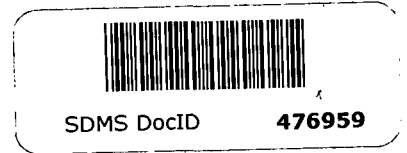




Nobis Engineering, Inc.  
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November 19, 2010  
Nobis File No. 80013



Mr. Darryl Luce  
U.S. Environmental Protection Agency  
New England Region I  
5 Post Office Square  
Suite 100, Mailcode OSRR07-4  
Boston, MA 02109-3912

Superfund Records Center  
SITE: Chlor-Alkali  
BREAK: 3.2  
OTHER: 476959

Re: Contract No.: EP-S1-06-03  
Task Order No. 0013-RI-CO-01BQ  
Case No.: 40517; Sample Delivery Group (SDG) No. MA41B3  
Bonner Analytical Testing Company, Hattiesburg, MS  
Chlor-Alkali Facility (Former) Superfund Site  
Berlin, New Hampshire  
CERCLIS No.: NHN000103313  
Tier II Inorganic Data Validation

Metals: 12/Soil/ MA4165, MA4166, MA4167, MA4174, MA4186, MA4196, MA41A2,  
MA41A3; MA41A4, MA41B3, MA41B4, MA41B5  
Equipment blank: N/A  
Field Duplicates: N/A  
PE sample: N/A

Dear Mr. Luce:

Nobis Engineering, Inc. performed a Tier II data validation in accordance with the "Part IV, Inorganic Data Validation Functional Guidelines", November 2008 of the *Region I, EPA New-England Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996*" on the inorganic analytical data for 12 soil samples collected by Nobis Engineering, Inc. at the Chlor-Alkali Facility (Former) Superfund Site in Berlin, New Hampshire. The samples were analyzed for total metals, under the Contract Laboratory Program (CLP) Routine Analytical Services (RAS) according to the ILM05.4 Statement of Work (SOW). This SDG includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium and Zinc results analyzed by ICP-AES and Mercury analyzed by CV.

The data were evaluated based on the following parameters:

- \* • Overall Evaluation of Data and Potential Usability Issues
  - \* • Data Completeness
  - \* • Preservation and Technical Holding Times
  - NA • ICP-MS Tune Analysis
  - \* • Initial and Continuing Calibrations
    - Quantitation Limit Check Standard (CRI)
    - Blanks
    - ICP Interference Check Results
    - Matrix Spike Recoveries
    - Laboratory Duplicates
  - \* • Field Duplicates
  - \* • Lab Control Sample Results
  - NA • Furnace AA Results
  - NA • Method of Standard Addition (MSA)
  - \* • ICP Serial Dilution Results
  - NA • ICP-MS Internal Standards
  - \* • CRQL/Method Detection Limit (MDL) Results
  - \* • PE Samples/Accuracy Check
  - \* • Sample Quantitation
- \* All criteria were met for this parameter.

Note: Worksheets, except for Worksheet XIII – Sample Quantitation, are not included for parameters that have met criteria or for criteria that are not applicable (NA) to the method.

**The following information was used to generate the Data Validation Memorandum attachments:**

Table I: Recommendation Summary Table - Summarizes validation recommendations

Table II: Overall Evaluation of Data - Summarizes site DQOs and potential usability issues

Data Summary Table: Summarizes accepted, qualified, and rejected data

**Overall Evaluation of Data and Potential Usability Issues**

Following is a summary of the site DQOs:

- Accurate identification of environmental bioaccumulation risks from site contamination.
- Determination of where and what magnitude of risk applies for:
  - Humans, likely from incidental ingestion and dermal contact with sediments and surface waters, as well as consumption of fish;
  - Ecological assessment endpoints
  - Filling of existing data gaps throughout the study area.

Matrix Spike failed for Antimony, Copper and Zinc; a post spike was analyzed for antimony at twice the CRQL and twice the indigenous level for Copper and Zinc. The post spike sample recoveries were within the QC acceptance criteria.

Sample MA4166 failed during the initial analysis for metals due to inconsistent IS concentrations; the sample was re-analyzed with a separate set of QC samples.

Three calibration curves failed for mercury, the instrument was re-calibrated. The calibration check standard, CRI03, failed and the CRI was reanalyzed. MA4196 was over the linear range and the sample was reanalyzed at appropriate dilution.

The data was qualified due to non-compliant ICP interference analysis, matrix spike and lab duplicate sample results.

### **Data Completeness**

Sample MA4174 was not included in the cooler sent with the samples on 9/23/10 and received by the lab on 9/24/10. The sample was sent on 9/24/10 and received by the lab on 9/25/10.

### **Quantitation Limit Check Standard (CRI)**

The QL Check Standard recovery for iron was 172% and 136% which is greater than the upper limit of the acceptance criteria (70-130%) but less than 180%. All iron results were greater than 2X the QL Check Standard true value ( $2 \times 10 \text{ mg/kg} = 20 \text{ mg/kg}$ ), therefore professional judgment was used that no action was necessary.

The QL Check Standard recovery for mercury was 40% which is less than the lower limit of the acceptance criteria (50-150%). Only one mercury result was affected and the result was greater than 2X the QL Check Standard true value ( $2 \times 0.02 \text{ mg/kg} = 0.04 \text{ mg/kg}$ ). Also, another CRI sample was run consecutively and 8 minutes apart from the sample with the poor recovery and had a recovery of 115%. Professional judgment was used that no action was necessary.

### **Blanks**

Positive Blank Results were detected in the following metals at various concentrations: Barium, Potassium, Sodium and Vanadium. Negative Blank Results were detected in the following metals at various concentrations: Calcium, Cobalt and Mercury.

No action was necessary for any of the metal results since all results were above the blank action level or non-detected.

### **ICP Interference Check Sample Results**

Selenium was recovered in all the ICSAB samples at 135%, 133% and 132% which is above the acceptance criteria (80-120%), however below 150%. Selenium was also recovered above the acceptance criteria in the ISCA samples. All positive Selenium results were estimated (J).

Beryllium was recovered in the ICSA samples above the acceptance criteria. All beryllium results were either non-detected or the positive results were already estimated. No further action was necessary.

Cadmium and cobalt were recovered in the ICSA samples above the acceptance criteria. All positive cadmium and cobalt sample results were estimated (J). Results may be biased high.

Lead was recovered in the ICSA samples below the acceptance criteria. However, since the ICSAB recoveries were compliant, professional judgment was used to qualify only those lead sample results that were less than the ISCAB True value (6.1 mg/kg). All lead results were positive, however, only those lead sample results less than 6.1 mg/kg were estimated (J). Results may be biased low.

Zinc was recovered in the ICSA samples above the acceptance criteria. However, since the ICSAB recoveries were compliant professional judgment was used to qualify only those zinc sample results that were less than the ISCAB True value (103.0 mg/kg). Therefore, all zinc sample results less than 103.0 mg/kg were estimated (J). Results may be biased high.

Potassium was recovered in the ICSAB samples outside the acceptance criteria and Sodium was recovered in the ICSAB and ICSA samples at concentrations outside the acceptance criteria. All sodium results were already estimated (J), therefore, no action was necessary. Positive detect samples for potassium were qualified as estimated (J). Results may be biased high.

Sample MA4166 was not analyzed during the initial analysis, the sample was analyzed on a separate analysis, therefore, a separate set of ICSA and ICSAB samples was analyzed. Cobalt was recovered in the ICSA samples above the acceptance criteria; however, the cobalt result in sample MA4166 was already estimated (J). No further action was necessary. Manganese was recovered in the ICSA samples above the acceptance criteria. However, since the ICSAB recoveries were compliant for manganese and the manganese results for sample MA4166 was above the ISCAB True value (50.2 mg/kg), professional judgment was used not to qualify the result. Potassium was recovered in the ICSAB samples outside the acceptance criteria and Sodium was recovered in the ICSAB and ICSA samples at concentrations outside the acceptance criteria. The potassium and sodium results for Sample MA4166 were already estimated (J), therefore, no action was necessary. Zinc was recovered in the ICSA samples above the acceptance criteria. The Zinc result in sample MA4166 was estimated (J). Results may be biased high.

### **Matrix Spike Recoveries**

The matrix spike failed for Antimony, Copper and Zinc; a post spike was analyzed for antimony at twice the CRQL and twice the indigenous level for Copper and Zinc. The post spike sample recoveries were within the QC acceptance criteria. The antimony matrix spike result was below the lower limit of the QC acceptance criteria, therefore, professional judgment was used to estimate (J/UJ) all antimony results. Copper and zinc matrix spike results were above the upper limit of the QC acceptance criteria, therefore, professional judgment was used to estimate (J) all copper and zinc results.

In addition, aluminum, iron and lead did not meet the QC acceptance criteria; the spike recoveries were either below the the lower limit or above the upper limit of the QC acceptance criteria. However, the matrix spike analytes in the field sample that was chosen for the matrix spike for aluminum, iron and lead were at high concentrations before spiking (4x higher than the spike concentrations). Therefore, professional judgment was used not to qualify the data.

**Lab Duplicates**

The results for lab duplicate samples for barium and calcium were outside of the acceptance criteria. All results for calcium were positive and, therefore, estimated (J) due to lab duplicate data.

Sample results which required qualifications are summarized below.

