



Engineering a Sustainable Future

Nobis Engineering, Inc. | New Hampshire | Massachusetts

July 29, 2011
Nobis File No. 80013

Superfund Records Center

SITE: Chlor-Alkali

BREAK: 3, 2

OTHER: 492711

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



SDMS DocID **492711**

RE: Contract No.: EP-S1-06-03
Task Order No. 0013-RI-CO-01BQ
Case No. 41448; Sample Delivery Group (SDG) No. A45B9
Spectrum Analytical, Inc., Warwick, RI
Chlor-Alkali Facility (Former) Superfund Site
Berlin, New Hampshire
CERCLIS No.: NHN000103313
Tier II Organic Data Validation

Volatiles: 15/Aqueous: A45A8, A45B2, A45B6, A45B9, A45C5, A45C6, A45C7, A45C8,
A45C9, A45D0, A45D1, A45E8, A45F1, A45F2, A45J5
3/Trip Blanks: A45J4, A45J6, A45J7
1/Equipment Blank: A45J3
Aqueous PE Sample: A45J2 (VLM0173)

Dear Mr. Luce:

Nobis Engineering, Inc. performed a Tier II data validation in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996 Criteria, on the organic analytical data for fifteen (15) groundwater samples, three (3) aqueous trip blanks, one (1) aqueous equipment blank, and one (1) Performance Evaluation (PE) sample collected by Nobis Engineering, Inc. at the Chlor-Alkali Facility (Former) Superfund Site in Berlin, New Hampshire. These samples and the PE sample were analyzed for volatile organic compounds (VOCs) under the Contract Laboratory Program Routine Analytical Services (CLP RAS) program using the CLP SOM01.2 Statement of Work.

The data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- * • Data Completeness
- Preservation and Technical Holding Times
- * • Gas chromatography/mass spectroscopy (GC/MS) Instrument Performance Check (Tuning)
- Initial and Continuing Calibrations
- Blanks

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- Deuterated Monitoring Compounds (DMC)/Surrogate Compounds
- * • Internal Standards
- * • Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- Field Duplicates
- NA • Sensitivity Check
- * • Performance Evaluation (PE) Samples/Accuracy Check
- NA • Target Compound Identification
- * • Compound Quantitation and Reported Quantitation Limits
- * • Tentatively Identified Compounds
- * • System Performance

* 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: Overall Evaluation of Data - summarizes site data quality objectives (DQO) and potential usability issues

Table II: Tentatively Identified Compounds - summarizes the volatile and semi-volatile compounds tentatively identified by GC/MS

Data Summary Tables: Summarize accepted, qualified, and rejected data

Overall Evaluation of Data and Potential Usability Issues

Following is a summary of the site 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.

The volatile data were qualified as a result of sample receiving temperature being outside the acceptable range, calibration not meeting criteria, surrogate recovery failures, and field duplicate precision problems. The following list summarizes the measurement error associated with analysis:

- Three samples were received by the lab at a temperature above 6 degrees C, and professional judgment is used. There is a maximum hold time of 7 days for unpreserved samples kept at 4 degrees C. These samples were unpreserved and were analyzed 6 days after sampling, thus aromatic compounds were qualified as estimated (J) for detects and (UJ) for non-detects in these samples.

- All 1,4-dioxane sample results were rejected (R) due to 1,4-dioxane and 1,4-dioxane-d₈ results not meeting the RRF > 0.0050 for the initial and continuing calibration criteria.
- Results for 5 samples were rejected (R) and several sample results were estimated (J) and (UJ) due to surrogate recoveries in several VOC samples outside QC limits.

Preservation and Technical Holding Times

Groundwater samples at this site are high in alkalinity and therefore, were not preserved with HCl. A turnaround time of 7 days was requested from the laboratory. All samples were analyzed within the 7 day window. However, three of the samples arrived at the laboratory with a cooler temperature of 8.5°C, which is out of range. All results for these samples will be estimated (J/UJ).

{PRIVATE }Sample No.	Date Sampled	Date Analyzed	No. of Days from Date Sampled to Date Analyzed	Action	
				(+)	NDs
A41B9	6/23/11	6/29/11	6	J	UJ
A45F1	6/23/11	6/29/11	6	J	UJ
A45J4 (Trip Blank)	6/27/11	6/29/11	2	J	UJ

Initial Calibration

Results for 1,4-dioxane and 1,4-dioxane-d₈ did not meet the RRF > 0.0050 criteria. All 1,4-dioxane sample results were non-detected and, therefore, qualified as Rejected (R). In addition, the %RSD for 1,1-Dichloroethene-d₂ was higher than 20%, but no qualification is made solely on DMC results.

{PRIVATE }Instrument	V2	Action	
		(+)	NDs
Analysis Date/Time	6/25/11 (1450)		
1,4-Dioxane	RRF = 0.001	J	R
1,4 Dioxane-d ₈	RRF = 0.001	J	R
1,1-Dichloroethene-d ₂	%RSD = 34.6	None	None
Samples Affected:	ALL		

Continuing Calibration

Results for 1,4-dioxane and 1,4-dioxane-d₈ did not meet the RRF > 0.005 criteria in the continuing calibration standards. The RRF results were reported as 0.001. All samples were affected but were previously qualified.

{PRIVATE }Instrument	V2	V2	V2	V2	Action	
	Analysis Date Time	6/29/11 0912	6/29/11 1919	7/1/11 1649	7/2/11 0329	(+) NDs
1,4-Dioxane	RRF=0.001	RRF=0.001	RRF=0.001	RRF=0.001	J	R
1,4 Dioxane-d ₈	RRF=0.001	RRF=0.001	RRF=0.001	RRF=0.001	J	R
Samples Affected:	All – Affected results previously qualified due to initial calibration results					

Blanks

The following table summarizes the level of blank contamination detected in the field blanks associated with these samples. The trip blank is associated with samples A45B9 and A45F1.

Compound	Type of Blank	Maximum Concentration	Action Level	CRQL	Action
Carbon disulfide	Trip Blank (A45J4)	4.7 ug/L	23.5 ug/L	5 ug/L	None – Quantity above action level or not detected in associated samples
Chloroform	Trip Blank (A45J4)	3.5 ug/L	17.5 ug/L	5 ug/L	None – Quantity above action level or not detected in associated samples

The following actions apply for blank contamination:

- Accept values > Action Level.
- Report as (U) values > CRQL and < Action Level.
- Report CRQL (U) values < CRQL and < Action Level.

Deuterated Monitoring Compounds

Three surrogates, Chloroform-d, 1,4-Dioxane-d₈, and 1,1,2,2-Tetrachloroethane-d₂ recovered outside QC limits in some samples.

The following table summarizes the surrogate recoveries that failed the QC limits:

Sample Number	Surrogate Compound	Percent Recovery	QC Limits (%)	Action
A45B6	Chloroform-d ¹	16	78-121	J/UJ
A45C5	Chloroform-d ¹	4	78-121	J/R
A45C6	Chloroform-d ¹	10	78-121	J/UJ
A45C7	Chloroform-d ¹	10	78-121	J/UJ
A45C8	Chloroform-d ¹	4	78-121	J/R
A45F1	Chloroform-d ¹	201	78-121	J/A
A45A8MSD	1,4-Dioxane-d ₈ ²	36	50-150	J/UJ
A45B2	1,4-Dioxane-d ₈ ²	37	50-150	J/UJ
A45B9	1,4-Dioxane-d ₈ ²	210	50-150	J/A
A45C7	1,4-Dioxane-d ₈ ²	34	50-150	J/UJ
A45D1	1,4-Dioxane-d ₈ ²	25	50-150	J/UJ
A45F1DL	1,4-Dioxane-d ₈ ²	31	50-150	J/UJ
A45F2	1,4-Dioxane-d ₈ ²	28	50-150	J/UJ
A45J3	1,4-Dioxane-d ₈ ²	47	50-150	J/UJ
A45J5	1,4-Dioxane-d ₈ ²	37	50-150	J/UJ
A45J6	1,4-Dioxane-d ₈ ²	46	50-150	J/UJ
A45J7	1,4-Dioxane-d ₈ ²	150	50-150	J/A
A45B6	1,1,2,2-Tetrachloroethane-d ₂ ³	0	73-125	J/R
A45C5	1,1,2,2-Tetrachloroethane-d ₂ ³	0	73-125	J/R
A45C6	1,1,2,2-Tetrachloroethane-d ₂ ³	0	73-125	J/R
A45C7	1,1,2,2-Tetrachloroethane-d ₂ ³	0	73-125	J/R
A45C8	1,1,2,2-Tetrachloroethane-d ₂ ²	0	73-125	J/R
Affected Analytes:	¹ Bromoform, 1,1-dichloroethene, Bromochloromethane, Chloroform, Dibromochloromethane ² 1,4-Dioxane ³ 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane			

It is noted that results for 1,4-Dioxane were previously rejected due to initial and continuing calibration results.

Field Duplicate Precision

Acetone was not detected in sample A45D1 but was detected in field duplicate sample A45J5 at a concentration greater than twice the quantitation limit. Results for acetone in these two samples will be estimated (J/UJ). It is noted that the MS/MSD results indicate acceptable laboratory precision.

Performance Evaluation Results

PE sample A45J2 (VLM0173) was provided by EPA, and the PE sample results were evaluated for this Sample Delivery Group. All PE results were within acceptable limits.

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

Sincerely,

NOBIS ENGINEERING, INC.



Gail DeRuzzo
Lead Chemist



Lori Cox
Staff Engineer

Tables: Table I: Overall Evaluation of Data
 Table II: TIC Summary Tables
 Data Summary Tables

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

cc: Jennie Han-Liu, Region I EPA(w/PE Scores and ORDA)

TABLE I
Overall Evaluation of Volatile Data
Chlor-Alkali Facility (Former) Superfund Site
Case 41448; SDG A45B9

VOLATILE ORGANICS					
DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
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, and a well-documented Record of Decision (ROD) may be developed.	Yes, analytical method CLP SOW SOMO2.1 and sampling procedures according to the requirements of the QAPP are appropriate for all samples.	Refer to qualifications in R/S key: J/UJ¹, R¹, R², R³, J/UJ², J/UJ³	Refer to qualifications in R/S key: None		J/UJ¹ – