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Superfund Records Center

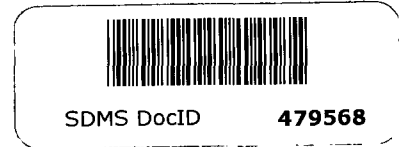
SITE: Chlor Alkali

BREAK: 3.2

OTHER: 479568

January 14, 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



Re: Contract No.: EP-S1-06-03
Task Order No. 0013-RI-CO-01BQ
Case No.: 40784; Sample Delivery Group (SDG) No. MA41H9
ALS Laboratory Group, Salt Lake City, Utah
Chlor-Alkali Facility (Former) Superfund Site
Berlin, New Hampshire
CERCLIS No.: NHN000103313
Tier III Inorganic Data Validation

Metals: 16/Water/ MA41H9, MA41J1, MA41J9, MA41K1, MA41K3, MA41K7,
MA41K9, MA41L5, MA41M1, MA41M3, MA41N7, MA41N9, MA41P1,
MA41R0, MA41R2, MA41R5
Equipment blank: N/A
Field Duplicates: N/A
PE sample: N/A

Dear Mr. Luce:

Nobis Engineering, Inc. performed a Tier III 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 16 water samples collected by Nobis Engineering, Inc. at the Chlor-Alkali Facility (Former) Superfund Site in Berlin, New Hampshire. The samples were analyzed for dissolved metals, under the Contract Laboratory Program (CLP) Routine Analytical Services (RAS) according to the ILM05.4 Statement of Work (SOW) and Modification 1783.1. This SDG includes Aluminum, Arsenic, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Vanadium and Zinc results analyzed by ICP-AES and Mercury analyzed by CV. Antimony, beryllium, and thallium analyzed by ICP-MS are included in SDG MA41J1.

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

The project data quality objectives (DQOs) are to generate field and analytical data that are necessary and of sufficient quality such that:

- The nature and extent of the Site contamination is characterized sufficiently.
- The mechanism of contaminant transport to the environment becomes clear.
- A well-founded human health and ecological risk characterization can be completed.
- A well-documented Record of Decision (ROD) may be developed.

The data was qualified due to blank contaminations and non-compliant ICP interference analyses.

Blanks

Positive Blank Results were detected in the following metals at various concentrations: aluminum, barium, cadmium, calcium, cobalt, iron, magnesium, manganese, nickel, sodium, vanadium, and zinc. Negative Blank Results were detected in mercury at various concentrations.

No action was necessary for barium, calcium, and sodium since all results were above the blank action level. No action was necessary for mercury since all results were above the action level.

Sample results which required qualifications are summarized below:

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (ug/l)	Blank Action Level (ug/l)	Sample CRQL (ug/L)	Action	Samples Affected
Cadmium	CCB3	12/10/10	0.201	1.005	5	U	MA41H9, MA41J9, MA41K1, MA41K7, MA41K9, MA41L5, MA41R0, MA41R2, MA41R5
Aluminum	PBW	12/2/10	42.5	212.5	200	U	MA41K7, MA41K9, MA41L5, MA41R0, MA41K3
Chromium	CCB1	12/10/10	0.822	4.11	10	U	MA41K7, MA41K9, MA41M1, MA41R0, MA41R2, MA41N7, MA41R5, MA41N9, MA41P1
Iron	PBW	12/2/10	20.4	102	100	U	MA41N7, MA41N9, MA41P1
Magnesium	PBW	12/2/10	40.3	201.5	5000	U	MA41H9, MA41J1, MA41K3
Manganese	PBW & CCB3	12/2/10	1.001	5	15	U	MA41P1
Nickel	PBW and CCB3	12/2/10	0.579/1.058	2.9 (12/13)/5.29 (12/10)	40	U	MA41H9, MA41J9, MA41K1, MA41K7, MA41K9, MA41L5, MA41M1, MA41R0, MA41R2, MA41R5
Vanadium	CCB1	12/10/10	0.50	2.5	50	U	MA41K9, MA41R0, MA41R2, MA41R5
Zinc	CCB3 & ICB (12/13)	12/10/10	1.142/0.62	5.71/3.1	60	U	MA41L5, MA41R0, MA41R2, MA41R5
Arsenic	CCB8	12/10/10	3.47	17.3	10	U	MA41J7, MA41N7, MA41N9, MA41P1

ICB = Initial Calibration Blank
 CCB = Continuing Calibration Blank
 PBW = Water Preparation Blank

ICP Interference Check Sample Results

Manganese, lead, and zinc were recovered in the 12/10/10 ICESA sample above the acceptance criteria. Positive manganese, lead and zinc results were estimated (J) in associated samples

analyzed on 12/10/10. Results may be biased high. Manganese also recovered above QC in the 12/13/10 ICESA sample. Positive manganese results were estimated (J) in all samples analyzed on 12/13/10. Results may be biased high.

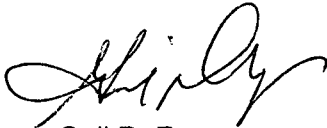
PE Samples

No PE samples were included in this SDG.

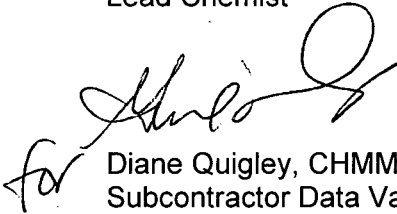
Please contact Gail DeRuzzo at (978) 703-6021 should you have any questions or comments regarding this information.

Very truly yours,

NOBIS ENGINEERING, INC.



Gail DeRuzzo
Lead Chemist



for Diane Quigley, CHMM
Subcontractor Data Validator
WESTON SOLUTIONS, INC.