Analyte	Sample MA4165		Sample MA4165D		RPD or Abs. Diff.	RPD or Abs. Diff. Criteria	Action
	Sample Conc. (mg/kg)	SQL/5xSQL (mg/kg)	Sample Conc. (mg/kg)	SQL/5xSQL (mg/kg)			
Barium	52.5	20/100	84.3	20/100	31.8 mg/kg	<2*QL (40mg/kg)	NONE
Calcium	1928.54	500/2500	3165.23	500/2500	1,236.69 mg/kg	<2*QL (1,000 mg/kg)	J

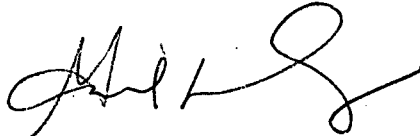
**PE Samples**

No PE sample was included with this SDG.

Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.



Gail DeRuzzo  
Lead Chemist



Izabela Zapisek  
Subcontractor Data Validator  
WESTON SOLUTIONS, INC.

Tables: Table I: Overall Evaluation of Total Metals Data  
Data Summary Table

Enclosures: Data Validation Worksheets  
PE Score Reports (NA)  
CCS Reports  
Region Electronic Correspondence  
Field Sampling Notes  
CSF Audit (DC-2 Form)  
DQO Summary

cc: Ms. Cynthia Gurley USEPA Region IV (w/PE Scores and ORDA)

TABLE I

Overall Evaluation of Total Metals Data  
Chlor-Alkali Facility (Former) Superfund Site  
Case 40517; SDG MA41B3

Metals					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
<p>Accurate identification of environmental bioaccumulation risks from site contamination.</p> <p>Determination of where and what magnitude of risk applies for: -Humans, likely from incidental ingestion and dermal contact with sediments and surface waters, as well as consumption of fish; -Ecological assessment endpoints -Filling of existing data gaps throughout the study area.</p>	<p>Yes, ILM05.4 analytical methods and sampling procedures according to the requirements of the QAAP are appropriate for all samples.</p>	<p>Refer to qualifications in R/S key:</p> <p>J<sup>1</sup> J<sup>2</sup> J<sup>3</sup> J<sup>4</sup> J<sup>5</sup> J/UJ<sup>1</sup> J<sup>6</sup> J<sup>7</sup></p>	<p>Refer to qualifications in R/S key:</p>		<p>J<sup>1</sup> - Estimate positive selenium results due to ICSAB and ICSCA recoveries above the acceptance criteria. Results may be biased high.</p> <p>J<sup>2</sup> - Estimate all positive cadmium and cobalt results due to ICSCA recoveries above the acceptance criteria. Results may be biased high.</p> <p>J<sup>3</sup> - Estimate positive lead results that were less than the ISCAB True value (6.1 mg/kg due to ICSCA recoveries below the acceptance criteria. Results may be biased low.</p> <p>J<sup>4</sup> - Estimate positive zinc results that were less than the ISCAB True value (103.0 mg/kg due to ICSCA recoveries above the acceptance criteria. Results may be biased high.</p> <p>J<sup>5</sup> - Estimate positive</p>

					<p>potassium results due to poor ICSAB recoveries. Results may be biased high.</p> <p>J/UJ<sup>1</sup> – Estimate all antimony results due to matrix spike result below the acceptance criteria.</p> <p>J<sup>6</sup> – Estimate all positive copper and zinc results due to matrix spike result above the acceptance criteria.</p> <p>J<sup>7</sup> – Estimate positive calcium results due to lab duplicate sample results outside the acceptance criteria.</p>
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- \* The evaluation of "sampling error" cannot be completely assessed in data validation.
- \*\* Sampling variability is not assessed in data validation.



DATA SUMMARY TABLE  
Tier II Validated Data  
Metals Analysis  
Soil - mg/kg

SITE: Chlor-Alkali Facility (Former) - Berlin, NH  
CASE NO.: 40517 SDG NO.: MA41B3

Sample Name		MA4165		MA4166		MA4167		MA4174	
Sample Location		MW-3501		SB-1701		SB-1701		SB-2301	
Lab Sample ID		1009313-04		1009313-05		1009313-06		1009313-07	
Station ID		FSA-MW-3501-0204-091710		FSA-SB-1701-0406-091710		FSA-SB-1701-1012-091710		FSA-SB-2301-0001-091610	
Dilution Factor		1		1		1		1	
Sample Date		17 Sep 10		17 Sep 10		17 Sep 10		16 Sep 10	
Date Hg Analyzed		06 Oct 10		06 Oct 10		06 Oct 10		6 Oct 10	
Date Analyzed		05 Oct 10		05 Oct 10		05 Oct 10		5 Oct 10	
Chemical	CRQL								
ALUMINUM	20	5715		1719		7109		5958	
ANTIMONY	6	1	J	0.64	J	6.8	UJ	0.62	J
ARSENIC	1	2.6		2.8		1.5		3.4	
BARIIUM	20	52.5		52		65.6		59.2	
BERYLLIUM	0.5	0.57	U	0.083	J	0.57	U	0.57	U
CADMIUM	0.5	0.51	J	0.12	J	0.33	J	0.37	J
CALCIUM	500	1929	J	1466	J	1241	J	2184	J
CHROMIUM	1	9.6		5.9		11.3		6.7	
COBALT	5	5	J	2.4	J	5.8	J	4.4	J
COPPER	2.5	93.2	J	18.7	J	22.3	J	18.9	J
IRON	10	12281		4027		11720		10662	
LEAD	1	126		33.6		3.8	J	12.7	
MAGNESIUM	500	2936		366	J	3037		2723	
MANGANESE	1.5	200		62.4		143		158	
MERCURY	0.1	1		1.6		0.11	U	0.079	J
NICKEL	4	15		7.4		11.1		4.8	
POTASSIUM	500	819	J	343	J	1204	J	1154	J
SELENIUM	3.5	2.2	J	0.75	J	2.3	J	2.1	J
SILVER	1	1.1	U	1.4	U	1.1	U	1.1	U
SODIUM	500	84.5	J	117	J	109	J	35	J
THALLIUM	2.5	2.8	U	3.5	U	2.8	U	2.9	U
VANADIUM	5	16.1		10.9		21		18.6	
ZINC	6	173	J	52.9	J	29.2	J	30.8	J

DATA SUMMARY TABLE  
Tier II Validated Data  
Metals Analysis  
Soil - mg/kg

SITE: Chlor-Alkali Facility (Former) - Berlin, NH  
CASE NO.: 40517 SDG NO.: MA41B3

Sample Name		MA4186		MA4196		MA41A2		MA41A3	
Sample Location		SB-2201		SB-1701		SB-2201		SB-0801	
Lab Sample ID		1009313-08		1009313-09		1009313-10		1009313-11	
Station ID		FSA-SB-2201-0001-091710		FSA-SB-1701-0001-091710		FSA-SB-2201-0204-091710		FSA-SB-0801-0204-091710	
Dilution Factor		1		1		1		1	
Sample Date		17 Sep 10		17 Sep 10		17 Sep 10		17 Sep 10	
Date Hg Analyzed		06 Oct 10		06 Oct 10		06 Oct 10		06 Oct 10	
Date Analyzed		05 Oct 10		05 Oct 10		05 Oct 10		05 Oct 10	
Chemical	CRQL								
ALUMINUM	20	4959		3822		8811		2911	
ANTIMONY	6	6.9	UJ	2.8	J	0.45	J	0.82	J
ARSENIC	1	1.2	U	67.8		2		7.2	
BARIUM	20	41.6		223		36.6		213	
BERYLLIUM	0.5	0.58	U	0.078	J	0.56	U	0.08	J
CADMIUM	0.5	0.074	J	1.7	J	0.31	J	1	J
CALCIUM	500	1117	J	2469	J	963	J	7751	J
CHROMIUM	1	9.4		13.1		19.8		10.2	
COBALT	5	3.6	J	7.5	J	5.5	J	6.4	J
COPPER	2.5	17.3	J	165	J	52.4	J	33.5	J
IRON	10	10432		24887		11290		12418	
LEAD	1	37.1		401		21.3		103	
MAGNESIUM	500	2133		849		4083		1089	
MANGANESE	1.5	150		238		117		1675	
MERCURY	0.1	0.61		4.4		0.11	U	3.2	
NICKEL	4	8		22.7		11		96.8	
POTASSIUM	500	1095	J	519	J	1232	J	688	J
SELENIUM	3.5	5.9	J	5	J	2.2	J	3.2	J
SILVER	1	1.2	U	1.2	U	1.1	U	1.5	U
SODIUM	500	77.8	J	140	J	92.3	J	290	J
THALLIUM	2.5	2.9	U	3	U	2.8	U	3.7	U
VANADIUM	5	16.5		17.9		24.6		12.4	
ZINC	6	34	J	260	J	21.1	J	158	J

DATA SUMMARY TABLE  
Tier II Validated Data  
Metals Analysis  
Soil - mg/kg

SITE: Chlor-Alkali Facility (Former) - Berlin, NH  
CASE NO.: 40517 SDG NO.: MA41B3

Sample Name		MA41A4		MA41B3		MA41B4		MA41B5	
Sample Location		SB-0801		SB-3301		SB-3801		SB-1801	
Lab Sample ID		1009313-12		1009313-01		1009313-02		1009313-03	
Station ID		FSA-SB-0801-1416-091710		FSA-SB-3301-0204-091610		FSA-SB-3801-0204-091610		FSA-SB-1801-0810-091610	
Dilution Factor		1		1		1		1	
Sample Date		17 Sep 10		16 Sep 10		16 Sep 10		16 Sep 10	
Date Hg Analyzed		06 Oct 10		06 Oct 10		06 Oct 10		06 Oct 10	
Date Analyzed		05 Oct 10		05 Oct 10		05 Oct 10		05 Oct 10	
Chemical	CRQL								
ALUMINUM	20	5678		8419		6147		7691	
ANTIMONY	6	6.8	UJ	8	UJ	0.53	J	6.7	UJ
ARSENIC	1	2		1.8		1.3		0.93	J
BARIUM	20	44.8		100		45.5		39.4	
BERYLLIUM	0.5	0.57	U	0.67	U	0.55	U	0.56	U
CADMIUM	0.5	0.32	J	0.49	J	0.36	J	0.28	J
CALCIUM	500	1227	J	19349	J	9386	J	1271	J
CHROMIUM	1	8.6		11.9		27.6		8.1	
COBALT	5	6.2	J	3.8	J	5.4	J	4.4	J
COPPER	2.5	38.4	J	14.6	J	17	J	12.3	J
IRON	10	11961		8077		9197		8924	
LEAD	1	3	J	9.4		9.5		4	J
MAGNESIUM	500	2767		1783		3089		3078	
MANGANESE	1.5	174		433		220		149	
MERCURY	0.1	0.057	J	0.13	U	0.13		0.11	U
NICKEL	4	7		6.6		9.4		8.7	
POTASSIUM	500	949	J	852	J	1256	J	1209	J
SELENIUM	3.5	2.3	J	1.9	J	2	J	1.7	J
SILVER	1	1.1	U	1.3	U	1.1	U	1.1	U
SODIUM	500	152	J	176	J	118	J	81.3	J
THALLIUM	2.5	2.8	U	3.3	U	2.8	U	2.8	U
VANADIUM	5	17.1		19		19.5		13.4	
ZINC	6	22.7	J	48.8	J	38.1	J	33.3	J

REGION I, EPA-NE INORGANIC REGIONAL DATA ASSESSMENT (IRDA)\*

CASE #: 40517  
 LAB NAME: Banner Analytical  
 SDG #: MA41B3  
 SOW #/CONTRACT #: ILMOS.4/EPWJ08064  
 EPA-NE DV TIER LEVEL: II  
 PO: \*\*ACTION \_\_\_\_\_ FYI X

SITE NAME: Chlor-Alkali  
 # OF SAMPLES/MATRIX: 12/ Soil  
 VALIDATION CONTRACTOR: Nobis/Weston  
 VALIDATOR'S NAME: Zapisek  
 DATE DP REC'D BY EPA-NE: \_\_\_\_\_  
 DV COMPLETION DATE: 11/19/10

ANALYTICAL DATA QUALITY SUMMARY

	ICP-AES	ICP-MS	HG	CN
I. Preservation and Technical Holding Times	o		o	
II. ICP-MS Tune	N/A		N/A	
III. Calibrations	o		o	
IV. Blanks	o		o	
V. ICP-AES Interference Check Sample (ICS)	<del>o</del>		N/A	
VI. ICP-MS Interference Check Sample (ICS)	N/A		N/A	
VII. ICP-MS Internal Standards	N/A		N/A	
VIII. Matrix Spikes	o <sub>2</sub>		o	
IX. Laboratory Duplicate Samples	o <sub>3</sub>			
X. Field Duplicates	N/A		N/A	
XI. ICP Serial Dilutions	o		N/A	
XII. Sensitivity Check	o		o	
XIII. Performance Evaluation Samples/Accuracy Check	o		o	
XIV. Analyte Quantitation and Reported Quantitation Limits	o		o	
XV. System Performance	o		o	
XVI. Overall Evaluation of Data	o		o	

o = Data had no problems or were qualified due to minor contractual problems.  
 m = Data were qualified due to major contractual problems.  
 z = Data were rejected as unusable due to major contractual problems.

ACTION ITEMS: (z items) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

AREAS OF CONCERN: (m items) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

COMMENTS: o<sub>1</sub> - Selenium, vanadium, cobalt, lead, zinc + potassium due to non-compliant ICP-AES results; o<sub>2</sub> - quality, arsenic, copper + zinc due to matrix spike results; o<sub>3</sub> - quality calcium due to lab duplicate results

\* This form assesses the analytical data quality in terms of contractual compliance only. It does not assess sampling errors and/or non-contractual analytical issues that affect data quality.

\*\* Check "ACTION" only if contractual defects resulted in reduced payment/data rejection recommendations.

Validator: Zapisek

Date: 11/15/10

INSTRUCTIONS ON REVERSE SIDE

DRAFT 11/08

REGION I INORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name Banner Analytical SOW/Method No. IN05.4/AES + Hg by CV  
Case/Project No. 4057/30013 Sampling Date(s) ~~9/24~~ 9/16 + 9/17  
SDG No. MA41B3 Shipping Date(s) 9/23 + 9/24  
No. of Samples/Matrix 12/ Soil Date Rec'd by lab 9/24 + 9/25

Traffic Report Sample Nos. MA4165; MA4166; MA4167; MA4174; MA4186;  
MA4196; MA4192; MA41A3; MA41A4; MA41B3; MA41B4; MA41B5

Equipment Blank No. N/A  
Bottle Blank No. N/A  
Field Duplicate Nos. N/A  
PES Nos. N/A

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision 11/2008 was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPP or amendment to QAPP).

A (Tier II) or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc., that received partial Tier III validation.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation and Technical Holding Times
- ICP-MS Tune
- Calibrations
- Blanks
- ICP-AES Interference Check Sample (ICS)
- ICP-MS Interference Check Sample (ICS)
- ICP-MS Internal Standards
- Matrix Spikes
- Laboratory Duplicate Samples
- Field Duplicates
- ICP Serial Dilutions
- Sensitivity Check
- Performance Evaluation Samples/Accuracy Check
- Analyte Quantitation and Reported Quantitation Limits
- System Performance

Region I Definitions and Qualifiers:

- A - Acceptable Data
- J - Numerical value associated with analyte is an estimated quantity.
- R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
- U - Analyte not detected at that numerical sample quantitation limit.
- UJ - The sample quantitation limit is an estimated quantity.
- BB, EB - Analyte detected in aqueous bottle blank or aqueous equipment blank associated with soil/sediment samples.

Validator's Name Zepisek Company Name Nobis/Weston Phone Number 978-703-6021  
Date Validation Started 11/15/10 Date Validation Completed 11/19/10

Check if all criteria are met and no hard copy worksheet is provided. Indicate NA if worksheet is not applicable to the analytical method. Note: there is no standard worksheet for System Performance; however, the validator must document all system performance issues in the Data Validation Memorandum.

INORG Worksheets:

INORG	COMPLETE SDG FILE (CSF) AUDIT	_____
INORG-I	PRESERVATION AND TECHNICAL HOLDING TIMES	_____
INORG-II	ICP-MS TUNE	N/A
INORG-III-A/B	CALIBRATIONS	_____
INORG-IV-A/B	BLANKS	_____
INORG-IV-C.1	BLANKS	_____
INORG-IV-C.2	BLANKS	_____
INORG-V-A	ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB	_____
INORG-V-B.1	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-V-B.2	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	_____
INORG-VI-A	ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB	N/A
INORG-VI-B	ICP-MS INTERFERENCE CHECK SAMPLE - ICSA	N/A
INORG-VII	ICP-MS INTERNAL STANDARDS	N/A
INORG-VIII	MATRIX SPIKES	_____
INORG-IX	LABORATORY DUPLICATE SAMPLES	_____
INORG-X	FIELD DUPLICATES	N/A
INORG-XI	ICP SERIAL DILUTIONS	_____
INORG-XII-A/B	SENSITIVITY CHECK	_____
INORG-XIII-A	PE SAMPLES/ACCURACY CHECK- LCS	_____
INORG-XIII-B	PE SAMPLES/ACCURACY CHECK- PE RESULTS	N/A
INORG-XIV	ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS	_____
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	_____

I certify that all criteria were met for the worksheets checked above.

Signature: P. Zapisek  
 Date: 11/15/10

Name: Zapisek

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

Site: Chlor Alkali

Case: 40517

SDG: MA41B3

INORGANICS					
DQO (List all DQOs)	Sampling and/or Analytical Method Appropriate? (Yes or No)	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
see memo					→

\* The evaluation of "sampling error" cannot be completely assessed in data validation.

\*\* Sampling variability is not assessed in data validation.

Validator: Zapier

Date: 11/15/00





EPA-NE - Data Validation Worksheet  
INORG-I

coolers @ 6.9 +3.6°C

I. PRESERVATION AND HOLDING TIMES

Circle sample numbers with exceeded technical holding times or omitted preservation.  
Circle all exceeded technical holding times.

≤ 6 month      ≤ 28 days

Sample No.	Matrix	Pres. Code		Date Sampled	Metals		Hg		CN		Action
		Metals	CN		Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	Date Analyzed	# of Days from Samp. to Analysis	
MA4165	soil	1,4		9/17	10/5	18	10/6	19			NONE
66				┆		┆		┆			
67				┆		┆		┆			
74				9/16		19		20			
86				9/17		18		19			
96				┆		┆		┆			
A2				┆		┆		┆			
A3				┆		┆		┆			
A4				┆		┆		┆			
B3				9/16		19		20			
B4				┆		┆		┆			
B5				┆		┆		┆			

- Preservation Code:**
- 1. Cool (≤ 6°C)
  - 2. pH < 2 with HNO<sub>3</sub>
  - 3. pH > 12 with NaOH
  - 4. Room Temperature
  - 5. Freeze
  - 6. Reducing agent (for oxidants)
  - 7. Treated for sulfides
  - 8. Other - \_\_\_\_\_

- Action Code:**
- J - Estimate (J) Detected Values
  - UJ - Estimate (UJ) Non-Detected Values
  - R - Reject (R) Non-Detected Values

Sampler: \_\_\_\_\_ Company: \_\_\_\_\_ Contacted: Y N Date: \_\_\_\_\_

Validator: Zapish

Date: 11/15/10

EPA-NE - Data Validation Worksheet  
 INORG-III-A/B/C

III. CALIBRATIONS

A. Instrument Calibration - List all calibration correlation coefficients that are outside the method QC acceptance criteria.

