _____

Project Information
 Estimated Shipping Period: 8/29/2008 through 9/3/2008
 Additional Information: Please note that the samples will ship under two Cases.

Note: The requirements in the RFQ are as stated, and the Government will reduce the line item price listed on the bid sheet for late deliveries at a rate of 5 percent per calendar day late, up to a maximum of 50 percent. The Government will treat noncompliant data and late data for Preliminary Results in accordance with the terms and conditions of the contract, using the price listed on the bid sheet as the basis for the calculation.

Name of Contractor Laboratory: _____

Contract Number: _____

____ Laboratory AGREES to perform analysis through the modified analysis protocol outlined in Modified Analysis Request.
 ____ Laboratory DECLINES to perform analysis through the modified analysis protocol outlined in Modified Analysis Request.

Signature of Laboratory Representative: _____ Date: _____

Signature of USEPA Contracting Officer: _____ Date: _____

Analysis: Description of the analyses being requested by the USEPA for this Case. This column is completed by SMO.

Modification Reference Number: The numerical value assigned to the technical requirements describing the changes to the Statement of Work. This column is completed by SMO.

Hardcopy Turnaround Requirement: The analytical data turnaround time required for this Case. This column is completed by SMO.

Preliminary Results: Indicates if Preliminary Results are required for the line item. This column is completed by SMO.

PDF Delivery: Indicates if PDF Delivery is required for the line item. This column is completed by SMO.

Estimated No. of Samples and sample Matrix (including QC): The client's estimated number of samples (by matrix), including billable QC samples, to be collected and shipped to the laboratory. This column is completed by SMO.

New Per Sample Price: Laboratory's sample price for analyzing the samples identified in the line item. This column is completed by the laboratory.

Total Cost: This value is the Estimated No. of Samples (including QC) multiplied by the New Per Sample Price. This column is completed by the laboratory.

Total Project Cost: Sum of the total costs for all line items. This is completed by the laboratory.

SAMPLE LOG-IN SHEET

Lab Name CHEMTECH CONSULTING GROUP

Page 1 of 1

Received By (Print Name) [REDACTED]		Log-in Date 9/3/2008			
Received By (Signature) [REDACTED]					
Case Number [REDACTED]	Sample Delivery Group No. [REDACTED]	NRAS Number			
Remarks:		Corresponding			
1. Custody Seal(s) <u>Present</u> /Absent* <u>Intact</u> /Broken	EPA Sample # [REDACTED]	Aqueous Sample pH N/A	Sample Tag #	Assigned Lab #	Remarks: Condition of Sample shipment, etc.
2. Custody Seal Nos. _____			818	[REDACTED]	INTACT
3. Traffic Reports/Chain Of Custody Reports or Packing Lists <u>Present</u> /Absent*			819	[REDACTED]	
4. Airbill <u>Airbill</u> /Sticker <u>Present</u> /Absent*			820	[REDACTED]	
5. Airbill No. 961942977974			821	[REDACTED]	
6. Sample Tags <u>Present</u> /Absent* Sample Tag # <u>Listed</u> /Not Listed On TR/Chain-of-Custody			822	[REDACTED]	
7. Sample Condition <u>Intact</u> /Broken*/Leaking			823	[REDACTED]	
8. Cooler Temperature Indicator Bottle <u>Present</u> /Absent*			824	[REDACTED]	
9. Cooler Temperature 400			825	[REDACTED]	
10. Does information on custody records, traffic reports, and sample tags agree? <u>Yes</u> /No*			826	[REDACTED]	
11. Date Received at Lab 9-308			827	[REDACTED]	
12. Time Received 9:30			828	[REDACTED]	
Sample Transfer					
Fraction METALS	Fraction [REDACTED]				
Area # 052	Area [REDACTED]				
By [REDACTED]	By [REDACTED]				
On 7-16-08	On [REDACTED]				
* Contact SMO and attach record of resolution					
Reviewed By [REDACTED]		Logbook No. [REDACTED]			
Date 7-16-08		Logbook Page No. [REDACTED]			

4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : September 30, 2008
SUBJECT: Region III Data QA Review
FROM : Colleen Walling *Colleen K. Walling*
Region III ESAT RPO (3EA20)
TO : Christine Wagner
Regional Project Manager (3HS32)

Attached is the inorganic data validation report for the Battlefield Gulf Club site (Case # [REDACTED] SDG # [REDACTED]) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachment

cc: [REDACTED] (TETRA TECH EMI)

TO File #: [REDACTED] TDF#: [REDACTED]

Lockheed Martin Enterprise Solutions & Services
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

DATE: September 29, 2008

SUBJECT: Level IM2 Inorganic Data Validation for Case [REDACTED]
SDG: [REDACTED]
Site: Battlefield Golf Club

FROM: [REDACTED]
Inorganic Data Reviewer

Through: [REDACTED]
Senior Data Review Chemist

TO: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case [REDACTED] Sample Delivery Group (SDG) [REDACTED] consisted of twenty (20) aqueous samples analyzed for total metals by the ICP-MS method. The sample set included one (1) field duplicate pair. All samples were submitted to ChemTech Consulting Group (CHEM) for analyses. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to the Region III Modifications to the National Functional Guidelines for Inorganic Data Review, level IM2. Areas of concern with respect to data usability are listed below.

Data in this Case have been impacted by outliers present in the laboratory blank as well as matrix spike analysis. Details for these outliers are discussed under "Minor Problems", specific samples affected are outlined in "Table 1A" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MINOR PROBLEMS

CCBs had negative values greater than the absolute value of the MDL for selenium (Se). Quantitation limits for this analyte in affected samples may be biased low and have been qualified "UL" on the DSFs.

Preparation (PB) and Continuing Calibration (CCB) Blanks had reported results greater than the Method Detection Limits (MDLs) for the analytes listed below. Positive results for these analytes in affected samples which are less than or equal to five times ($\leq 5X$) the blank concentrations may be biased high and have been qualified "B" on the DSFs.