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

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

cc: Maja Tritt USEPA Region X (w/PE Scores and IRDA)

TABLE I

**Overall Evaluation of Dissolved Metals Data
Chlor-Alkali Facility (Former) Superfund Site
Case 40784; SDG MA41H9**

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>Collect data so that:</p> <p>The nature and extent of the Site contamination is characterized sufficiently.</p> <p>The mechanism of contaminant transport to the environment becomes clear.</p> <p>A well-founded human health and ecological risk characterization can be completed.</p> <p>A well-documented Record of Decision (ROD) may be developed.</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>U¹⁻¹⁰ J¹ J²</p>	<p>Refer to qualifications in R/S key:</p> <p>None</p>		<p>U¹⁻¹⁰ – Qualify positive cadmium, aluminum, chromium, iron, magnesium, manganese, nickel, vanadium, zinc, and arsenic results as non-detected due to blank contamination.</p> <p>J¹ – Estimate all positive manganese results due to ICOSA recoveries above the acceptance criteria. Results may be bias high.</p> <p>J² – Estimate positive manganese, lead, and zinc results due to ICOSA recoveries above the acceptance criteria. Results may be biased high.</p>

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

** Sampling variability is not assessed in data validation.

DATA SUMMARY TABLE
Tier III Validated Data
Dissolved Metals Analysis
Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH
CASE NO.: 40784 SDG NO.: MA41H9

Sample Name		MA41H9		MA41J1		MA41J9		MA41K1		MA41K3	
Sample Location		MW-26B2		MW-26B2		MW-28B1		MW-28B1		MW-28B1	
Lab Sample ID		1032862001		1032862002		1032862003		1032862004		1032862005	
Station ID		MW-26B2-1110-01A		MW-26B2-1110-02A		MW-28B1-1110-01A		MW-28B1-1110-02A		MW-28B1-1110-03A	
Dilution Factor		12/5		1/5		1		1		1	
Sample Date		22 Nov 10		19 Nov 10		23 Nov 10		22 Nov 10		22 Nov 10	
Date Hg Analyzed		08 Dec 10		08 Dec 10		05 Dec 10		05 Dec 10		05 Dec 10	
Date Na Analyzed		13 Dec 10		13 Dec 10		10 Dec 10		10 Dec 10		13 Dec 10	
Date Analyzed		10 Dec 10		13 Dec 10		10 Dec 10		10 Dec 10		13 Dec 10	
Chemical	CRQL										
ALUMINUM	200	278		245		200	U	200	U	200	U
ARSENIC	10	5.2	J	10	U	11.5		11.8		40.6	
BARIUM	200	16.2	J	10.3	J	30.8	J	34.1	J	26.5	J
CADMIUM	5	5	U	0.6	J	5	U	5	U	2.3	J
CALCIUM	5000	6481		6230		328187		318220		11544	
CHROMIUM	10	7.1	J	5.7	J	10	U	10	U	8.4	J
COBALT	50	50	U	50	U	50	U	0.41	J	50	U
COPPER	25	41.8		19.3	J	25	U	25	U	223	
IRON	100	1212		1011		36449		33081		203	
LEAD	10	25.2	J	19.5		2.1	J	3	J	76.2	
MAGNESIUM	5000	5000	U	5000	U	19515		19001		5000	U
MANGANESE	15	62	J	44.8	J	11559	J	11271	J	84	J
MERCURY	0.2	34.3		16.2		0.2	U	0.2	U	3.6	
NICKEL	40	40	U	3.2	J	40	U	40	U	15.4	J
POTASSIUM	5000	2093	J	2037	J	13983		13431		9298	
SELENIUM	35	7.9	J	5.9	J	35	U	3.3	J	25.6	J
SILVER	10	3.2	J	1.1	J	3.6	J	4.8	J	2	J
SODIUM	5000	785740		732293		321437		327530		3166400	
VANADIUM	50	35	J	33.8	J	50	U	50	U	210	
ZINC	60	14	J	27.5	J	7	J	25.5	J	71	

Na at 1:2 dilution.

See SDG MA41J1 for ICP-MS results.

Hg at 1:5 dilution.

Hg at 1:5 dilution.

DATA SUMMARY TABLE
Tier III Validated Data
Dissolved Metals Analysis
Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH
CASE NO.: 40784 SDG NO.: MA41H9

Sample Name		MA41K7		MA41K9		MA41L5		MA41M1		MA41M3	
Sample Location		MW-32B1		MW-32B1		MW-33B1		MW-34B1		MW-34B1	
Lab Sample ID		1032862006		1032862007		1032862008		1032862009		1032862010	
Station ID		MW-32B1-1110-01A		MW-32B1-1110-02A		MW-33B1-1110-01A		MW-34B1-1110-01A		MW-34B1-1110-02A	
Dilution Factor		1		1		1		1		1	
Sample Date		23 Nov 10		19 Nov 10		19 Nov 10		22 Nov 10		19 Nov 10	
Date Hg Analyzed		05 Dec 10		05 Dec 10		05 Dec 10		05 Dec 10		05 Dec 10	
Date Na Analyzed		10 Dec 10		10 Dec 10		10 Dec 10		10 Dec 10		10 Dec 10	
Date Analyzed		10 Dec 10		10 Dec 10		10 Dec 10		10 Dec 10		10 Dec 10	
Chemical	CRQL										
ALUMINUM	200	200	U	200	U	200	U	200	U	200	U
ARSENIC	10	2.7	J	2.2	J	10	U	10	U	10	U
BARIUM	200	159	J	142	J	685		171	J	174	J
CADMIUM	5	5	U	5	U	5	U	2.2	J	2.1	J
CALCIUM	5000	68265		64628		252110		289940		288197	
CHROMIUM	10	10	U	10	U	11.2		10	U	10	U
COBALT	50	50	U	50	U	0.51	J	3.7	J	50	U
COPPER	25	25	U	25	U	25	U	25	U	25	U
IRON	100	11818		14897		12306		113510		119453	
LEAD	10	1.5	J	1.2	J	10	U	2.7	J	2.6	J
MAGNESIUM	5000	9051		8874		39923		43090		44006	
MANGANESE	15	3470	J	3525	J	10690	J	11703	J	10144	J
MERCURY	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
NICKEL	40	40	U	40	U	40	U	40	U	40	U
POTASSIUM	5000	31050		31966		24631		36155		32923	
SELENIUM	35	35	U	35	U	35	U	35	U	35	U
SILVER	10	2.5	J	5.8	J	2.4	J	2.8	J	3.5	J
SODIUM	5000	129823		141157		155163		244453		272023	
VANADIUM	50	4.7	J	50	U	4.4	J	50	U	50	U
ZINC	60	88.3	J	220	J	60	U	514	J	1589	J

See SDG MA41J1 for ICP-MS results.