Calibration correlation QC acceptance criteria: \_\_\_\_\_ Calibration Type: linear

Date/Time	Instr.	Analyte	Corr. Coef.	Samples Affected	Action

B. Initial and Continuing Calibration Verifications - List all ICV and CCV analyte recoveries that are outside the method QC acceptance criteria.

ICV method QC acceptance criteria: Asb 90-110% ; Hg 80-120% CCV method QC acceptance criteria: \_\_\_\_\_

Date	Instr.	Analyte	ICV/CCV #	% R	Samples Affected	Action
					All Analytes	

C. Quantitation Limit Check Standard - List all QL Check Standard analytes that are outside method QC acceptance criteria.

QL Check Standard method QC acceptance criteria: 20-130% ; Sb, Pb + Tl - 50-150%

Date	Instr.	Analyte	QL Check Std. #	% R	Affected Range	Samples Affected	Action
		Iron	CR12	163%		All except MAY166 →	NONE, All results >
		mercury	CR13	40%		MAY165 + MAY1655 →	than dx
			CR14	115%			GLTve
						NONE result > than dx QL	Value
						TIME value (> .04 mg/kg)	(> dx mg/kg)

Comments: \_\_\_\_\_

Validator: Zapisek

Date: 11/15/00

EPA-NE - Data Validation Worksheet  
 INORG-IV-A/B

IV. BLANKS - List the blank contamination and negative blank results below.

Sampler: \_\_\_\_\_ Company: \_\_\_\_\_ Contacted: Y N Date: \_\_\_\_\_

A. Laboratory: Preparation (Method) and Calibration (Instrument) Blanks

Date Prepared	Date Analyzed	Blank Type (ICB/CCB#/Prep Blank)	Matrix	Instrument	Analyte	Conc. (units)
10/4	10/5	CCB2 -	Soil	ICAP6500	Barium	.0858
		CCB3 -			L	.1348
		CCB4 -			L	.0594
		Prep -			Cobalt	-.053
		ICB -			Potassium	11.38
		CCB3 -			Sodium	4.429
		CCB4 -			L	3.6404
		Prep -			L	-6.064
		CCB1 -			Vanadium	.0516
		<del>Prep</del> -			L	-.066
10/5	10/6	ICB	Soil	LM02	mercury	-.0077
		CCB3				-.0059

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)

Were the proper number of blanks analyzed at the proper frequency?  Y  N

For ICP MS - Are internal standard responses in all blanks within method QC acceptance criteria?  Y  N  N/A

Comments: \_\_\_\_\_

Validator: Zapisek

Date: 11/15/10

EPA-NE - Data Validation Worksheet  
 INORG-IV-A/B

For Sample MA4166 only

IV. BLANKS - List the blank contamination and negative blank results below.

Sampler: \_\_\_\_\_ Company: \_\_\_\_\_ Contacted: Y N Date: \_\_\_\_\_

A. Laboratory: Preparation (Method) and Calibration (Instrument) Blanks

Date Prepared	Date Analyzed	Blank Type (ICB/CCB#/Prep Blank)	Matrix	Instrument	Analyte	Conc. (units)
10/4	10/5	CCB1	soil	ICAPP6500	Calcium	- 10.96
		CCB2	↑		+	- 10.47
		ICB			Potassium	13.117
		CCB1			↓	50.9418
		CCB2			↓	6.8289
		ICB			Sodium	4.7162
		CCB1			↓	7.934
		CCB2			↓	3.646
		Prep				- 6.004

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)

Were the proper number of blanks analyzed at the proper frequency?  Y  N

For ICP MS - Are internal standard responses in all blanks within method QC acceptance criteria? Y  N  N/A

Comments: \_\_\_\_\_

Validator: Zapfel

Date: 11/15/00

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum															
Antimony															
Arsenic															
Barium	10/5			.0858	.1348		.0594							.0858/.1348	
Beryllium															
Cadmium															
Calcium															
Chromium															
Cobalt	10/5										1.053			1.053	
Copper															
Iron															
Lead															
Magnesium															
Manganese															
Mercury	11/6			.0077			.0059							.0077/.0059	
Nickel															
Potassium	10/5			11.38										11.38	
Selenium															
Silver															
Sodium	10/5					4.429	3.6404				6.064			4.429	
Thallium															
Vanadium	10/5			.0616							.066			.0616	
Zinc															
Cyanide															

Validator: Lapish

Date: 11/15/00

EPA-NE - Data Validation Worksheet  
 INORG-IV-C.1  
 IV. BLANKS

MA4166 only

C.1 Blank Contamination Worksheet

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Calcium	10/5		10.96	10.47										10.47	
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Magnesium															
Manganese															
Mercury															
Nickel															
Potassium	10/5	13.117	5.948	6.8289										13.117	
Selenium															
Silver															
Sodium	10/5	4.76	7.934	3.646							6.064			7.934	
Thallium															
Vanadium															
Zinc															
Cyanide															

Validator: Zapish

Date: 11/15/10

EPA-NE - Data Validation Worksheet  
 INORG-IV-C.2

IV. BLANKS

C.2 Blank Actions - List the maximum concentrations of each analyte among all blanks associated with each sample.

x 5

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (units) mg/L kg	Blank Action Level (units) mg/L kg	Sample QL	Samples Affected	Action
Barium	CCB2/CCB3	10/4	0858/.1348	.427/.674	20	results > BAA	NONE
Cobalt	PWP	┆	-.053	-.265	5		┆
Mercury	ICB/CCB3	10/5	.0077/.0059	.0385/.0295	.1		┆
Rubidium	ICB	10/4	11.38	56.9	500		┆
Sodium	ICB3	┆	4.429	22.145	500		┆
Vanadium	CCB1	┆	.0616	.308	5		┆
Calcium	CCB2	10/4	-10.47	52.35	500	NONE, <del>all</del> result > BAA	NONE
Rubidium	ICB	┆	13.117	65.585	500	┆	┆
Sodium	CCB1	┆	7.934	39.67	500	┆	┆
Comments:							

MAY 166  
 ONLY

Validator: Zapisek

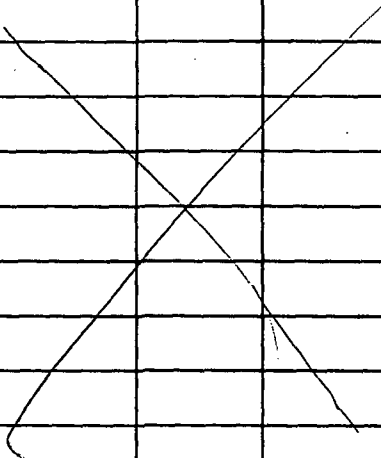
Date: 11/15/00

EPA NE - Data Validation Worksheet  
INORG-V-A

80 - 120%

V. A. ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB

1. List all analytes in the ICSAB that are outside ICSAB percent recovery criteria.

Date	Analyte	%R	Conc. of Interferents Observed in ICSAB (ug/L)				Samples Affected	Action
			Al	Ca	Fe	Mg		
	Selenium	135%						
	+	133%						
	-	132%						
Comments:		<p>             Potassium + Sodium have the value of 0.0 ug/L for both ICSAB            Potassium recover between -50.5 and 2.8 ug/L            Sodium ——— 766 and 800 ug/L         </p>						

Validator: Zapfel

Date: 1/15/10



V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Action Associated Samples
						Al	Ca	Fe	Mg	
	Antimony	3.9	.83	0.0	7.8 to 7.8					NONE, results w/in TV±2xMDL
	┆	┆	.16	┆	┆					
	┆	┆	1.7	┆	┆					
	Arsenic	2.1	-.57	0.0	4.2 to 4.2					
	┆	┆	-.48	┆	┆					
	┆	┆	1.0	┆	┆					
	Barium	1.3	.96	2.0	2.6 to 4.6					48%
	┆	┆	1.2	┆	┆					60%
	┆	┆	.97	┆	┆					49%
	Beryllium	.4	.99	0.0	-.8 to .8					(y) all results either ND or already J
	┆	┆	.82	┆	┆					
	┆	┆	.82	┆	┆					
	Cadmium	.2	2.5	0.0	-.4 to .4					(y) ✓
Comments:	┆	┆	2.4	┆	┆					
	┆	┆	2.3	┆	┆					

Validator: Travis

Date: 11/15/00

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Action Associated Samples
						Al	Ca	Fe	Mg	
	Cobalt	.43	4.9	4.8	4.86					1236 → (J) ✓
	Lead	2.3	-2.5	10	5.4 to 14.6					-25% -43% -64% → (J) result < TIME Value ICSAB (60 ug/kg)
	↓	↓	-4.3	↓	↓					
	↓	↓	-6.4	↓	↓					
	Antimony	53	-52.1	0.0	106 to 106					→ NONE, results w/in TV ± 2xMDL
	↓	↓	-69.8	↓	↓					
	↓	↓	-41.3	↓	↓					
	Selenium	3.4	17.1	0.0	6.4 to 6.4					→ (J) already J because of ICSAB
	↓	↓	18.6	↓	↓					
	↓	↓	20.6	↓	↓					
	Silver	4.1	.61	0.0	-8.2 to 8.2					→ NONE, results w/in TV ± 2xMDL
	↓	↓	.90	↓	↓					
	↓	↓	1.1	↓	↓					
Comments:										

Validator: Zepher

Date: 11/19/10

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples
						Al	Ca	Fe	Mg	
	Sodium	28.7	764	0.0	57.4 to 57.4					(J) All results already estimated
	┆	┆	812	┆	┆					
	┆	┆	796	┆	┆					
	Thorium	3.0	-1.0	0.0	6 to 6					results w/in TVI 2xMDL
	┆	┆	-1.5	┆	┆					
	┆	┆	-1.50	┆	┆					
	Niobium	4.2	0.092	0.0	8.4 to 8.4					┆
	┆	┆	-0.18	┆	┆					
	┆	┆	-1.4	┆	┆					
	Zinc	0.44		28.0	28.88					121% 123% (J) results < True Value ICSA B (103 mg/kg)
	┆	┆	33.8	┆	┆					
	┆	┆	34.4	┆	┆					
Comments:										

Validator: Zapfel

Date: 11/19/10

only For MA4166

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples
						Al	Ca	Fe	Mg	
	antimony	3.9	4.4	0.0	-7.8 to 7.8					none results w/in TV±2xMDL
	↓	↓	1.2	↓	↓					
	Arsenic	2.1	-1.3	0.0	-4.2 to 4.2					
	↓	↓	.18	↓	↓					
	Bismuth	1.3	1.1	2.0	-0.6 to 4.6					
	↓	↓	1.1	↓	↓					
	Beryllium	.4	.35	0.0	-0.8 to .8					
	↓	↓	.60	↓	↓					
	Cadmium	.2	-0.082	0.0	-0.4 to .4					
	↓	↓	-0.10	↓	↓					
	Cobalt	.43	5.1	4.0	3.14 to 4.86					74% already estimated
	↓	↓	5.0	↓	↓					
	Lead	2.3	7.4	10.0	5.4 to 14.6					74% none results w/in TV±2xMDL
Comments:										

Validator: Zapill

Date: 11/29/10

only for MA4166

V. B.1 ICP-AES INTERFERENCE CHECK SAMPLE - ICSA

1. List all analytes in the ICSA that are outside ICSA criteria.

Date	Analyte	MDL (ug/L)	ICSA Observed Conc. (ug/L)	ICSA True Value (ug/L)	Criteria: 80-120% R or TV±2xMDL	Conc. of Interferents Observed in ICSA (ug/L)				Associated Samples NOT
						Al	Ca	Fe	Mg	
	Manganese	1.6	23.1	19.0	22.2					(J) result less than true value ICSA (50.2 ug/mg) NO ACTION
	+	↓	23.5	↓	↓					
	Potassium	53	4.2	0.0	106 to 106					NO ACTION result w/in TV ± 2xMDL
	+	↓	-14.1	+	↓					
	Selenium	3.4	-37	0.0	6.4 to 6.4					↓
	+	+	-2.9	+	↓					
	Silver	4.1	.79	0.0	8.2 to 8.2					↓
	+	+	.53	+	↓					
	Sodium	28.7	776	0.0	52.4 to 57.4					(J) result already estimated
	+	↓	721	↓	↓					
	Thallium	3.0	-2.5	0.0	-6 to 6					results w/in TV ± 2xMDL ↓
	+	↓	-2.1	↓	↓					
	Vanadium	4.2	1.1	0.0	-8.4 to 8.4					↓ (J)
Comments:	+	↓	-0.69	↓	↓					
	Zinc	<del>244</del>	34.7	28	upto 28.88					↓
	+	<del>34.9</del>	34.9	↓	↓					

Validator: Zaprisl

Date: 11/19/10

EPA-NE - Data Validation Worksheet  
**INORG-VIII**

**VIII. MATRIX SPIKES** - List all matrix spike analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each matrix spike sample.

Sample No.: MA4165S Matrix: Soil

Method	Analyte	Spiked Sample Result	Sample Result	Amount of Spike Added	MS % Recovery	Method QC Limits % Recovery	Post-Digest Spike % Recovery	Action
	Antimony	10.91	1.02	22.65	44%	75-125%		Flag
	Copper	177.6	93.2	56.6	149%	L		Flag
	Zinc	306.2	173.13	113.25	135%	L		Flag
Comments:								

Validator: Zepher

Date: 11/15/00

EPA-NE - Data Validation Worksheet  
INORG-IX

IX. LABORATORY DUPLICATE SAMPLES - List all analytes that are outside method QC acceptance criteria for the specific matrix.

Use a separate worksheet for each laboratory duplicate sample.

Sample No.: MA4165

Duplicate Sample No.: MA4165D

Matrix: Soil

Laboratory duplicate sample method QC acceptance criteria:  $\geq 35\%$  of results  $\geq 5 \times \text{QL}$  or Abs Diff  $\leq 2 \times \text{QL}$  if results  $< 5 \times \text{QL}$

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			
	Barium	52.5	20	100	84.3	20	100	Abs Diff	$\leq 2 \times (20) \Rightarrow (40)$	<del>NONE</del>
	Calcium	1928.54	500	2500	3165.23	500	2500	I	$\leq 2 \times 500 \Rightarrow (1000)$	7/10

Abs Diff  $< 2 \times \text{QL}$

Do the field duplicate sample data indicate acceptable field precision? Y ~~N~~ NO Field Dups

Comments: \_\_\_\_\_  
\_\_\_\_\_

Validator: Zepist

Date: 11/15/60

EPA-NE - Data Validation Worksheet  
**INORG-X**

**X. FIELD DUPLICATES** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample No.: \_\_\_\_\_

Duplicate Sample No.: \_\_\_\_\_

Matrix: \_\_\_\_\_

Method	Analyte	Sample Conc.	Sample		Duplicate Conc.	Duplicate		RPD or Abs. Diff.	QC Acceptance Criteria (RPD or Abs. Diff.)	Action
			SQL	5xSQL		SQL	5xSQL			

Do the laboratory duplicate sample data indicate acceptable laboratory precision?      Y      N

Comments:           No Field Duplicates          

Sampler Name: \_\_\_\_\_ Contractor Name: \_\_\_\_\_ Date Contacted: \_\_\_\_\_

Reason for contact and resolution obtained: \_\_\_\_\_

Validator:           Zapissell          

Date:           11/15/00



EPA-NE - Data Validation Worksheet  
**INORG-XI**

**XI. ICP SERIAL DILUTIONS**

Use a separate worksheet for each serial dilution sample.

Sample No.: MA4165L Matrix: Soil Method: AES

List all serial dilution analytes that are outside method QC acceptance criteria.

% Difference method QC acceptance criteria: < 10%

Minimum concentration required to apply the % D criteria (e.g., 50x MDL): 50 x MDL

Analyte	MDL	Min. Conc. Required	Sample Result	Serial Dilution Sample Result (corrected for dilution)	% D	Action
Cadmium	0.2 ug/L	10	4.54 ug/L	3.44	24%	results < Min Concentration required
Selenium	3.4	170	19.37	24.83	28%	No Action
Sodium	28.7	1435	746.14	666.18	11%	
Comments:						

Validator: Zepiseh

Date: 11/15/00





EPA-NE - Data Validation Worksheet  
INORG-XIV

XIV. ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per analytical method. (Note: Although Section XIV, C.2.a, requires that one calculation for each method in each sample be performed, the validator is only required to reproduce an example, for each method, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%?      Y      N

- If no, were any steps employed to address the high moisture content? \_\_\_\_\_
- Indicate the action and list the affected sample nos.: \_\_\_\_\_

Method		Calculation
<b>ICP-AES</b>		
Sample No.:	MA4166	$\text{Ba } 367.78 \text{ mg/L} * \frac{.01 \text{ L}}{1 \text{ g}} * \frac{100\%}{70.7\%} * \frac{1000 \text{ g}}{1 \text{ kg}} * \frac{1 \text{ mg}}{1000 \text{ ug}} = 52.019 \text{ mg/kg}$
Reported Analyte:	Barium	
Reported Value:	52	
Non-Detected Analyte:	Silver	
Reported Quantitation Limit:	1.4 u	$\text{Ag } 1 \text{ mg/kg} * \frac{100\%}{70.7} = 1.41 \text{ mg/L}$
<b>ICP-MS</b>		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
<b>Mercury</b>		
Sample No.:	MA4166	$\text{Hg}^{-66} 2.193 \text{ ug/L} * \frac{.01 \text{ L}}{.2 \text{ g}} * \frac{100\%}{70.7\%} * \frac{1000 \text{ g}}{1 \text{ kg}} * \frac{1 \text{ mg}}{1000 \text{ ug}} = 1.551 \text{ mg/kg}$
Reported Value:	1.6	
Sample No.:	MA4167	$\text{Hg}^{-67} .1 * \frac{100\%}{87.8\%} = .114 \text{ mg/L}$
Reported Quantitation Limit:	.11 u	
<b>Cyanide</b>		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		

Validator: Zapwell

Date: 11/15/10

**Trisha Aiken**

**From:** Arthur, Lana [larthur@fedcsc.com]  
**Sent:** Monday, September 27, 2010 10:39 AM  
**To:** Chris Bonner; taiken@batco.com  
**Subject:** FW: Region 01 | Case 40517 | Lab BONNER | Issue Multiple

Trisha,

Please confirm that sample MA4174 was received on 9/25 for Issue 1 below.