<u>Blank</u>	<u>Affected Analytes</u>
PB	barium (Ba), cobalt (Co), nickel (Ni)
CCB	antimony (Sb), arsenic (As), cadmium (Cd), chromium (Cr), lead (Pb), silver (Ag), vanadium (V)

The matrix spike recovery was low (<75% but > 30%) for silver (Ag). The low recovery may be attributed to matrix interferences or analyte lost during the digestion process. Positive results reported for this analyte in affected samples may be biased low. The "L" qualifier for this outlier has been superseded by "B" on the DSFs. Quantitation limits for this analyte in affected samples in this SDG may be biased low and have been qualified "UL" on the DSFs.

NOTES

Positive results which are less than the Contract Required Quantitation Limits (CRQLs) but greater than MDLs have been qualified "P" on the DSFs unless superseded by "B".

The post digestion spike recovery was high (>125%) for Ag. No data were qualified based on this outlier.

Reported results for field duplicate pair [REDACTED] were within control limits (20% RPD, \pm CRQL) for all analytes.

The Laboratory Chain-of-Custody (COC) records requested analyses for boron (B) and molybdenum (Mo). These analytes were analyzed in SDG [REDACTED]

Data for Case [REDACTED] SDG [REDACTED] were reviewed in accordance with Region III Modifications to the National Functional Guidelines for Evaluating Inorganic Analyses, April 1993.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

TABLES 1A SUMMARY OF QUALIFIERS ON DATA SUMMARY FORMS AFTER DATA VALIDATION

TABLE 1B CODES USED IN COMMENTS COLUMN OF TABLES 1A

APPENDIX A GLOSSARY OF DATA QUALIFIER CODES

APPENDIX B DATA SUMMARY FORM(S)

APPENDIX C CHAIN OF CUSTODY RECORD(S)

APPENDIX D LABORATORY CASE NARRATIVE(S)

DCN: [REDACTED]

**TABLE 1A
SUMMARY OF QUALIFIERS ON DATA SUMMARY
FORM AFTER DATA VALIDATION**

Case [REDACTED] DG [REDACTED]

<u>ANALYTE</u>	<u>SAMPLES AFFECTED</u>	<u>POSITIVE VALUES</u>	<u>NON-DETECTED VALUES</u>	<u>BIAS</u>	<u>COMMENTS*</u>
Sb	[REDACTED]	B		High	CCB (0.383 J ug/L)
	[REDACTED]	B		High	CCB (0.267 J ug/L)
As	[REDACTED]	B		High	CCB (0.260 J ug/L)
	[REDACTED]	B		High	CCB (0.270 J ug/L)
Ba	[REDACTED]	B		High	PB (1.057 J ug/L)
	[REDACTED]				
Cd	[REDACTED]	B		High	CCB (0.183 J ug/L)
	[REDACTED]	B		High	CCB (0.197 J ug/L)
Cr	[REDACTED]	B		High	CCB (0.147 J ug/L)
	[REDACTED]	B		High	CCB (0.130 J ug/L)
	[REDACTED]				
Co	[REDACTED]	B		High	PB (0.160 J ug/L)
	[REDACTED]				
Pb	[REDACTED]	B		High	CCB (0.123 J ug/L)
	[REDACTED]				
Ni	[REDACTED]	B		High	PB (0.100 J ug/L)
	[REDACTED]				

• See explanation of comments in Table 1B

**TABLE 1A
SUMMARY OF QUALIFIERS ON DATA SUMMARY
FORM AFTER DATA VALIDATION**

Case [REDACTED] DG [REDACTED]

<u>ANALYTE</u>	<u>SAMPLES AFFECTED</u>	<u>POSITIVE VALUES</u>	<u>NON-DETECTED VALUES</u>	<u>BIAS</u>	<u>COMMENTS*</u>
Se	[REDACTED]		UL	Low	CBN (- 0.407 J ug/L)
	[REDACTED]		UL	Low	CBN (- 0.513 J ug/L)
Ag	[REDACTED]	B		High	CCB (0.087 J ug/L) MSL (49%)
	[REDACTED]	B		High	CCB (0.073 J ug/L) MSL (49%)
	All Samples Except [REDACTED]		UL	Low	MSL (49%)
V	[REDACTED]	B		High	CCB (0.240 J ug/L)
	[REDACTED]	B		High	CCB (0.263 J ug/L)

* See explanation of comments in Table 1B

**TABLE 1B
CODES USED IN COMMENTS COLUMN**

- CCB = Continuing calibration blanks had reported results greater than the MDLs [results are in parenthesis]. Reported results which are less than or equal to five times ($\leq 5X$) the blank concentration may be biased high.
- PB = The preparation blank had reported results greater than the MDLs [results are in parenthesis]. Reported results which are less than or equal to five times ($\leq 5X$) the blank concentration may be biased high.
- CBN = Continuing calibration blanks had reported negative results greater than absolute value of MDL [results are in parenthesis]. Quantitation limits may be biased low.
- MSL = The matrix spike recovery was low ($>30\%$ but $<75\%$) [the %recovery is in parenthesis]. Quantitation limits may be biased low.

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODE

Q = No analytical result.

Appendix B
Data Summary Forms (DSFs)

DATA SUMMARY FORM: INORGANIC

Case #: [REDACTED]
 Site: BATTLEFIELD GOLF CLUB
 Lab.: CHEM

Number of Soil Samples : 0
 Number of Water Samples : 20

Total Metals

Sample Number :		[REDACTED]							
Sampling Location :		[REDACTED]							
Field QC :		[REDACTED]							
Matrix :		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		8/25/2008		8/26/2008		8/26/2008		8/25/2008	
Time Sampled :		09:59		16:45		16:45		10:43	
Dilution Factor :		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag
*ARSENIC	1	1.5		1.6		1.5		1.6	
BERYLLIUM	1	0.11	J						
*CHROMIUM	2	0.73	B	0.88	J	0.71	B	0.74	J
COPPER	2	1.3	J	2.7		1.4	J	2.5	J
MANGANESE	1	14.4		18.0		14.7		91.4	8.0
SELENIUM	5		UL		UL	1.8	J		UL
THALLIUM	1			0.14	J				
ZINC	2	2.0	J	18.5		2.9		2.4	7.7

CRQL = Contract Required Quantitation Limit *Action Level Exists
 To calculate sample quantitation limits: (CRQL * Dilution Factor)

SEE NARRATIVE FOR CODE DEFINITIONS
 Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #:
 Site: BATTLEFIELD GOLF CLUB
 Lab.: CHEM