DATA SUMMARY TABLE
Tier III Validated Data
Dissolved Metals Analysis
Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH
CASE NO.: 40784 SDG NO.: MA41H9

Sample Name		MA41N7		MA41N9		MA41P1		MA41R0		MA41R2	
Sample Location		MW-40B1		MW-40B1		MW-40B1		MW-38B1		MW-38B1	
Lab Sample ID		1032862011		1032862012		1032862013		1032862014		1032862015	
Station ID		MW-40B1-1110-01A		MW-40B1-1110-02A		MW-40B1-1110-03A		MW-38B1-1110-03A		MW-38B1-1110-01A	
Dilution Factor		1		1		1		1		1	
Sample Date		23 Nov 10		22 Nov 10		22 Nov 10		23 Nov 10		22 Nov 10	
Date Hg Analyzed		05 Dec 10		05 Dec 10		05 Dec 10		05 Dec 10		08 Dec 10	
Date Na Analyzed		13 Dec 10		13 Dec 10		13 Dec 10		10 Dec 10		10 Dec 10	
Date Analyzed		13 Dec 10		13 Dec 10		13 Dec 10		10 Dec 10		10 Dec 10	
Chemical	CRQL										
ALUMINUM	200	200	U	200	U	200	U	200	U	200	U
ARSENIC	10	10	U	10	U	10	U	3	J	3.5	J
BARIUM	200	1057		1013		964		173	J	184	J
CADMIUM	5	5	U	5	U	5	U	5	U	5	U
CALCIUM	5000	494000		452607		443273		73748		61668	
CHROMIUM	10	10	U	10	U	10	U	10	U	10	U
COBALT	50	50	U	50	U	50	U	3.4	J	4.2	J
COPPER	25	25	U	25	U	25	U	25	U	25	U
IRON	100	100	U	100	U	100	U	10807		6479	
LEAD	10	2.5	J	1.8	J	10	U	1.6	J	2.1	J
MAGNESIUM	5000	43120		34323		33688		8467		8268	
MANGANESE	15	160	J	6.2	J	15	U	2811	J	2443	J
MERCURY	0.2	1		1.2		1.2		0.2	U	0.2	U
NICKEL	40	5.6	J	7.3	J	7.1	J	40	U	40	U
POTASSIUM	5000	22017		27745		22014		6522		14157	
SELENIUM	35	4.3	J	10.6	J	9	J	35	U	4	J
SILVER	10	1.2	J	10.8		1.7	J	0.81	J	0.84	J
SODIUM	5000	4059867		4725333		4474400		77285		66941	
VANADIUM	50	49.7	J	73.4		70.7		50	U	50	U
ZINC	60	4.2	J	4.8	J	4.3	J	60	U	60	U

See SDG MA41J1 for ICP-MS results.

DATA SUMMARY TABLE
Tier III Validated Data
Dissolved Metals Analysis
Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH
CASE NO.: 40784 SDG NO.: MA41H9

Sample Name	MA41R5		
Sample Location	MW-38B1		
Lab Sample ID	1032862018		
Station ID	MW-38B1-1110-02A		
Dilution Factor	1		
Sample Date	19 Nov 10		
Date Hg Analyzed	08 Dec 10		
Date Na Analyzed	10 Dec 10		
Date Analyzed	10 Dec 10		
Chemical	CRQL		
ALUMINUM	200	200	U
ARSENIC	10	2.1	J
BARIUM	200	179	J
CADMIUM	5	5	U
CALCIUM	5000	70951	
CHROMIUM	10	10	U
COBALT	50	3.7	J
COPPER	25	25	U
IRON	100	12276	
LEAD	10	10	U
MAGNESIUM	5000	8524	J
MANGANESE	15	2894	
MERCURY	0.2	0.2	U
NICKEL	40	40	U
POTASSIUM	5000	6924	
SELENIUM	35	35	U
SILVER	10	0.66	J
SODIUM	5000	76731	
VANADIUM	50	50	U
ZINC	60	60	U

See SDG MA41J1 for ICP-MS results.

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

CASE #: Chlor Alkali 40784

SITE NAME: Chlor Alkali

LAB NAME: ALS Datachem

OF SAMPLES/MATRIX: 16/water

SDG #: MA4119

VALIDATION CONTRACTOR: Wobics/Westm

SOW #/CONTRACT #: II MOS. 4 & Mod 1783.1

VALIDATOR'S NAME: Diane Quisley

EPA-NE DV TIER LEVEL: _____

DATE DP REC'D BY EPA-NE: _____

PO: **ACTION _____ FYI _____

DV COMPLETION DATE: 10/1/12/11

ANALYTICAL DATA QUALITY SUMMARY

	ICP-AES	ICP-MS	HG	CN
I. Preservation and Technical Holding Times	0		0	
II. ICP-MS Tune	NA	N	NA	N
III. Calibrations	0		0	N
IV. Blanks	0		0	
V. ICP-AES Interference Check Sample (ICS)	0			
VI. ICP-MS Interference Check Sample (ICS)	NA	A		A
VII. ICP-MS Internal Standards	0			
VIII. Matrix Spikes	0		0	
IX. Laboratory Duplicate Samples	0		0	
X. Field Duplicates	NA			
XI. ICP Serial Dilutions	0		0	
XII. Sensitivity Check	0		0	
XIII. Performance Evaluation Samples/Accuracy Check	0		0	
XIV. Analyte Quantitation and Reported Quantitation Limits	0		0	
XV. System Performance	0		0	
XVI. Overall Evaluation of Data	0		0	

- 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: 01 - data was qualified due to blank contamination and non-compliant ICP-A 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: D Quisley

Date: 7/12/11

INSTRUCTIONS ON REVERSE SIDE

REGION I INORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name ALS Laboratory Group SOW/Method No. ILM05,4
Case/Project No. 40784 Sampling Date(s) 11/19, 11/22, 11/23
SDG No. MA41H9 Shipping Date(s) 11/23/10
No. of Samples/Matrix 16/1A0 Date Rec'd by lab 11/24/10

Traffic Report Sample Nos. MA41H9, MA41I1, MA41I9, MA41K1, MA41K3, MA41K7, MA41K9, MA41L5, MA41M1, MA41M3, MA41N7, MA41N9, MA41P1, MA41R0, MA41R2, MA41R5
Equipment Blank No. N/A
Bottle Blank No. _____
Field Duplicate Nos. N/A
PES Nos. N/A

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision 12/1/08 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 Diane Quigley Company Name Weston/Webis Phone Number 978-703-6021
Date Validation Started 1/10/11 Date Validation Completed 1/12/11

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	<input checked="" type="checkbox"/>
INORG-I	PRESERVATION AND TECHNICAL HOLDING TIMES	<input checked="" type="checkbox"/>
INORG-II	ICP-MS TUNE	<input checked="" type="checkbox"/>
INORG-III-A/B	CALIBRATIONS	<input type="checkbox"/>
INORG-IV-A/B	BLANKS	<input type="checkbox"/>
INORG-IV-C.1	BLANKS	<input type="checkbox"/>
INORG-IV-C.2	BLANKS	<input type="checkbox"/>
INORG-V-A	ICP-AES INTERFERENCE CHECK SAMPLE - ICSAB	<input type="checkbox"/>
INORG-V-B.1	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	<input type="checkbox"/>
INORG-V-B.2	ICP-AES INTERFERENCE CHECK SAMPLE - ICSA	<input type="checkbox"/>
INORG-VI-A	ICP-MS INTERFERENCE CHECK SAMPLE - ICSAB	<input checked="" type="checkbox"/>
INORG-VI-B	ICP-MS INTERFERENCE CHECK SAMPLE - ICSA	<input checked="" type="checkbox"/>
INORG-VII	ICP-MS INTERNAL STANDARDS	<input checked="" type="checkbox"/>
INORG-VIII	MATRIX SPIKES	<input type="checkbox"/>
INORG-IX	LABORATORY DUPLICATE SAMPLES	<input type="checkbox"/>
INORG-X	FIELD DUPLICATES	<input type="checkbox"/>
INORG-XI	ICP SERIAL DILUTIONS	<input type="checkbox"/>
INORG-XII-A/B	SENSITIVITY CHECK	<input checked="" type="checkbox"/>
INORG-XIII-A	PE SAMPLES/ACCURACY CHECK- LCS	<input type="checkbox"/>
INORG-XIII-B	PE SAMPLES/ACCURACY CHECK- PE RESULTS	<input type="checkbox"/>
INORG-XIV	ANALYTE QUANTITATION AND REPORTED QUANTITATION LIMITS	<input type="checkbox"/>
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	<input type="checkbox"/>

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

Signature: D. Quigley
Date: 1/12/11

Name: Diane Quigley

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

Site: Chlor Alkali

Case: 40784

SDG: MA4119

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: D. Augley

Date: 1/11/08

EPA-NE - Data Validation Worksheet
INORG

COMPLETE SDG FILE (CSF) AUDIT

Inorganic Parameters: FLMOS.4

Missing Information

Date Lab Contacted

Date Received

<u>Missing Information</u>	<u>Date Lab Contacted</u>	<u>Date Received</u>
data pkg was complete		

Validator: D Oungley

Date: 1/10/11

EPA-NE - Data Validation Worksheet
INORG-I

I. PRESERVATION AND HOLDING TIMES

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

Sample No.	Matrix	Pres. Code		Date Sampled	6 months Metals		28 days Hg		14 days 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	
MA41H9	AG	1	N/A	11/22	12/13	21	12/8	(16)			None None
MA41J1				11/19	12/13	25	12/8	(20)			None
MA41J9				11/23	12/10	17	12/5	12			None
MA41K1				11/22	12/10	18	"	13			
MA41K3				11/22	12/13	21	"	13			
MA41K7				11/23	12/10	17	"	12			
MA41K9				11/19	12/10	21	"	(16)			None
MA41L5				11/19	12/10	21	12/5	(16)			None
MA41M1				11/22	12/10	18	12/5	13			
MB, (N7), K9				11/19, 11/23	12/10, 12/13	12/5	(16)	12, 13			None
MA41P1				11/22	12/13	21	12/5	13			
MA41R0				11/23	12/10	17	12/5	12			
MA41R2				11/22	12/10	18	12/8	(18)			MA41R2 →
MA41R5				11/19	12/10	21	12/8	(19)			MA41R5 →

Preservation Code:

- 1. Cool (≤ 6°C)
- 2. pH < 2 with HNO₃
- 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: D. Quigley

Date: 1/11/10

all @ Criteria was met

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: _____

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: _____ CCV method QC acceptance criteria: _____

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

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: _____

Date	Instr.	Analyte	QL Check Std. #	% R	Affected Range	Samples Affected	Action

Comments: _____

Validator: *Douglas*

Date: *1/11/10*

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. ug/L (units)
12/3 + 12/7	12/10/11	ICB	AB	ICP08	Chromium	.144
		CCB 1, 2, 3	AB		Cobalt	.32
		CCB 1/2/3	AB	"	Cd	.11 / .081 / .261
					Ca	15.7 / - / 30.85
					Cr	.822 / .783 / .801
					Co	.676 / .905 / 1.075
					Fe	- / - / 12.75
					Mn	- / - / 1.001
					Hg	.019 / - / -
					Pb	.781 / .877 / 1.058
					Na	- / .23 / .25 / 3
					Vn	.50 / - / -
					Zinc	- / - / 1.142
					Al	42.5

B. Field: Equipment (Rinsate) and Bottle Blanks

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)
		12/3 RBW	AB		Ba	1.171
					Ca	60.0
					Fe	20.4
					Mg	40.3
					Mn	.842
					Hg	.024
					Pb	.579

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

Comments: _____

Validator: _____

D. Gaudy

Date: _____

11/11/11

DRAFT 11/08

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. ug/L (units)
12/2	12/13	ICB 2	AB	ICP08	Cd	.064
					Cr	.365
					Co	.493
					Cu	1.92
					Fe	14.8
					Mg	33.3
					Vanadium	.52
					Zinc	.62
		CCB 6/7/8			As	- / - / 3.47
					Cd	.086 / - / .075
					Ca	39.0 / - / 18.1
					Cr	.424 / .251 / -
					Co	.556 / .23 / .37
					Cu	2.19 / - / -

B. **Field: Equipment (Rinsate) and Bottle Blanks**

Date Sampled	Date Analyzed	Sample No. (Blank Type)	Matrix	Instrument	Analyte	Conc. (units)
					Fe	18.0 / - / 17.047
					Mg	56.3 / 22.1 / 35.8
					Mn	.971 / .926 / -
					Na	- / 17.3 / 122 / 160
					Vanadium	.84 / .73 / .67
					Zinc	-.87 / -.97 / -.80

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: D. Dingley

Date: 1/11/11

Arsenic U¹⁰

МАЧИТ, МАЧИН7, МАЧИН9
МАЧИР1

Circle the highest concentration of each contaminant.

UG 11



Analyte	Date Analyzed	ICB	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			76	77	78	4	5	6	7						
Aluminum	12/13														
Antimony															
Arsenic					3.47									3.47	17.3
Barium															
Beryllium															
Cadmium		.064	.086		.075									.086	.43
Calcium			39		18.1									39	195
Chromium		.365	424	.251										.424	2.12
Cobalt		.493	556	.23	.37									.556	2.78
Copper		1.92	2.19											2.19	10.95
Iron		14.8	18.0		17.0									18.0	90
Lead															
Magnesium		33.3	6.3	22.1	35.8									6.3	281.5
Manganese			9.11	9.26										9.26	4.86
Mercury															
Nickel															
Potassium															
Selenium															
Silver															
Sodium			17.3	122	160									160	800
Thallium															
Vanadium		.52	.84	.73	.67									.84	4.2
Zinc		6.62	8.7	9.7	8.0									6.62	3.11
Cyanide															

U¹⁶
all above
all above
ND
all above

all above

Validator: Dausley

Date: 1/1/08

C.1 Blank Contamination Worksheet

Circle the highest concentration of each contaminant.

Analyte	Date Analyzed	ICB ±CB1	CCB							PBW	PBS	EB	BB	Max. Conc.	Action Level
			1	2	3	4	5	6	7						
Aluminum	12/10									42.5				42.5	212.5
Antimony															
Arsenic															
Barium										1.171				1.171	5.85
Beryllium															
Cadmium			.11	.081	201					60				.201	1.005
Calcium			15.7	-	3085					60				60	300
Chromium		.144	822	.783	.801									.822	4.11
Cobalt		.32	.676	.908	1.075									1.075	5.375
Copper															
Iron		-	-	-	12.75					20.4				20.4	102
Lead															
Magnesium										40.3				40.3	201.5
Manganese					1.001					.842			1.001	.842	5.0
Mercury			.019							.024				.024	.12
Nickel			.781	.877	1.058					.579				1.058	5.29
Potassium															
Selenium															
Silver															
Sodium			-	.23	25.3									25.3	126.5
Thallium															
Vanadium			.50											.50	25
Zinc					1.142									1.142	5.71
Cyanide															

Validator: D. C. Ungley

Date: 1/11/11

vs
4.2
10.7
12.13

No action for Ba, Ca, Na
above action level in samples

IV. BLANKS 12/13 U¹⁰ = Arsenic = MA41J7, MA41N7, MA41W9, MA41P1

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

Analyte	Type of Blank	Date Blank Originated	Max. Conc. (units)	Blank Action Level (units)	Sample QL	Samples Affected	Action
Cadmium	CCB3	12/10	.201	1.005	5	MA41H9, MA41J9, MA41K1 MA41K7, MA41K9, MA41L5 MA41R0, MA41R2, MA41R5	U ⁷
Al	PBW	12/10	42.5	212.5	200	MA41K7, MA41K9, MA41L5 MA41R0, MA41K3	U ¹²
Cr	CCB1	12/10	.822	4.11	10	MA41K7, MA41K9, MA41M1 MA41R0, MA41R2, MA41N7 MA41R5, MA41W9, MA41P1	U ⁹
Fe	PBW	12/10	20.4	102	100	MA41N7, MA41W9, MA41P1, MA	U ⁴
Mg	PBW	12/2	40.3	201.5	5000	MA41H9, MA41J1, MA41K3	U ⁵
Mn	CCB3 (+PBW)	12/2	1.001	5.0	15	MA41P1	U ⁶
Hg	PBW	12/2	-.024	-.12	0.2	No action taken	
NP	PBW	12/13	579	2.90 (12/13)	40	MA41H9, MA41J9 MA41K1, MA41K7, MA41K9, MA41L5, MA41M1, MA41R0 MA41R2, MA41R5	U ⁷
	CCB3	12/10	1.058	5.29 (12/10)	40		
Comments:							
VN	CCB1	12/10	.50	2.5	50		

Validator: Dangley

Date: 12/11/11

DRAFT 11/08

Zinc
12/10 CCB3 1.142 5771 60
12/13 ICB 0.62 3.1 ↓

MA41K9
MA41R0,
MA41R2
MA41R5
MA41L5, MA41R0, MA41R2, MA41R5

EPA NE - Data Validation Worksheet
 INORG-V-B.1

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	
12/10	Mn	60	24.6	19	129/131					J, U, A
	lead		18	10	188/164					J, U, A
	Zinc		34.9	28.0	125/129					J, A
12/13	Mn		25.2	19	133/124					J, A
	Zinc		38.3	28.0	137/113					Final met → no ICSA B return
Comments:										

Validator:

D. Quigley

Date:

1/11/11

EPA-NE - Data Validation Worksheet
INORG-XIII-A

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

A. Laboratory Control Samples - List all analytes that are outside criteria.

SDG No.: MA4119 Case: 40784

Are more than one-half of the LCS analytes within criteria for each parameter and method? Y N

Date Prepared	Date Analyzed	Parameter/ Method	Matrix	Analyte	% Recovery (or Observed Conc.)	Method QC Acceptance Criteria	Samples Affected	Action

Comments:

Validator: D. Quigley

Date: 1/1/11

N/A

XIII. PERFORMANCE EVALUATION SAMPLES/ACCURACY CHECK

B. Performance Evaluation Results - List all analytes that are outside criteria.

SDG No.: _____ Case: _____

Indicate the source of the PES: Region 1 EPA PES Non-EPA PES

Are more than one-half of the PES analytes within criteria for each parameter and method? Y N

PE Sample Number	Ampule Number	Parameter/Method	Type of PES	Matrix	Analyte	Conc.	PES Score*	Samples Affected	Action

* For Region 1 PESs indicate the Region 1 PES Score Report Result: Action High, Action Low, Analyte Missed, Contaminant.
 For Non-EPA PESs indicate the Non-EPA PES Score: PES Analyte Missed; PES Analyte Contaminant; PES Analyte Hit (% Recovery Limits).

Comments: _____

Validator: D. Douglas

Date: 1/16/11
 DRAFT 11/08

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 *N/A*

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

Method		Calculation
ICP-AES		
Sample No.:	<i>MA41L5</i>	$685.26 \times \frac{50}{50} = 685 \text{ ug/L}$
Reported Analyte:	<i>Barium</i>	
Reported Value:	<i>685 ug/L</i>	
Non-Detected Analyte:		
Reported Quantitation Limit:		
ICP-MS		
Sample No.:		
Reported Analyte:		
Reported Value:		
Non-Detected Analyte:		
Reported Quantitation Limit:		
Mercury		
Sample No.:	<i>MA41W9</i>	$1.21 \times \frac{50}{50} = 1.21 \text{ ug/L}$
Reported Value:	<i>1.2 ug/L</i>	
Sample No.:		
Reported Quantitation Limit:		
Cyanide		
Sample No.:		
Reported Value:		
Sample No.:		
Reported Quantitation Limit:		