-Samples listed on TR/COC but not received at laboratory-

Issue 1: The TR/COC lists samples MA4174 and MA4178, however they were not present in the shipment. Resolution 1: Per Region 1, the laboratory will note that sample MA4174 was shipped on 9/24 for receipt on 9/25. One container labeled as sample MA4188 with MW-3501 written on the lid is for sample MA4178. Please note and proceed.

-Discrepancies with tags, jars, and/or TR/COC-

Issue 2: Sample MA4188 is listed on the TR/COC as having only 1 container, however there are 2 containers both with sample tag number 312. Resolution 2: Per Region 1, the laboratory will note that the one container labeled as sample MA4188 with MW-3501 written on the lid is for sample MA4178. Please note and proceed.

-Non-standard matrix-

Issue 3: Sample MA41B2 contains approximately 2 mLs of standing water, should the lab decant or homogenize? Resolution 3: Per Region 1, the laboratory will homogenize the excess liquid before taking an aliquot for analysis. Please note and proceed.

Thank you,

Lana Arthur  
 Environmental Coordinator - Regions 1 & 4  
 CSC

15000 Conference Center Drive Chantilly, VA 20151 | Civil Division | w: 703.818.4852 | f: 703.818.4602 | larthur@fedcsc.com | www.csc.com

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 -----

-----Original Message-----

**From:** Clark.Christine@epamail.epa.gov [mailto:Clark.Christine@epamail.epa.gov]  
**Sent:** Monday, September 27, 2010 10:44 AM  
**To:** Arthur, Lana  
**Subject:** RE: Region 01 | Case 40517 | Lab BONNER | Issue Multiple

Hi Lana

See below and let me know if you need anything else.

Thanks

Christine Clark  
 US EPA, Region One, 11Technology Drive, N. Chelmsford, MA 01863-2431  
 Phone: 617/918-8615, Fax: 617/918-8515 or 617/918-8397, Email: Clark.Christine@epa.gov

----- Forwarded by Christine Clark/R1/USEPA/US on 09/27/2010 10:42 AM

-----  
 From: "Gail Deruzzo" <GDeruzzo@nobiseng.com>  
 To: Christine Clark/R1/USEPA/US@EPA, "Denis McGrath" <DMcGrath@nobiseng.com>  
 Date: 09/27/2010 10:30 AM  
 Subject: RE: Region 01 | Case 40517 | Lab BONNER | Issue Multiple

Issue 1: Sample MA4174 was identified as not being shipped the day of shipment. It was shipped on 9/24 for receipt on 9/25. Issue 1 & 2: Sample MA4178 should be marked on the lid as MW-3501 to distinguish it from Sample MA4188, which will be marked SB-3501 on the lid. Please re-label the second jar now labeled as MA4188 but having MW-3501 on the lid as MA4178. Issue 3: Please homogenize the excess liquid before taking an aliquot for analysis. Thank you, Gail

-----Original Message-----

From: Clark.Christine@epamail.epa.gov [mailto:Clark.Christine@epamail.epa.gov]  
 Sent: Monday, September 27, 2010 10:04 AM  
 To: Gail Deruzzo; Denis McGrath  
 Subject: Region 01 | Case 40517 | Lab BONNER | Issue Multiple

Hi Gail

See below and get back to me as soon as possible.

Thanks

Christine Clark  
 US EPA, Region One, 11Technology Drive, N. Chelmsford, MA 01863-2431  
 Phone: 617/918-8615, Fax: 617/918-8515 or 617/918-8397, Email: Clark.Christine@epa.gov

----- Forwarded by Christine Clark/R1/USEPA/US on 09/27/2010 10:03 AM  
 -----

From: "Arthur, Lana" <larthur@fedcsc.com>  
 To: Christine Clark/R1/USEPA/US@EPA  
 Date: 09/27/2010 10:00 AM  
 Subject: Region 01 | Case 40517 | Lab BONNER | Issue Multiple

Chris,

BONNER is reporting the following issues for Case 40517 (Nobis), please advise:

-Samples listed on TR/COC but not received at laboratory-

Issue 1: The TR/COC lists samples MA4174 and MA4178, however they were not present in the

shipment.

-Discrepancies with tags, jars, and/or TR/COC-  
Issue 2: Sample MA4188 is listed on the TR/COC as having only 1 container, however there are 2 containers both with sample tag number 312.

-Non-standard matrix-  
Issue 3: Sample MA41B2 contains approximately 2 mL's of standing water, should the lab decant or homogenize?

Thank you,

Lana Arthur  
Environmental Coordinator - Regions 1 & 4  
CSC

15000 Conference Center Drive Chantilly, VA 20151 | Civil Division | w: 703.818.4852 | f: 703.818.4602 | larthur@fedcsc.com | www.csc.com

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-----

From: Trisha Aiken [mailto:taiken@batco.com]  
Sent: Saturday, September 25, 2010 2:56 PM  
To: Arthur, Lana  
Cc: Chris Bonner  
Subject: Region 1 | Case 40517 | Sample Receipt

Lana;

On September 24, 2010 we received 19 soils and 1 PE soil via FedEx air bill 8714 6534 5485. Custody seals were present and intact. Cooler temp was determined to be 3.6oC. Samples were in good condition except for the following discrepancies.

1. The TR lists 21 soils and 1 PE soil; however samples MA4174 and MA4178 were not present in the shipment. Please advise.
2. Sample MA4188 is listed on the TR as having only 1 container of sample; however there are 2 containers both with sample tag number 312. Please advise.
3. Sample MA41B2 contains approximately 2 ml's of standing water shall we decant or homogenize?

Thanks;  
Tricia Aiken  
Bonner Analytical

**Trisha Aiken**


---

**From:** Arthur, Lana [larthur@fedcsc.com]  
**Sent:** Wednesday, September 29, 2010 2:37 PM  
**To:** Chris Bonner; taiken@batco.com  
**Cc:** Jarosz, Margaret; Christine Clark; Jennie Han-Liu  
**Subject:** Region 01 | Case 40517 | Lab BONNER | Issue Sample listed on TR/COC but not received at laboratory | FINAL

Tricia,

\*\*\*Summary Start\*\*\*

Issue: Sample MA4179 is listed on the TR/COC, but it was not received at the laboratory with the rest of the shipment on 9/25.

Resolution: Per Region 1, Per Region 1, the laboratory will receive the sample on 10/1. The sample was found on site and will be shipped to the laboratory tomorrow

\*\*\*Summary End\*\*\*

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thank you,

Lana Arthur  
 Environmental Coordinator - Regions 1 & 4  
 CSC

15000 Conference Center Drive Chantilly, VA 20151 | Civil Division | w: 703.818.4852 | f: 703.818.4602 |  
[larthur@fedcsc.com](mailto:larthur@fedcsc.com) | [www.csc.com](http://www.csc.com)

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**From:** Jarosz, Margaret  
**Sent:** Wednesday, September 29, 2010 3:45 PM  
**To:** Arthur, Lana  
**Subject:** FW: Region 01 | Case 40517 | Lab BONNER | Issue Sample listed on TR/COC but not received at laboratory | FINAL

Tricia,

\*\*\*Summary Start\*\*\*

Issue: Sample MA4179 is listed on the TR/COC, but it was not received at the laboratory with the rest of the shipment on 9/25.

Resolution: Per Region 1, the sample was found on site and will be shipped to the laboratory tomorrow for Friday delivery (10/1).

10/8/2010



\*\*\*Summary End\*\*\*

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thank you,

Margaret Jarosz  
Environmental Coordinator  
CSC

15000 Conference Center Drive, Chantilly VA 20151  
Civil Division | (p) 703-818-4351 | (f) 703-818-4602 | [mjarosz@fedcsc.com](mailto:mjarosz@fedcsc.com) | [www.csc.com](http://www.csc.com)

---

**From:** Clark.Christine@epamail.epa.gov [mailto:Clark.Christine@epamail.epa.gov]  
**Sent:** Wednesday, September 29, 2010 2:25 PM  
**To:** Arthur, Lana; Jarosz, Margaret  
**Subject:** Fw: Region 01 | Case 40517 | Lab BONNER | Issue Sample listed on TR/COC but not received at laboratory

See below and let me know if you need anything else.

Thanks,

*Christine Clark*  
US EPA, Region One, 11 Technology Drive, N. Chelmsford, MA 01863-2431  
Phone: 617/918-8615, Fax: 617/918-8515 or 617/918-8397, Email: Clark.Christine@epa.gov

----- Forwarded by Christine Clark/R1/USEPA/US on 09/29/2010 02:23 PM -----

**From:** "Gail Deruzzo" <GDeruzzo@nobiseng.com>  
**To:** Christine Clark/R1/USEPA/US@EPA, "Denis McGrath" <DMcGrath@nobiseng.com>  
**Date:** 09/29/2010 02:20 PM  
**Subject:** RE: Region 01 | Case 40517 | Lab BONNER | Issue Sample listed on TR/COC but not received at laboratory

---

We found the sample on site and will ship it out tomorrow for Friday delivery.

**From:** Clark.Christine@epamail.epa.gov [mailto:Clark.Christine@epamail.epa.gov]  
**Sent:** Wednesday, September 29, 2010 12:51 PM  
**To:** Gail Deruzzo; Denis McGrath  
**Subject:** Fw: Region 01 | Case 40517 | Lab BONNER | Issue Sample listed on TR/COC but not received at laboratory

Hi Gail

See below and let me know as soon as possible.