Total Metals

Sample Number :		Water									
Sampling Location :		ug/L									
Field QC :		8/25/2008		8/25/2008		8/25/2008		8/25/2008		8/25/2008	
Matrix :		11:24		11:31		13:28		13:36		14:16	
Units :		1.0		1.0		1.0		1.0		1.0	
Date Sampled :		11:24		11:31		13:28		13:36		14:16	
Time Sampled :		1.0		1.0		1.0		1.0		1.0	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag								
ANTIMONY	2										
ARSENIC											
BARIUM	10	1.2	B	76.5		8.2	J	10.0	J	19.3	
BISMUTH											
*CADMIUM	1										
CHROMIUM											
COBALT	1										
COPPER											
*LEAD	1	1.1		2.5		1.0		0.15	J	67.1	
MANGANESE											
*NICKEL	1	0.61	J	0.58	J	0.48	B	0.59	J	1.1	
SELENIUM											
SILVER	1		UL								
THALLIUM											
VANADIUM	5	0.96	B	1.5	J	1.2	B	0.59	B	0.37	B

CRQL = Contract Required Quantitation Limit *Action Level Exists
 To calculate sample quantitation limits: (CRQL * Dilution Factor)

SEE NARRATIVE FOR CODE DEFINITIONS
 Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: [REDACTED] SDG: [REDACTED]
 Site: BATTLEFIELD GOLF CLUB
 Lab.: CHEM

Total Metals

Sample Number :	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]						
Sampling Location :	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]						
Field QC :	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]						
Matrix :	Water	Water	Dup. of Water	Dup. of Water	Water						
Units :	ug/L	ug/L	ug/L	ug/L	ug/L						
Date Sampled :	8/25/2008	8/25/2008	8/25/2008	8/25/2008	8/25/2008						
Time Sampled :	15:15	16:23	19:19	19:19	20:15						
Dilution Factor :	1.0	1.0	1.0	1.0	1.0						
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag		
*ARSENIC	1	1.4		1.4		1.6		1.7		1.4	
BERYLLIUM	1										
*CHROMIUM	2	0.59	B	0.62	B	0.91	J	0.61	B	0.58	B
COPPER	2	3.3		4.0		8.5		9.2		55.7	
MANGANESE	1	99.5		256		246		236		281	
SELENIUM	5		UL		UL		UL		UL		UL
THALLIUM	1										
ZINC	2	8.3		10.2		4.0		3.9		60.2	

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
 To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: [REDACTED] SDG: [REDACTED]
 Site: BATTLEFIELD GOLF CLUB
 Lab.: CHEM

Total Metals

Sample Number :		[REDACTED]									
Sampling Location :		[REDACTED]									
Field QC :		[REDACTED]									
Matrix :		Water									
Units :		ug/L									
Date Sampled :		8/26/2008		8/26/2008		8/26/2008		8/26/2008		8/26/2008	
Time Sampled :		07:46		08:19		09:18		09:15		10:26	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag								
ANTIMONY	2										
ARSENIC											
BARIUM	10	2.6	B	4.5	B	4.7	B	21.4		1.8	B
BERYLLIUM											
*CADMIUM	1										
CHROMIUM											
COBALT	1										
*LEAD	1	0.34	J	1.1		0.95	J	10.8			
MANGANESE											
*NICKEL	1	0.32	B	0.37	B	0.49	B	1.2		0.34	B
SELENIUM											
SILVER	1		UL								
TITANIUM											
VANADIUM	5	0.98	B	0.80	B	0.49	B	1.0	B	0.78	B
ZINC	2	3.0									

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
 To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Appendix C
Chain-of-Custody Records



**USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record**

Case No: [Redacted]
DAS No: [Redacted]

R

Region: 3	Date Shipped: 9/2/2008	Carrier Name: FedEx	Chain of Custody Record	Sampler Signature: [Redacted]
Project Code: [Redacted]	Carrier Name: 961942977974	Shipped to: ChemTech Consulting Group (CHEMED) 284 Sheffield Street Mountainside NJ 07092 (908) 789-8900	Relinquished By: [Redacted] (Date/Time)	Received By: [Redacted] (Date/Time)
Account Code: VAN000308614	Spill ID: ALM	Site Name/State: Battlefield Golf/VVA	1	2
Project Leader: [Redacted]	Action: Preliminary Assessment	Sampling Co: Tetra Tech EM Inc.	3	4

INORGANIC SAMPLE NO.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottle	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
[Redacted]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	788 (HNO3), 902 (HNO3)	[Redacted]	S: 8/28/2008 13:05		
[Redacted]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	789 (HNO3), 903 (HNO3)	[Redacted]	S: 8/28/2008 13:25		
[Redacted]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	790 (HNO3), 904 (HNO3)	[Redacted]	S: 8/29/2008 15:55		
[Redacted]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	791 (HNO3), 905 (HNO3)	[Redacted]	S: 8/29/2008 13:50		
[Redacted]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	792 (HNO3), 906 (HNO3)	[Redacted]	S: 8/29/2008 13:50		
[Redacted]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	793 (HNO3), 907 (HNO3)	[Redacted]	S: 8/29/2008 14:50		
[Redacted]	Surface Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	794 (HNO3), 908 (HNO3)	[Redacted]	S: 8/29/2008 12:51		
[Redacted]	Surface Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	795 (HNO3), 909 (HNO3)	[Redacted]	S: 8/29/2008 15:40		
[Redacted]	Potable Well/	M/G	TAL TM+B+M (14)	796 (HNO3) (1)	[Redacted]	S: 8/25/2008 9:27		
[Redacted]	Potable Well/	M/G	TAL TM+B+M (14)	797 (HNO3) (1)	[Redacted]	S: 8/25/2008 9:59		
[Redacted]	Potable Well/	M/G	TAL TM+B+M (14)	798 (HNO3) (1)	[Redacted]	S: 8/26/2008 16:45		

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: L = Low, M = Medium, H = High	Concentration: L = Low, M = Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Lead? _____
TAL DM+B+M = TAL DISS MBGIS+BORON+NOY; TAL MBG+BT = TAL MBGIS + BORON + MOY; TAL TM+B+M = TAL TOTAL MBGIS+BORON+MOY			

TR Number: [Redacted]

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: [Redacted] CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

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EPA USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: [REDACTED]
 DAS No: [REDACTED]

Region: 3	Date Shipped: 9/2/2008	Chain of Custody Record	Sampler Signature: [REDACTED]
Project Code: [REDACTED]	Carrier Name: FedEx	Relinquished By: [REDACTED]	Received By: [REDACTED]
Account Code: VAN000306614	Airbill: 96194297974	(Date/Time)	(Date/Time)
CERCLIS ID: [REDACTED]	Shipped to: ChemTech Consulting Group (CHEMED)	1	
Spill ID: ALM	294 Sheffield Street	2	
Site Name/State: Battlefield GolfVA	Mountainside NJ 07092	3	
Project Leader: [REDACTED]	(908) 789-8900	4	
Action: Preliminary Assessment			
Sampling Co: Terra Tech EM Inc.			