Validator: *[Signature]*

Date: *1/14/11*

CASE: 40784
SDG: MA41H9
LAB: DATAC
CONTRACT: EPW08066

LAB RECEIPT DATE: 1
DATA RECEIPT DATE: 12/15/2010
MAIL DATE: 12/21/2010
SUBMISSION: ORIGINAL

SAMPLE SUMMARY

NO. OF SAMPLES	SAMPLE	CONCENTRATION	MATRIX	FRACTION (S)
1	LCSW	LOW	WATER	
2	MA41H9	LOW	WATER	
3	MA41J1	LOW	WATER	
4	MA41J9	LOW	WATER	
5	MA41K1	LOW	WATER	
6	MA41K3	LOW	WATER	
7	MA41K7	LOW	WATER	
8	MA41K9	LOW	WATER	
9	MA41L5	LOW	WATER	
10	MA41M1	LOW	WATER	
11	MA41M3	LOW	WATER	
12	MA41N7	LOW	WATER	
13	MA41N9	LOW	WATER	
14	MA41P1	LOW	WATER	
15	MA41R0	LOW	WATER	
16	MA41R2	LOW	WATER	
17	MA41R2D	LOW	WATER	
18	MA41R2S	LOW	WATER	
19	MA41R5	LOW	WATER	

CASE: 40784 LAB RECEIPT DATE: 2
SDG: MA41H9 DATA RECEIPT DATE: 12/15/2010
LAB: DATA MAIL DATE: 12/21/2010
CONTRACT: EPW08066 SUBMISSION: ORIGINAL

FREQUENCY REPORT

* NO DEFECTS FOUND *

CASE: 40784 LAB RECEIPT DATE: 3
SDG: MA41H9 DATA RECEIPT DATE: 12/15/2010
LAB: DATAC MAIL DATE: 12/21/2010
CONTRACT: EPW08066 SUBMISSION: ORIGINAL

SAMPLE DETAIL

* NO DEFECTS FOUND *

CASE: 40784 LAB RECEIPT DATE: 4
SDG: MA41H9 DATA RECEIPT DATE: 12/15/2010
LAB: DATA C MAIL DATE: 12/21/2010
CONTRACT: EPW08066 SUBMISSION: ORIGINAL

SCREENER'S COMMENTS

COMMENT

NO COMMENTS WERE ASSIGNED

1335 - Connex Secured.

6013.031

Personnel: Refer to Sign In/Out Log Sheet

Weather: Overcast and cool, temp. 45-55°F,
wind 0-10mph, no precip.

0915 Nobis on-site, Power Company
Removed Nobis lock from access gate,
lock could not be found. Purchase lock
from ACE Hardware, rent bolt cutter
for day, remove link from chain
secure w/new lock.

0930 (1) crew complete synoptic WL
Round (2) crew unload equipment &
start instrument calibration.

NOTE: Vehicle (Pickup Dakota) was
swapped out for another (Pickup)
vehicle @ Enterprise, vehicle had
a flat tire.

1030 Instrument calibration &
continued WL round of ~~sampled~~²
wells to be sampled.

1200 (8) Nitrogen gas cylinders picked
up from AIRGAS Gorham, NH.
Rope (±200 ft) purchased from
Wal-Mart to get by Mon. 11/15/10
sampling. Additional rope was

cut 10F

11/15/10

80013.03/0330

1200 (cont.) requested from PNE
(7) Spools 600ft., Nobis to
pick up Mon. 11/15/10 evening to
have on-site for Tues. 11/16/10.

1400 Search town for Tees
for Turbidity setup.

1600 Heidi B. difficulty w/ setup
unable to get flow, Josh S.
assisted. Resolved issues and
we determined not to have
Heidi start low-flow @ 1630,
have her return Tues. to complete.

1530 Lost all daylight work-
ing w/ truck lights and head-
lamps. Following wells sampled
Mon. 11/15/10;

① MW-1* ③ MW-20B

② MW-3501

③ MW-3601

④ MW-3701

(* MW-1 = MS/MSD)

1930 Nobis off-site

CP 2 of 2 11/15/10

80013.03/0

Personnel: Refer to Sign In/Out Log Sheet.

Weather: Overcast in AM, clearing
cool-mild 45-55F, wind S-10

0700 Nobis on-site Stan B. (Nobil)
on-site for GW Sampling pro-
cedure audit. Begin instrument
cal. YSI, Turbidity, and PID.

0830 Instruments calibrated
decon pumps from Mon. 11/15/10
evening, lost daylight left
pump decon for Tues. 11/16/10
AM. Decon Procedures;

① Alconox + H₂O

② Potable H₂O Rinse

③ Nitric Acid

④ DI H₂O Rinse

Assemble w/ new bladder kits
after each well.

0930 AM Wells Setup @ Tues. 11/16/10;

MW-11B/D/PR - KA

MW-3401 - JW

MW-3501 - EJ

MW-36 - TS

MW-20A - HB

MW-4001 - MC

CP 1 of 3 11/16/10

80718, 03/

1130 Sample management input
Time/Date/Sampler information
into FOL

1150 Field teams continue to have
difficulty w/ white cap/unpreserved
vials, consistently have air bubbles
either bottleware issue or H₂O
surface tension.

1330 Unable to advance bladder
pump @ MW-3101, obstruct-
ion preventing 1.75" bladder
pump from being lowered. Alter-
native method utilized for low-flow
peristaltic pump.

1400 Field crew still having diffi-
culty w/white cap/unpreserved
vials.

1600 Stan B. (Nobis) off-site
completed field audit, provided
useful tips, no major issues
identified.

1630 Instrument cal. check, sample
management.

1800 Nobis off-site.

CIT 2 of 3 11/16/10

Well Completed Tues 11/16/10;

MW-11B 1205 KA DUPB

MW-06 1208 TS -

MW-3401 1150 JW -

MW-3901 1110 EJ -

MW-20A 1110 HB -

MW-4001 1150 MC DUPA

MW-05 Purged dry unable to stabilize
drawn down, recharge sample
collect on Wed 11/17/10.

MW-3101 1450 JW -

MW-07 1510 HB -

MW-15 Purged dry unable to stabilize
draw down, recharge, sample
collect on Wed 11/17/10.

~~CIT 2 of 3 11/16/10~~

CIT 3 of 3 11/16/10

80013.03/0334

Personnel. Refer to Sign In/Out Sheet
Weather: Overcast w/ heavy rain,
windy 10-20 mph, temp. cool
45-50 F.

0700 Nobis on-site start instrument
cal, well selection for sampling,
sample management.

Multi-Zone Wells:

MW-24B1 23' and 35'

MW-24B2 35' and 54'

MW-25B1 29' and 41'

MW-26B1 20' and 42'

MW-27B1 25' and 45'

(6) Additional Nitrogen cylinders picked
up from AIRGAS.