10/8/2010

Thanks

*Christine Clark*

US EPA, Region One, 11Technology Drive, N. Chelmsford, MA 01863-2431  
Phone: 617/918-8615, Fax: 617/918-8515 or 617/918-8397, Email: Clark.Christine@epa.gov

----- Forwarded by Christine Clark/R1/USEPA/US on 09/29/2010 12:50 PM -----

From: "Arthur, Lana" <larthur@fedcsc.com>  
To: Christine Clark/R1/USEPA/US@EPA  
Cc: "Jarosz, Margaret" <mjarosz@fedcsc.com>  
Date: 09/29/2010 12:14 PM  
Subject: Region 01 | Case 40517 | Lab BONNER | Issue Sample listed on TR/COC but not received at laboratory

---

Chris,

BONNER is reporting the following issue with Case 40517 (Nobis). Please advise the laboratory how to proceed.

Issue: Sample MA4179 is listed on the TR/COC, but it was not received at the laboratory with the rest of the shipment on 9/25.

Please let me know if you need any additional information.

Thank you,

Lana Arthur  
Environmental Coordinator - Regions 1 & 4  
CSC

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---

10/8/2010

**From:** Trisha Aiken [mailto:[taiken@batco.com](mailto:taiken@batco.com)]  
**Sent:** Wednesday, September 29, 2010 10:51 AM.  
**To:** Arthur, Lana  
**Cc:** Chris Bonner  
**Subject:** Region 1 | Case 40517 | Sample Receipt

Lana;

On September 25, 2010 we received 9 soils, 1 PE soil and 1 water via FedEx air bill 8714 6534 5533. Custody seals were present and intact. Cooler temp was determined to be 6.9°C. Samples were in good condition except for the following discrepancy.

1. Sample MA4179 is listed on the TR but is not present in this shipment. Please advise.

Thanks;  
Tricia Aiken  
Bonner Analytical

CASE: 40517 LAB RECEIPT DATE: 1  
SDG: MA41B3 DATA RECEIPT DATE: 10/11/2010  
LAB: BONNER MAIL DATE: 10/14/2010  
CONTRACT: EPW08064 SUBMISSION: ORIGINAL

SAMPLE SUMMARY

NO. OF SAMPLES	SAMPLE	CONCENTRATION	MATRIX	FRACTION (S)
1	LCSS	LOW	SOIL	
2	MA41A2	LOW	SOIL	
3	MA41A3	LOW	SOIL	
4	MA41A4	LOW	SOIL	
5	MA41B3	LOW	SOIL	
6	MA41B4	LOW	SOIL	
7	MA41B5	LOW	SOIL	
8	MA4165	LOW	SOIL	
9	MA4165D	LOW	SOIL	
10	MA4165S	LOW	SOIL	
11	MA4166	LOW	SOIL	
12	MA4167	LOW	SOIL	
13	MA4174	LOW	SOIL	
14	MA4186	LOW	SOIL	
15	MA4196	LOW	SOIL	

CASE: 40517 LAB RECEIPT DATE: 2  
SDG: MA41B3 DATA RECEIPT DATE: 10/11/2010  
LAB: BONNER MAIL DATE: 10/14/2010  
CONTRACT: EPW08064 SUBMISSION: ORIGINAL

FREQUENCY REPORT

\*\*\*\*\*  
\* NO DEFECTS FOUND \*  
\*\*\*\*\*

CASE: 40517 LAB RECEIPT DATE: 3  
SDG: MA41B3 DATA RECEIPT DATE: 10/11/2010  
LAB: BONNER MAIL DATE: 10/14/2010  
CONTRACT: EPW08064 SUBMISSION: ORIGINAL

SAMPLE DETAIL

\*\*\*\*\*  
\* NO DEFECTS FOUND \*  
\*\*\*\*\*

CASE: 40517 LAB RECEIPT DATE: 4  
SDG: MA41B3 DATA RECEIPT DATE: 10/11/2010  
LAB: BONNER MAIL DATE: 10/14/2010  
CONTRACT: EPW08064 SUBMISSION: ORIGINAL

SCREENER'S COMMENTS

COMMENT

NO COMMENTS WERE ASSIGNED

9/16/10

(28)

- 0650 - Onsite; 45-50°F partly sunny; Cal  
Jerom + PJO, # 07456 Cal reading = 99.6
- 0710 - According to Dr. Alex, the replacement part for  
the hydraulics is being driven up to the site.
- 0800 - Daryl (5:00) onsite; we chat a while.
- 0900 - Daryl offsite. → (28)
- 1200 - Drillers onsite w/a bypass to go <sup>around</sup> the  
leaky filter. The replacement filter got shipped  
to the shop, not the hotel in Galena. → (28)
- 1220 - Repair underway. → (28)
- 1245 - Drilling begins. See boring log for lithology description  
and samples collected. → (28)
- 1634 - SB1801 completed to a depth of 17' bsp; Ben  
& demote from this location.
- 1645 - PM Cal check 07456 PJO = 94.5 / Rept to Jerom.
- 1710 - OFFSITE

Along 9/16/10

9/17/10

(29)

- 0650 - Onsite; rain, E 50°F; Cal PJO + Jerom  
07456 PJO Cal reading = 100 ppm
- 07045 PJO Cal reading = 100 ppm
- 0710 - Move to drilling location SB-2201 & wait  
for Driller. → (29)
- 0735 - Driller onsite
- 0740 - Move rig to SB2201, but have trouble  
due to the rain soaked wood chips causing  
the rig to get stuck. Drills try to mob the  
rig w/ mud motor. → (29)
- 0815 - Rig is set up, but need to change the bit  
for the lead auger. → (29)
- 0850 - Drilling begins. See boring log for details.
- 1125 - Demote from SB-2201 after drills to 69' bsp  
- Move to SB-1701 along the access road to  
prevent the rig from getting stuck like what  
happened earlier today. → (29)
- 1345 - Dem 16' @ SB-1701 & stop for the day
- 1355 - Driller offsite; PM cal check of Rept Jerom  
07456 PJO = 102 ppm 07045 = 105 ppm
- 1430 - OFFSITE

Along 9/17/10



80013.53/0335

Personnel: Refer to Sign In/Out Log

Weather: Overcast w/breaks of  
sun, cold in the AM 50-65°F.

0700 Nobis on-site, instrument  
calibration.

0715 Track Rig crew arrived  
on-site waiting for Track Rig  
crew, keys locked in Tahoe rental  
vehicle.

CTR 1 of

9/16/10

80013.03/0335

Personnel: Refer to Sign In/Out Log

Weather: Overcast w/ rain in the AM.  
Cool 50-65°F

0700 Instrument calibration, tail-gate meetings.

0730 Condition @ MW-3301/B1 wet & muddy, postpone work in these locations until drier weather.  
Track Rig Relocate to southern FSA locations.

Conducting Mercury survey, use caution on rock during wet weather.

Prep Samples for shipment, locate FedEx location on route to office instead of pickup @ site.

0830 F2L issue noted field  
DUP01 is associated w/ sample SB-2901 and NOT SB-3101

1030 Completed Mercury survey for day, no mercury collected, River was lower than Thurs.

9/16/10.

CTZ 1 OF

9/17/10

CTZ 2 OF

80013.03/0335

1100 ESAT Surface Soil samples labeled and tagged, waiting for cations assignment.

1230 Track rig refusal on bed-rock @ MW-3501/B1, set casing for bedrock. Track Rig working on SB locations w/ firm surface, difficulty today w/ soft terrain.

9/17/10

DC/ESAT  
10/12/10

Evidence Audit Photocopy 6

Chlor-Alkali  
NR315/PAC 2

LABORATORY NAME Bonner Analytical Testing Co.  
 CITY/STATE Hattiesburg, MS  
 CASE NO. 40517 SDG NO. MA4133  
 SDG NOS. TO FOLLOW MA4171, 30 MA4499 0102 2 1 100  
 NRAS NO. N/A  
 CONTRACT NO. EPH08064  
 SOH NO. ILM05.4