INORGANIC SAMPLE No.	MATRIX/SAMPLER	CONC/TYPE	ANALYSIS/TURNAROUND	TAG No/ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	799 (HNO3) (1)	[REDACTED]	S: 8/25/2008 18:45		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	801 (HNO3) (1)	[REDACTED]	S: 8/25/2008 10:43		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	802 (HNO3) (1)	[REDACTED]	S: 8/25/2008 10:40		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	803 (HNO3) (1)	[REDACTED]	S: 8/25/2008 11:24		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	804 (HNO3) (1)	[REDACTED]	S: 8/25/2008 11:31		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	805 (HNO3) (1)	[REDACTED]	S: 8/25/2008 13:28		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	806 (HNO3) (1)	[REDACTED]	S: 8/25/2008 13:36		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	807 (HNO3) (1)	[REDACTED]	S: 8/25/2008 14:16		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	808 (HNO3) (1)	[REDACTED]	S: 8/25/2008 15:15		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	809 (HNO3) (1)	[REDACTED]	S: 8/25/2008 16:23		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	810 (HNO3) (1)	[REDACTED]	S: 8/25/2008 19:19		

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:

Analysis key: L = Low, M = Low/Medium, H = High
 Type/Designate: Composite = C, Grab = G
 TAL DM+B+M = TAL Diss Metals+Barium+Moly, TAL Met+Ba+M = TAL Metals + Barium + Molybdenum, TAL TM+B+M = TAL Total Metals+Barium+Moly

EPA USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: [REDACTED]
DAS No: [REDACTED]

R

Region: 3	Date Shipped: 9/22/2008	Carrier Name: FedEx	Chain of Custody Record	Sampler Signature: [REDACTED]
Project Code: [REDACTED]	Carrier Name: 961942977974	Shipped for: ChemTech Consulting Group (CHEMED)	Relinquished By: [REDACTED]	Received By: [REDACTED]
Account Code: VAND00306614	Site Name/State: Ballfield Golf/VA	284 Sheffield Street	1. [REDACTED]	
Spill ID: ALM	Action: Preliminary Assessment	Mountainside NJ 07092	2. [REDACTED]	
Project Leader: [REDACTED]	Sampling Co: Tetra Tech EM Inc.	(908) 789-9900	3. [REDACTED]	
INORGANIC SAMPLE NO. [REDACTED]	MATRIX: SAMPLE	CONC/TYPE: M/G	ANALYSIS/TURNAROUND: TAL TM+B+M (14)	TAG No./PRESERVATIVE/ Bottles: 811 (HNO3) (1)
STATION LOCATION: [REDACTED]	SAMPLE COLLECT DATE/TIME: 8/25/2008 19:18	ORGANIC SAMPLE NO. [REDACTED]	OC Type: [REDACTED]	

INORGANIC SAMPLE NO.	MATRIX	CONC/TYPE	ANALYSIS/TURNAROUND	TAG No./PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE NO.	OC Type
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	811 (HNO3) (1)	[REDACTED]	S: 8/25/2008 19:18 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	812 (HNO3) (1)	[REDACTED]	S: 8/25/2008 20:15 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	813 (HNO3) (1)	[REDACTED]	S: 8/26/2008 7:46 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	814 (HNO3) (1)	[REDACTED]	S: 8/26/2008 8:19 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	815 (HNO3) (1)	[REDACTED]	S: 8/26/2008 9:18 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	816 (HNO3) (1)	[REDACTED]	S: 8/26/2008 9:15 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	817 (HNO3) (1)	[REDACTED]	S: 8/26/2008 10:26 /	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	818 (HNO3) (1)	[REDACTED]	S: 8/26/2008 10:50	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	819 (HNO3) (1)	[REDACTED]	S: 8/26/2008 11:33	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	820 (HNO3) (1)	[REDACTED]	S: 8/26/2008 11:26	[REDACTED]	
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	821 (HNO3) (1)	[REDACTED]	S: 8/26/2008 11:26	[REDACTED]	

Stripment for Case Complete? Y	Sample(s) to be used for laboratory OC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: L = Low, M = Low/Medium, H = High	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Lead? [REDACTED]
TAL DM-B+M = TAL Diss Metals+Barion+Moiv, TAL Met+P+ = TAL Metals + Barion + Moiv+Barium, TAL TM+B+M = TAL Total Metals+Barion+Moiv			

IR Number: [REDACTED]

PH provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Alt: [REDACTED] CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819, Phone 703/818-4200, Fax 703/818-4602

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U.S. EPA Region III Analytical Request Form

ASQAB USE ONLY
RAS# [REDACTED]
DASH# [REDACTED]
NSRF# [REDACTED]
Analytical TAT 14

Date: 8/21/2008 **Site Activity:** Removal Assessment

Site Name: Battlefield Golf Club **Street Address:** 1001 South Centerville Turnpike

City: Chesapeake **State:** VA **Latitude:** 36.68982 **Longitude:** 76:17790

Program: Superfund **Acct. #:** 2008T03 N 302DC6C A3LM RS00 **CERCLIS #:** VAN000306614

Site ID: **Spill ID:** A3LM **Operable Unit:**

Site Specific QA Plan Submitted: No Yes **Title:** Battlefield Golf Club Fly Ash Assessment SAP **Date Approved:** 8/20/2008

EPA Project Leader: CHRIS WAGNER **Phone#:** **Cell Phone #:** 804-337-3049 **E-mail:** Wagner.Christine@epa.gov

Request Preparer: [REDACTED] **Phone#:** [REDACTED] **Cell Phone #:** [REDACTED] **E-mail:** [REDACTED]

Site Leader: [REDACTED] **Phone#:** [REDACTED] **Cell Phone #:** [REDACTED] **E-mail:** [REDACTED]

Contractor: Tetra Tech EM Inc **EPA CO/PO:** Lorrie Murray/Karen Wodarczyk

#Samples	Matrix: soil	Parameter: TAL Metals + Boron + Molybdenum + Hg	Method: ILM05.4 ICPAES+Hg
#Samples	Matrix: groundwater	Parameter: TAL Metals + Boron + Molybdenum + Hg	Method: ILM05.4 ICPAES+Hg
#Samples	Matrix: potable water	Parameter: TAL metals Low(w/o Al,Ca,Fe,K,Mg,Na)&B,Mo,Hg	Method: ILM05.4 ICPMS & Hg
#Samples	Matrix: potable water	Parameter: Al, Ca, Fe, K, Mg, Na	Method: ILM05.4 ICPAES
#Samples	Matrix: groundwater	Parameter: TAL metals Low(w/o Al,Ca,Fe,K,Mg,Na)&B,Mo,Hg	Method: ILM05.4 ICPMS & Hg
#Samples	Matrix: groundwater	Parameter: Al, Ca, Fe, K, Mg, Na	Method: ILM05.4 ICPAES
#Samples	Matrix: [REDACTED]	Parameter: [REDACTED]	Method: [REDACTED]

Ship Date From: 8/29/2008 **Ship Date To:** 9/3/2008 **Org. Validation Level** **Inorg. Validation Level** IM2

Unvalidated Data Requested: No Yes **IF Yes, TAT Needed:** 24hrs 48hrs 72hrs Other (Specify) **14 days**

Validated Data Package Due: 14 days 21 days 30days 42 days Other (Specify)

Electronic Data Deliverables Required: No Yes (EDDs will be provided in Region 3 EDD Format)

Special Instructions: See attached DLs.

Appendix D

Laboratory Case Narrative

USEPA - CLP
COVER PAGE

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW06047

Lab Code: CHEM Case No.: [REDACTED] NRAS No.: _____ SDG No.: [REDACTED]

SOW No.: ILM05.4

EPA Sample No.
[REDACTED]

Lab Sample ID
[REDACTED]

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	_____	<u>YES</u>
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	_____	<u>YES</u>
If yes, were raw data generated before application of background corrections?	(Yes/No)	_____	<u>NO</u>

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette (or via an alternate means of electronic transmission, if approved in advance by USEPA) has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature:

Signature: [REDACTED]
Date: 4/11/08

Name: [REDACTED]
Title: EPA PROJECT MANAGER

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # [REDACTED]
CASE # [REDACTED]
CONTRACT # EPW06047
LAB NAME: CHEMTECH CONSULTING GROUP
LAB CODE: CHEM
CHEMTECH PROJECT # [REDACTED]

A. Number of Samples and Date of Receipt

20 Water Samples was delivered to the laboratory intact on 09/03/2008.

B. Parameters

Test requested for Metals CLP MS.

C. Cooler Temp

Indicator Bottle: Presence/Absence
Cooler: 4°C

**D. Detail Documentation (related to Sample Handling
Shipping, Analytical Problem, Temp of Cooler etc):**

E. Corrective Action taken for above:

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ILM05.4

CHEMTECH

284 Sheffield Street
Mountainside, NJ 07092

G. Calculation:

Calculation example for ICP-MS Water Sample:

Results reported in Ug/L = Results in ppb X Dilution Factor (if any) X Fraction of Sample Amount Taken in ICP Water- Prep

Fraction of Sample Amount Taken in ICP-MS Water- Prep = 100/100 or 50/50 =1
(if 100 ml Initial Volume taken and Final Volume was made to 100 ml or 50 ml Initial Volume and Final Volume made to 50 ml in ICP-MS Water Digestion procedure)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for the Silver. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature 
Date 9/10/02

Name: 
Title: Project Manager



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : September 30, 2008
SUBJECT: Region III Data QA Review
FROM : Colleen Walling *Colleen K. Walling*
Region III ESAT RPO (3EA20)
TO : Christine Wagner
Regional Project Manager (3HS32)

Attached is the inorganic data validation report for the Battlefield Gulf Club site (Case # [REDACTED] SDG # [REDACTED] completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachment

cc: [REDACTED] (TETRA MECH EMI)

TO File #: [REDACTED] TDF#: [REDACTED]

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

Lockheed Martin Enterprise Solutions & Services
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597



Date: September 30, 2008
Subject: Inorganic Data Validation (IM2 Level)
Case: [REDACTED]
SDG : [REDACTED]
Site : Battlefield Golf Club
From: [REDACTED]
Inorganic Data Reviewer
[REDACTED]
Senior Oversight Chemist
To: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case [REDACTED] Sample Delivery Group (SDG) [REDACTED] consisted of twenty (20) aqueous samples analyzed for aluminum (Al), calcium (Ca), iron (Fe), magnesium (Mg), potassium (K), sodium (Na) and mercury (Hg). In addition, boron (B) and molybdenum (Mo) were analyzed per modification reference number 1629.0. The sample set included one (1) field duplicate pair. Samples were analyzed by ChemTech Consulting Group (CHEM) according to the Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Region III Modifications to the National Functional Guidelines for Inorganic Data Review, Level IM2. Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by outliers present in the laboratory blanks and ICP serial dilution analyses. Details of these outliers are discussed under "Minor Problems," specific samples affected are outlined in "Table 1A" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MINOR PROBLEMS

Continuing calibration (CCB) and preparation (PB) blanks had reported results greater than the Method Detection Limit (MDL) for boron. The positive results for this analyte in affected samples which are less than or equal to five times ($\leq 5X$) the blank concentration may be biased high and have been qualified "B" on the DSFs.

CCBs had negative results greater than the absolute value of the MDL for Hg. The quantitation limits for this analyte in affected samples may be biased low and have been qualified "UL" on the DSFs.

The percent difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) for Na. The positive results for this analyte in all samples are estimated due to possible matrix interferences and has been qualified "J" on the DSFs.

NOTES

Results for field duplicate pair [REDACTED] were comparable.

Reported results between MDLs and Contract Required Quantitation Limits (CRQLs) were qualified "J" on the DSFs.

Data for Case [REDACTED] SDG [REDACTED] were reviewed in accordance with the National Functional Guidelines for Evaluating Inorganic Analyses with Modifications for use within Region III.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

Table 1A is a summary of qualifiers applied to the laboratory-generated results during data validation.

- Table 1A Summary of qualifiers on data summary forms after data validation
- Table 1B Codes used in comments column of Table 1A
- Appendix A Glossary of Data Qualifier Codes
- Appendix B Data Summary Form(s)
- Appendix C Chain of Custody Records
- Appendix D Laboratory Case Narrative

DCN: [REDACTED]

**TABLE 1A
SUMMARY OF QUALIFIERS ON DATA SUMMARY
FORM AFTER DATA VALIDATION**

Case [REDACTED] SDG [REDACTED]

<u>ANALYTE</u>	<u>SAMPLES AFFECTED</u>	<u>POSITIVE VALUES</u>	<u>NON-DETECTED VALUES</u>	<u>BIAS</u>	<u>COMMENTS*</u>
Hg	All samples except [REDACTED]		UL	Low	CBN (-0.121 J ug/L)
	[REDACTED]		UL	Low	CBN (-0.099 J ug/L)
Na	All samples	J			ISD (19%)
B	[REDACTED]	B		High	CCB (17.605 J ug/L)
	[REDACTED]	B		High	PB (5.965 J ug/L)

* See explanation of comments in Table 1B

TABLE 1B
CODES USED IN COMMENTS COLUMN

CBN	=	Continuing calibration blanks had negative results with absolute values > MDL [results are in parenthesis]. The quantitation limit may be biased low.
ISD	=	Percent difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) [%D is in parenthesis]. Positive results are estimated.
CCB	=	Continuing calibration blank had result >MDL [result is in parenthesis]. The positive result which is $\leq 5X$ the blank concentration may be biased high.
PB	=	Preparation blank had result > MDL [result is in parenthesis]. Positive results which are $\leq 5X$ the blank concentration may be biased high.

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NQ-CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B
Data Summary Forms

DATA SUMMARY FORM: INORGANIC

Case #:
 Site: BATTLEFIELD GOLF CLUB
 Lab.: CHEM

Number of Soil Samples : 0
 Number of Water Samples : 20

Total Metals

Sample Number :											
Sampling Location :											
Matrix :		Water									
Units :		ug/L									
Date Sampled :		8/25/2008		8/26/2008		8/26/2008		8/25/2008		8/25/2008	
Time Sampled :		09:59		16:45		16:45		10:43		10:40	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag								
ALUMINUM	200	21.5	J	22.7	J			113		116	
BORON	50	275		290		295					
CALCIUM	5000	65500		62900		66100		67900		26300	
IRON	100	615		12.6	J	631		1190		180	
MAGNESIUM	5000	42000		43500		44000		18300		12800	
MOLYBDENUM	5										
MERCURY	0.2		UL	0.40			UL		UL		UL
POTASSIUM	5000	23200		24400		24900		8760		9450	
SODIUM	5000	222000	J	247000	J	247000	J	68300	J	51800	J

Sample Number :											
Sampling Location :											
Matrix :		Water									
Units :		ug/L									
Date Sampled :		8/25/2008		8/25/2008		8/25/2008		8/25/2008		8/25/2008	
Time Sampled :		11:24		11:31		13:28		13:36		14:16	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag								
ALUMINUM	200			20.7	J			23.7	J	93.6	J
BORON	50	114		29.1	J	107		124		54.9	
CALCIUM	5000	28100		15600		39500		41700		71600	
IRON	100	175		12000		1980		1760		2830	
MAGNESIUM	5000	12800		6670		19300		19800		17200	
MOLYBDENUM	5										
MERCURY	0.2		UL								
POTASSIUM	5000	9460		2970	J	10500		11100		4810	J
SODIUM	5000	51200	J	10100	J	68700	J	76700	J	49800	J

CRQL = Contract Required Quantitation Limit *Action Level Exists
 To calculate sample quantitation limits: (CRQL * Dilution Factor)

SEE NARRATIVE FOR CODE DEFINITIONS
 Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: [REDACTED] SDG: [REDACTED]
 Site: BATTLEFIELD GOLF CLUB
 Lab.: CHEM

Total Metals

Sample Number :		[REDACTED]									
Sampling Location :		[REDACTED]									
Field QC :		[REDACTED]									
Matrix :		Water		Water		Dup. of		Dup. of		Water	
Units :		ug/L		ug/L		Water		Water		ug/L	
Date Sampled :		8/25/2008		8/25/2008		8/25/2008		8/25/2008		8/25/2008	
Time Sampled :		15:15		16:23		19:19		19:19		20:15	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
BORON	50	94.4		16.9	B	29.8	B	30.8	J	18.4	B
CALCIUM	5000	73000		42600		225000		223000		50700	
IRON	100	1420		6600		1660		1560		8060	
MAGNESIUM	5000	18000		18400		12700		12700		23200	
MOLYBDENUM	5										
MERCURY	0.2		UL		UL		UL		UL		UL
POTASSIUM	5000	7540		2530	J	4630	J	4500	J	2800	J
SODIUM	5000	64400	J	32600	J	127000	J	125000	J	50300	J

Sample Number :		[REDACTED]									
Sampling Location :		[REDACTED]									
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		8/26/2008		8/26/2008		8/26/2008		8/26/2008		8/26/2008	
Time Sampled :		07:46		08:19		09:18		09:16		10:26	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
BORON	50	363		26.6	B	284		44.2	J	115	
CALCIUM	5000	32000		37400		29400		64200		29500	
IRON	100	192		644		194		4300		133	
MAGNESIUM	5000	28900		5050		27100		20200		13900	
MOLYBDENUM	5										
MERCURY	0.2		UL		UL		UL		UL		UL
POTASSIUM	5000	29600		2670	J	19600		4300	J	8710	
SODIUM	5000	340000	J	16600	J	238000	J	45500	J	65200	J