Additional field supplies and equipment
requested from PINE:

- (1) Swap-out WL Meters
- Nitrile Gloves S, M, L
- 5000 Cond. Solution
- pH 7
- DO Solution

CIT 10F

11/17/10

80013.03/

MW-15 and MW-5 No Samples
Collected, Slow Recharge, Not enough
volume to fill bottles

MW-25B1, unable to sample 41 ft bgs
interval, silty ink material clog
pump screen, multiple attempts made,
pump pulled cleaned multiple times.
29 ft bgs interval sample collected.
Situation discussed w/ Denis M.
decision made to pull pump up to
3-4 ft and try sample 38-39 ft bgs
interval.

Wells Completed Wed 11/17/10:

MW-15 dry EJ

MW-5 dry TS

MW-2 1315 TS

MW-8 dry EJ

MW-11A 1325 KA

MW-24B2 (54') 1110 MC

MW-24B2 (35') 1600 MC

MW-25B1 (29') 1325 HB

MW-27B1 (45') 1050 JW

MW-27B1 (25') 1440 JW

CIT 20F

11/17/10

80013.031

Well Completed Wed. 11/17/10:

MW-13B	1635	KA
EB-01	1210	KA
TB-01	0900	
MW-6	1208	TSR
MW-26B1(42')	1325	
PEI	0900	-

Personnel: Refer to Sign In/Out Sheet

Weather: Forecast, breaks sun, cool 42-45°F, high winds 20-25 MI light precip. Rain/Snow.

0700 Instrument calibration, sample management, shipment.

Wells Completed Thurs. 11/18/10:

MW-240B	0940	HB	MS/MSD
MW-26B101(20')	1100	EJ	
MW-13A	1050	KA	DPC
MW-24B1(35')	1040	JW	
MW-24B1(23')	1435	JW	
MW-2401	1200	MC	
MW-25B1(38')	1235	TS	
MW-8	0945	EJ	
MW-26B2(155')	1540	EJ	

CIR 30E

11/17/10

CIR 10E

11/18/10

80013.031

* NOTE: May need more tubing for deep bedrock wells. If know intervals @ start could have cut deep well tubing to start. Tubing remaining may not be long enough for deep interval.

* Arrangement made w/ Gail D. for Sat. 11/20/10 sample delivery.

Field crew staging pumps in wells to be sampled Fri. 11/19/10.

1520 Sample management label tag pack for Fri. 11/19/10 shipment. Kelly A. offsite, office supply store shipping materials

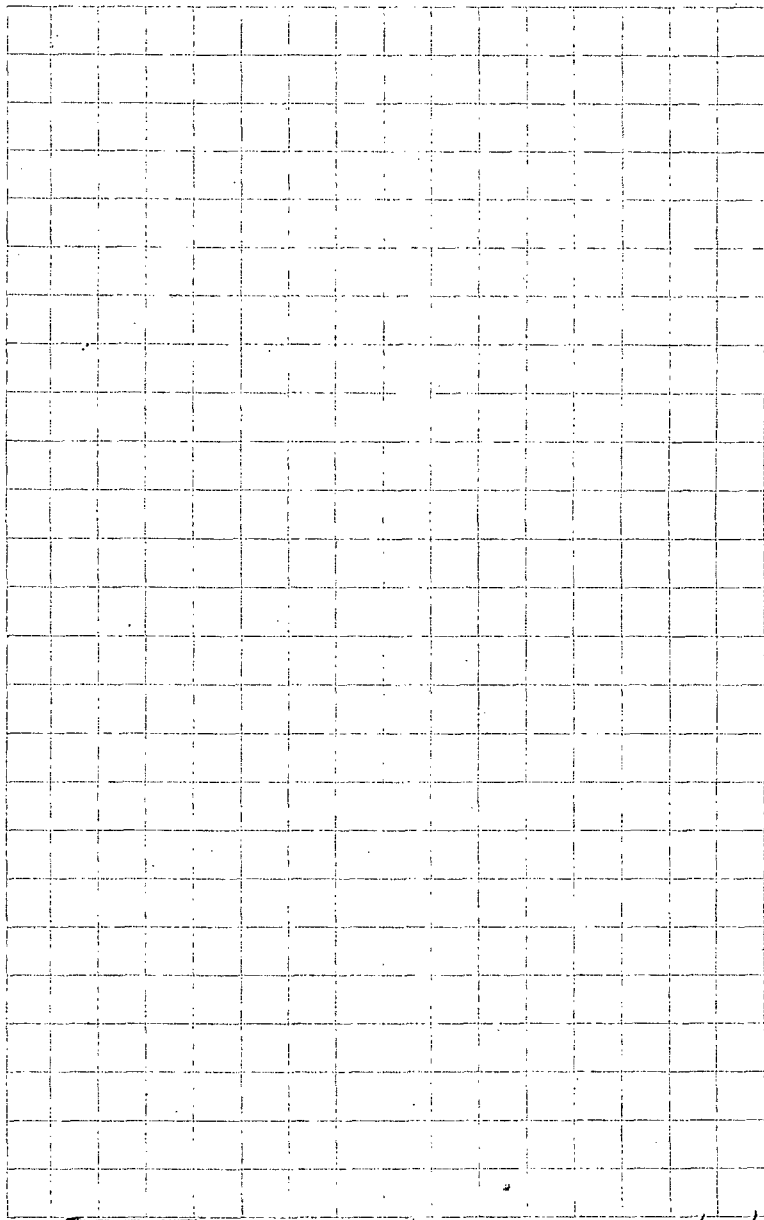
TR 20F

11/19/10

TR 10F

11/19/10

80013.03



80013.03/

Personnel: Refer to Sign In/Out Sheet
Weather: Overcast, precip mixed,
cool-cold 30-38°F.

Tasks: GW Sampling/sample
management

Wells for Mon. 11/22/10:

ID	Depth	Time	Sampler	QC
MW-28B1	120'		JW	-
MW-38B1	30'		MC	MS/MSD
MW-40B1	175'		EJ	-
MW-26B2	25'		HB	-

MW-28B1	40'			
MW-32B1	25'			
MW-40B1	155'			
MW-38B1	175'			

MW-26B2	25'			
MW-28B1	20'			
MW-34B1	30'			
MW-40B1	90'			

Fedex Pickup scheduled for shipment
on Mon. 11/22/10 and Tues 11/23/10
Pick up # for Tues is 11

ETD 100

11/22/10

80013.03

Personnel
Weather

0700 Inst. Cal., sample manage-
ment. Fedex Pickup scheduled
for Tues. 11/23/10.

1000 Surveyors on-site fill in
soil borings and newly installed
McWells. Sent Jay W. to stake
out location troubling surveyor.