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

	PAGE NOS.		CHECK	
	FROM	TO	LAB	REGION
1. Cover Page	<u>1</u>	<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2. SDG Narrative	<u>2</u>	<u>3</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. Sample Log-In Sheet (DC-1)	<u>4</u>	<u>5</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4. Inventory Sheet (DC-2)	<u>6</u>	<u>7</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5. Traffic Report/Chain of Custody Record(s)	<u>8</u>	<u>12</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Inorganic Analysis IA-IN</b>				
6. Data Sheet (Form <del>I-III</del> <u>IA-IB</u> )	<u>13</u>	<u>24</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7. Initial & Continuing Calibration Verification (Form IIA-IN)	<u>25</u>	<u>29</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8. CRQL Standard (Form IIB-IN)	<u>30</u>	<u>35</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. Blanks (Form III-IN)	<u>36</u>	<u>40</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10. ICP-AES Interference Check Sample (Form IVA-IN)	<u>41</u>	<u>43</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11. ICP-MS Interference Check Sample (Form IVB-IN)	<u>N/A</u>	<u>N/A</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12. Matrix Spike Sample Recovery (Form VA-IN)	<u>44</u>	<u>45</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13. Post-Digestion Spike Sample Recovery (Form VB-IN)	<u>46</u>	<u>47</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
14. Duplicates (Form VI-IN)	<u>48</u>	<u>49</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
15. Laboratory Control Sample (Form VII-IN)	<u>50</u>	<u>51</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
16. ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	<u>52</u>	<u>52</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17. Method Detection Limits (Annually) (Form IX-IN)	<u>53</u>	<u>56</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
18. ICP-AES Interelement Correction Factors (Quarterly) (Form XA-IN)	<u>57</u>	<u>57</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
19. ICP-AES Interelement Correction Factors (Quarterly) (Form XB-IN)	<u>58</u>	<u>59</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
20. ICP-AES and ICP-MS Linear Ranges (Quarterly) (Form XI-IN)	<u>60</u>	<u>60</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
21. Preparation Log (Form XII-IN)	<u>61</u>	<u>63</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	FROM	TO	LAB	REGION
22. Analysis Run Log (Form XIII-IN)	624	68	✓	✓
23. ICP-MS Tune (Form XIV-IN)	N/A	N/A	✓	✓
24. ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)	N/A	N/A	✓	✓
25. ICP-AES Raw Data	69	130	✓	✓
26. GFAA Raw Data (if Applicable)	N/A	N/A	✓	✓
27. ICP-MS Raw Data	N/A	N/A	✓	✓
28. Mercury Raw Data	131	136	✓	✓
29. Cyanide Raw Data	N/A	N/A	✓	✓
30. Preparation Logs Raw Data	137	138	✓	✓
31. Percent Solids Determination Log	139	139	✓	✓
32. USEPA Shipping/Receiving Documents Airbill (No. of Shipments _____)	140	141	✓	✓
Sample Tags			✓	✓
Sample Log-In Sheet (Lab)	142	145	✓	✓
33. Misc. Shipping/Receiving Records (list all individual records)				
Telephone Logs	N/A	N/A	✓	✓
_____ N/A	N/A	N/A	✓	✓
_____ N/A	N/A	N/A	✓	✓
34. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
<u>In house Chain of Custody</u>	146	148	✓	✓
_____ N/A	N/A	N/A	✓	✓
35. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records <u>Standard &amp; Reagent Logs</u>	149	160	✓	✓
Analysis Records <u>Run Log Raw Data</u>	161	164	✓	✓
Description <u>N/A</u>	N/A	N/A	✓	✓
36. Other Records (describe or list)				
Telephone Communications Log	N/A	N/A	✓	✓
<u>E-mail</u>	165	171	✓	✓
<u>Corrective Action Forms</u>	172	173	✓	✓
37. Comments <sup>12-10</sup> Supporting Documentation				

Completed by: [Signature]  
(CLP Lab) \_\_\_\_\_  
(Signature)

Chris Bonner, Lab Manager  
(Print Name & Title)

10-8-10  
(Date)

Audited by: [Signature]  
(USEPA) \_\_\_\_\_  
(Signature)

Zapissek (DU)  
(Print Name & Title)

11/15/10  
(Date)

A separate Form should be completed for each sampling event. Refer to Attachment A for instructions on completing this form, Attachment B for a complete list of the parameter codes and Attachment C for an example of a completed form.

1. EPA Program: TSCA CERCLA RCRA DW NPDES CAA Other: <u>CERCLA</u> Projected Date(s) of Sampling <u>July 2009-Spring 2010</u> EPA Site Manager <u>Darryl Luce</u> EPA Case Team Members <u>Christine Clark</u>	Site Name <u>Chlor-Alkali Facility (Former)</u> Site Location <u>Berlin, New Hampshire</u> Assigned Site Latitude/Longitude _____ CERCLA Site/Spill Identifier No. <u>0103313/NA</u> (Include Operable Unit) Phase: ERA SA/SI pre-RI RI (phase I, etc.) FS RD RA post-RA (circle one) Other: <u>RI</u>
--	---

2. QAPjP Title and Revision Date Draft Quality Assurance Project Plan  
Chlor-Alkali Facility (Former), Berlin, New Hampshire  
 Approved by: Darryl Luce Date of Approval: TBD  
 Title of Approving Official: Task Order Project Officer Organization\*: EPA  
 \*If other than EPA, record date approval authority was delegated: \_\_\_\_\_

EPA Oversight Project (circle one) **Y** N Type of EPA Oversight (circle one) PRP or FF Other: FF  
 Confirmatory Analysis for Field Screening **Y** N If EPA Oversight or Confirmatory: % splits \_\_\_\_\_  
 Are comparability criteria documented? **Y** N

3. a.	Matrix Code <sup>1</sup>	FF	FF	SW/SE	SW/SE	FF	FF	SW/SE	SW/SE
b.	Parameter Code <sup>2</sup>	8270/8081 SVOC, Pest	1631	ILM05.4 Total SW/SED Dissolved (SW)	Divalent Hg	DLM02. 0	CBC0.10	1630 MeHg	300/9060 SO4/TOC
c.	Preservation Code <sup>3</sup>	8	8	2, 5	5	8	8	2, 5	5, 4
d.	Analytical Services Mechanism	DAS	DAS	RAS	DAS	Non- RAS	Non-RAS	DAS	DAS
e.	No. of Sample Locations								
<b>Field QC:</b>									
f.	Field Duplicate Pairs	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20
g.	Equipment Blanks	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20
h.	VOA Trip Blanks	1/cooler							
i.	Cooler Temperature Blanks	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler
j.	Bottle Blanks	NA	NA	NA	NA	NA	NA	NA	NA
k.	Other: _____								
l.	PES sent to Laboratory			1/20					
<b>Laboratory QC:</b>									
m.	Reagent Blank	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20
n.	Duplicate			1/20				1/20	1/20
o.	Matrix Spike	1/20	1/20	1/20	1/20			1/20	1/20
p.	Matrix Spike Duplicate	1/20			1/20				1/20
q.	Other: _____		1/20 - LCS	1/20 - LCS	1/20 - LCS	1/20 - LCS	1/20 - LCS	1/20 - CRM	1/20

4. Site Information  
 Site Dimensions 4.6 acres  
 List all potentially contaminated matrices SW, SE, FF, PW

Range of Depth to Groundwater \_\_\_\_\_  
 Soil Types: Surface Subsurface Other: \_\_\_\_\_ surface and subsurface \_\_\_\_\_  
 Sediment Types: Stream Pond Estuary Wetland Other: \_\_\_\_\_ NA \_\_\_\_\_ Expected Soil/Sediment Moisture Content: High Low

When multiple matrices will be sampled during a sampling event, complete Sections 5-10 for each matrix.

Matrix Code<sup>1</sup> \_\_\_SW/SE/FF/PW\_\_\_\_\_

5. Data Use (circle all that apply) **Site Investigation/Assessment** PRP Determination Removal Actions  
 Nature and Extent of Contamination **Human and/or Ecological Risk Assessment** Remediation Alternatives  
 Engineering Design Remedial Action  
 Post-Remedial Action (quarterly monitoring)  
 Other: \_\_\_\_\_

6. Summarize DQOs:

\_\_\_\_\_ Data must be collected that will assist in deciding the extent to which human health and ecological risks exist throughout the Androscoggin River study area. More specifically, the data must support the following:

- Accurate identification of environmental bioaccumulation risks from site contaminants.
- Determination of where and what magnitude of risk applies for:
  - Humans, likely from incidental ingestion and dermal contact with sediments and surface waters, as well as consumption of fish; and
  - Ecological assessment endpoints
  - Filling of existing data gaps throughout the study area.

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
See tables 4-8 through 4-11 in ARI QAPP	See tables 4-8 through 4-11 in ARI QAPP	See tables 4-8 through 4-11 in ARI QAPP

7. Sampling Method (circle technique) **Bailer** Low flow pump (Region I method: Yes No) Peristaltic Pump  
 Positive Displacement Pump Faucet or Spigot Other: Sonic fishing  
**Split Spoon** Dredge Trowel Other: Dipper Bottle

Sampling Procedures (SOP name, No., Rev. #, and date) \_\_\_ See App. B of ARI QAPP \_\_\_\_\_

List Background Sample Locations \_\_\_\_\_

Circle: **Grab** or Composite

"Hot spots" sampled: **Yes** No

8. Field Data (circle) **ORP pH Specific Conductance Dissolved O<sub>2</sub> Temperature Turbidity for SW**

Other: \_\_\_\_\_

9. Analytical Methods and Parameters

Method title/SOP name	Method/SOP Identification number	Revision Date	Target Parameters (VOA, SV, Pest/PCB, Metals, etc.)
See Table 7-2 from ARI QAPP			


10. Validation Criteria (circle one) 1. Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, **Part II, III or IV**  
2. Other Approved Validation Criteria: \_\_\_\_\_  
Validation Tier (circle one) **I II III** Partial Tier III: D/F, PCB=Tier III, %Lipids, % Moisture –Tier I, All other 90% Tier II, 10% Tier III \_\_\_\_\_  
Company/Organization Performing Data Validation Nobis Engineering, Inc. **Prime** or Subcontractor (circle one)

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11. Company Name Nobis Engineering, Inc. Contract Number EP-S1-06-03  
Contract Name (e.g. START, RACS, etc.) RAC2 Work Assignment No. 0013-RI-CO-01BQ  
Person Completing Form/Title Gail DeRuzzo/Lead Chemist Date of DQO Summary Form Completion 11/5/09

Matrix Codes<sup>1</sup> - Refer to Attachment B, Part I  
Parameter Codes<sup>2</sup> - Refer to Attachment B, Part II

- Preservation Codes<sup>3</sup>
- 1. HCl to pH ≤ 2      7. K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>
  - 2. HNO<sub>3</sub>              8. Freeze
  - 3. NaHSO<sub>4</sub>          9. Room Temperature (avoid excessive heat)
  - 4. H<sub>2</sub>SO<sub>4</sub>            10. Other (Specify)
  - 5. Cool @ 4°C (± 2°) N. Not preserved
  - 6. NaOH

\* - To supplement Matrix Codes and/or Parameter Codes contact the QA Unit