CRQL = Contract Required Quantitation Limit *Action Level Exists
 To calculate sample quantitation limits: (CRQL * Dilution Factor)

SEE NARRATIVE FOR CODE DEFINITIONS
 Revised 09/99

Appendix C
Chain of Custody Records

U.S. EPA Region III Analytical Request Form

8-25-08

ASGAB USE ONLY
RES# [redacted] Analytical TAT DASH# [redacted] NSI# [redacted] 14

Date: 8/21/2008		Site Activity: Removal Assessment	
Site Name: Battlefield Golf Club		Street Address: 1001 South Centerville Turnpike	
City: Chesapeake	State: VA	Latitude: 36.68982	Longitude: 76.17790
Program: Superfund	Acct #: 2008T03 N 302DCC6C A3LM RS00	CERCLIS #: VANO0306614	
Site ID:	Spill ID: A3LM	Operable Unit:	
Site Specific QA Plan Submitted: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Title: Battlefield Golf Club Fly Ash Assessment SAP	Date Approved: 8/20/2008	
EPA Project Leader: CHRIS WAGNER	Phone#:	Cell Phone #: 804-337-3049	E-mail: Wagner.Christine@epa.gov
Request Preparer: [redacted]	Phone#:	Cell Phone #: [redacted]	E-mail: [redacted]
Site Leader: [redacted]	EPA CO/PO: Lortie Murray/Karen Wodarczyk		
Contractor: Tetra Tech EM Inc	Parameter: TAL Metals + Boron + Molybdenum + Hg CHEM		
#Samples [redacted]	Matrix: soil	Method: ILM05.4 ICPAES+Hg	
#Samples [redacted]	Matrix: groundwater	Method: ILM05.4 ICPAES+Hg	
#Samples [redacted]	Matrix: potable water	Method: ILM05.4 ICPMS & Hg	
#Samples [redacted]	Matrix: potable water	Method: ILM05.4 ICPAES	
#Samples [redacted]	Matrix: groundwater	Method: ILM05.4 ICPMS & Hg	
#Samples [redacted]	Matrix: groundwater	Method: ILM05.4 ICPAES	
#Samples [redacted]	Matrix: [redacted]	Method: [redacted]	
#Samples [redacted]	Matrix: [redacted]	Method: [redacted]	
Ship Date From: 8/29/2008	Ship Date To: 9/3/2008	Org. Validation Level	Inorg. Validation Level IM2
Unvalidated Data Requested: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If Yes, TAT Needed: <input type="checkbox"/> 24hrs <input type="checkbox"/> 48hrs <input type="checkbox"/> 72hrs <input checked="" type="checkbox"/> Other (Specify) 14 days			
Validated Data Package Due: <input type="checkbox"/> 14 days <input type="checkbox"/> 21 days <input checked="" type="checkbox"/> 30days <input type="checkbox"/> 42 days <input type="checkbox"/> Other (Specify)			
Electronic Data Deliverables Required: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (EDDs will be provided in Region 3 EDD Format)			
Special Instructions: See attached DLs.			

Anal_req_form

**EPA USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record**

Case No: [REDACTED]
DAS No: [REDACTED]

Region: 3	Date Shipped: 9/2/2008	Chain of Custody Record Requisitioned By: [REDACTED] (Date / Time) 1. [REDACTED] (Date / Time) 2. [REDACTED] 3. [REDACTED] 4. [REDACTED]	Sampler Signature: [REDACTED] Received By: [REDACTED] (Date / Time)
Project Code: [REDACTED]	Carrier Name: FedEx		
Account Code: VAN000308614	Address: 96194297797A, ChemTech Consulting Group (CHEMED) 284 Sheffield Street Mountaintside NJ 07092 (908) 789-8900		
Spill ID: ALM	Shipped to:		
Site Name/State: Ballfield GolfVA			
Project Leader: [REDACTED]			
Action: Preliminary Assessment			
Sampling Co: Tetra Tech EM Inc.			

INORGANIC SAMPLE NO.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNOURNO	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
[REDACTED]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 902 (HNO3)	[REDACTED]	S: 8/28/2008 13:05	[REDACTED]	[REDACTED]
[REDACTED]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 903 (HNO3)	[REDACTED]	S: 8/28/2008 13:25	[REDACTED]	[REDACTED]
[REDACTED]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 904 (HNO3)	[REDACTED]	S: 8/29/2008 15:55	[REDACTED]	[REDACTED]
[REDACTED]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 905 (HNO3)	[REDACTED]	S: 8/29/2008 13:50	[REDACTED]	[REDACTED]
[REDACTED]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 906 (HNO3)	[REDACTED]	S: 8/29/2008 13:50	[REDACTED]	[REDACTED]
[REDACTED]	Ground Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 907 (HNO3)	[REDACTED]	S: 8/29/2008 14:50	[REDACTED]	[REDACTED]
[REDACTED]	Surface Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 908 (HNO3)	[REDACTED]	S: 8/29/2008 12:51	[REDACTED]	[REDACTED]
[REDACTED]	Surface Water/	M/G	TAL DM+B+M (14), TAL TM+B+M (14) (2)	(HNO3), 909 (HNO3)	[REDACTED]	S: 8/29/2008 15:40	[REDACTED]	[REDACTED]
[REDACTED]	Potable Well/	M/G	TAL TM+B+M (14)	786 (HNO3) (1)	[REDACTED]	S: 8/25/2008 9:27	[REDACTED]	[REDACTED]
[REDACTED]	Potable Well/	M/G	TAL TM+B+M (14)	787 (HNO3) (1)	[REDACTED]	S: 8/25/2008 9:59	[REDACTED]	[REDACTED]
[REDACTED]	Potable Well/	M/G	TAL TM+B+M (14)	788 (HNO3) (1)	[REDACTED]	S: 8/25/2008 16:45	[REDACTED]	[REDACTED]

Shipment for Case Complete? Y	Sample(s) to be used for laboratory OC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
ATTN: Key: TAL DM+B+M = TAL Diss Metals+Bron+Moly, TAL MET+B+M = TAL Metals + Bron + Molydenum, TAL TM+B+M = TAL Total Metals+Bron+Moly	Concentration: L = Low, M = Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Lead? _____

EPA USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: [REDACTED]
 DAS No: [REDACTED]

Region: 3	Date Shipped: 9/2/2008	Carrier Name: FedEx	Shipped to: ChemTech Consulting Group (CHEMED) 284 Sheffield Street Mountainside NJ 07092 (908) 789-8900
Project Code: [REDACTED]	Attrib: 961942977974	Shipped to: ChemTech Consulting Group (CHEMED) 284 Sheffield Street Mountainside NJ 07092 (908) 789-8900	
Account Code: VAN000308614			
CERCLIS ID: ALM			
Spill ID: ALM			
Site Name/State: Battlefield Golf/VA			
Project Leader: [REDACTED]			
Action: Preliminary Assessment			
Sampling Co: Tetra Tech EM Inc.			

INORGANIC SAMPLE NO.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG NO./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE NO.	QC Type
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/26/2008 16:45		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 10:43		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 10:40		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 11:24		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 11:31		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 13:28		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 13:36		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 14:16		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 15:15		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 16:23		
[REDACTED]	Potable Well	M/G	TAL TM+B+M (14)	80% (HNO3) (1)	[REDACTED]	S: 8/25/2008 19:19		

Shipment for Case Completed? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: L = Low, M = Low/Medium, H = High	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Used?
TAL DM+B+M = TAL Diss Metals+Barium+Moly, TAL MeI+BT = TAL Metals + Barium + Molydenum, TAL TM+B+M = TAL Total Metals+Barium+Moly			

TR Number: [REDACTED]

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
 Send Copy to: Sample Management Office, Alt: [REDACTED], CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

EPA USEPA Contract Laboratory Program Inorganic Traffic Report & Chain of Custody Record

Case No: [Redacted]
DAS No: [Redacted]

R

Region: 3	Date Shipped: 9/2/2008	Carrier Name: FedEx	Artbill: 96194297797A	Shipped to: ChemTech Consulting Group (CHEMED) 284 Sheffield Street Mountainside NJ 07092 (908) 789-8900
Project Code: [Redacted]	Account Code: VAND00306614	Spill ID: ALM	Site Name/State: Bailfield Golf/VA	Project Leader: [Redacted]
INORGANIC SAMPLE NO.	MATRIX/SAMPLER	CONC/TYPE	ANALYSIS/TURNAROUND	TAG No./PRESERVATIVE/Boles
STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE NO.	DC Type	Chain of Custody Record
INORGANIC SAMPLE NO.	MATRIX/SAMPLER	CONC/TYPE	ANALYSIS/TURNAROUND	TAG No./PRESERVATIVE/Boles
STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE NO.	DC Type	Chain of Custody Record

INORGANIC SAMPLE NO.	MATRIX/SAMPLER	CONC/TYPE	ANALYSIS/TURNAROUND	TAG No./PRESERVATIVE/Boles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE NO.	DC Type
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/25/2008 19:19	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/25/2008 20:15	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 7:46	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 8:19	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 9:18	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 9:15	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 10:26	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 10:50	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 11:33	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 11:26	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 11:26	[Redacted]	[Redacted]
[Redacted]	Potable Well	M/G	TAL TM+B+M (14)	(HNO3) (1)	[Redacted]	S: 8/26/2008 11:26	[Redacted]	[Redacted]

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: L = Low, M = Low/Medium, H = High	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Lead? [Redacted]
TAL DM+B+M = TAL DSS Metals+Boron+MoV, TAL MB+BF = TAL Metals + Boron + MoV+SeBium, TAL TM+B+M = TAL Total Metals+Boron+MoV			

Appendix D
Laboratory Case Narrative

USEPA - CLP

COVER PAGE

Lab Name: CHEMTECH CONSULTING GROUP Contract: EPW06047

Lab Code: CHEM Case No.: [REDACTED] NRAS No.: 1629.0 SDG No.: [REDACTED]

SOW No.: ILM05.4

EPA Sample No.
[REDACTED]

Lab Sample ID
[REDACTED]

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	<u>YES</u>	<u> </u>
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	<u>YES</u>	<u> </u>
If yes, were raw data generated before application of background corrections?	(Yes/No)	<u>NO</u>	<u> </u>

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette (or via an alternate means of electronic transmission, if approved in advance by USEPA) has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [REDACTED]
Date: 9/16/08

Name: [REDACTED]
Title: EPA PROJECT MANAGER

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # [REDACTED]
CASE # [REDACTED]
CONTRACT # EPW06047
LAB NAME: CHEMTECH CONSULTING GROUP
LAB CODE: CHEM
CHEMTECH PROJECT [REDACTED]
MODIFIED ANALYSIS: 1629.0

A. Number of Samples and Date of Receipt

20 Water Samples were delivered to the laboratory intact on 09/03/2008.

B. Parameters

Test requested for ICP- AES Metals CLP12= (Al,Ca,Fe,Mg,K,Na)+B+MO & HG.

C. Cooler Temp

Indicator Bottle: Presence/Absence
Cooler: 4°C

**D. Detail Documentation (related to Sample Handling
Shipping, Analytical Problem, Temp of Cooler etc):**

E. Corrective Action taken for above:

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ILM05.4

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

G. Calculation:

Calculation example for ICP-AES Water Sample:

Results reported in Ug/L = Results in ppm X 1000 X Dilution Factor (if any) X Fraction of Sample Amount Taken in ICP Water- Prep

Fraction of Sample Amount Taken in ICP Water- Prep = 100/100 or 50/50 =1
(if 100 ml Initial Volume taken and Final Volume was made to 100 ml or 50 ml Initial Volume and Final Volume made to 50 ml in ICP-AES Water Digestion procedure)

Calculation example for Hg Water Sample:

Results reported in Ug/L = Results in ppb X Dilution Factor (if any) X Fraction of Sample Amount Taken in Water Hg-Prep.

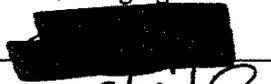
Fraction of Sample Amount Taken in Water Hg-Prep = 100/100 =1
(if 100 ml Initial Volume taken and made it to Final Volume as 100 ml)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements. Duplicate sample did meet requirements. Serial Dilution did meet requirements except for Sodium.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature



Name



Date

9/16/08

Title: Project Manager