1430 Fedex picked up samples.
Jay and Erik cleanup around
conex. Drum soil samples and
ESAT worm study tubes, label
drums.

80013.03

Personnel: Michelle C

Task: pump poly tank + drums

1000 Enpro pumps 2000 gal from
poly tank - Don ^{4 g.w.} Lyonsby

1045 Enpro finishes 2000 gal +
leaves site

1110 Enpro arrives at site w/ 18-wheel truck

1125 Enpro begins pumping poly tank

1220 Enpro finishes pumping - 2420g
- some ^(55 gal) left at bottom of tank pumped
due to ice.

1245 Enpro leaves site

DG/ESAT
12/15/10

Evidence Audit Photocopy Chlor-Alkali Facility
NOBIS 122

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME	ALS Laboratory Group		
CITY/STATE	Salt Lake City, UT 84123		
CASE NO.	40784	SDG NO.:	MA41H9
SDG NOS. TO FOLLOW	N/A		
NRAS No.	N/A		
CONTRACT NO.	EPW08066		
SOW 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	1	1	✓	✓
2. SDG Narrative	2	6	✓	✓
3. Sample Log-In Sheet (DC-1)	7	14	✓	✓
4. Inventory Sheet (DC-2)	15	16	✓	✓
5. Traffic Report/Chain of Custody Record(s)	17	20	✓	✓
Inorganic Analysis				
6. Data Sheet (Form I-IN)	21	36	✓	✓
7. Initial & Continuing Calibration Verification (Form IIA-IN)	37	43	✓	✓
8. CRQL Standard (Form IIB-IN)	44	47	✓	✓
9. Blanks (Form III-IN)	48	49	✓	✓
10. ICP-AES Interference Check Sample (Form IVA-IN)	50	51	✓	✓
11. ICP-MS Interference Check Sample (Form IVB-IN)	NA		✓	✓
12. Matrix Spike Sample Recovery (Form VA-IN)	52	52	✓	✓
13. Post-Digestion Spike Sample Recovery (Form VB-IN)	NA		✓	✓
14. Duplicates (Form VI-IN)	53	53	✓	✓
15. Laboratory Control Sample (Form VII-IN)	54	54	✓	✓
16. ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	55	55	✓	✓
17. Method Detection Limits (Annually) (Form IX-IN)	56	58	✓	✓
18. ICP-AES Interelement Correction Factors (Quarterly) Form XA-IN)	59	60	✓	✓
19. ICP-AES Interelement Correction Factors (Quarterly) Form XB-IN)	61	64	✓	✓
20. ICP-AES and ICP-MS Linear Ranges (Quarterly) Form XI-IN)	65	65	✓	✓
21. Preparation Log (Form XII-IN)	66	68	✓	✓

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>
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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 ¹	GW/SO	GW/SO	GW/SO	GW/SO	GW/SO	GW/SO	SO
b.	Parameter Code ²	SOM01.2 VOC, SVOC, Pest	8270-SIM PCNs	ILM05.4 Total (GW/SO) Dissolved (GW)	6850 Perchlo- rate	DLM02. 0	CBC0.10	1630 MeHg
c.	Preservation Code ³	5, 10 (MeOH for SO VOA)	5	5	5	5	5	5
d.	Analytical Services Mechanism	RAS	DAS	RAS	DAS	Non- RAS	Non-RAS	DAS
e.	No. of Sample Locations	148/50	148/23	<u>10</u> 148/50	148/50	148/50	148/50	50
	Field QC:							
f.	Field Duplicate Pairs	1/20	1/20	<u>0</u> 1/20	1/20	1/20	1/20	1/20
g.	Equipment Blanks	1/20	1/20	<u>0</u> 1/20	1/20	1/20	1/20	1/20
h.	VOA Trip Blanks	1/cooler	1/cooler					
i.	Cooler Temperature Blanks	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler	1/cooler
j.	Bottle Blanks	NA	NA	NA	NA	NA	NA	NA
k.	Other: _____							
l.	PES sent to Laboratory	1/20		<u>0</u> 1/20		1/20	1/20	
	Laboratory QC:							
m.	Reagent Blank	1/20	1/20	1/20	1/20	1/20	1/20	1/20
n.	Duplicate			1/20				1/20
o.	Matrix Spike	1/20		1/20	1/20			1/20
p.	Matrix Spike Duplicate	1/20			1/20			
q.	Other: _____		1/20 - LCS	1/20 - LCS	1/20 - LCS	1/20 - LCS	1/20 - LCS	1/20 - CRM

4. Site Information

Site Dimensions 4.6 acres
 List all potentially contaminated matrices GW, SO
 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 Code¹ GW/SO

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:

The project data quality objectives (DQOs) are to generate field and analytical data that are necessary and of sufficient quality such that:

- The nature and extent of the Site contamination is characterized sufficiently
- The mechanism of contaminant transport to the environment becomes clear
- A well-founded human health and ecological risk characterization can be completed
- A well-documented Record of Decision (ROD) may be developed.

Complete Table if applicable

COCs	Action Levels	Analytical Method-Quantitation Limits
See tables 6-1a through 6-9 in QAPP	See tables 6-1a through 6-9 in QAPP	See tables 6-1a through 6-9 in QAPP

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

Sampling Procedures (SOP name, No., Rev. #, and date) SA-003, ENV-004, GT-001 - See App. C of QAPP

List Background Sample Locations _____

Circle: **Grab** or Composite

"Hot spots" sampled: Yes No

8. Field Data (circle) **ORP** **pH** **Specific Conductance** **Dissolved O₂** **Temperature** **Turbidity**

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 12-1 from 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, Grain Size, Asbestos -Tier I, All other 90% Tier II, 10% Tier III _____

Company/Organization Performing Data Validation Nobis Engineering, Inc. Prime or Subcontractor (circle one)

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 6/4/09

Matrix Codes¹ - Refer to Attachment B, Part I

Parameter Codes² - Refer to Attachment B, Part II

Preservation Codes³

- 1. HCl to pH ≤ 2
- 2. HNO₃
- 3. NaHSO₄
- 4. H₂SO₄
- 5. Cool @ 4°C (± 2°)
- 6. NaOH
- 7. K₂Cr₂O₇
- 8. Freeze
- 9. Room Temperature (avoid excessive heat)
- 10. Other (Specify)
- N. Not preserved

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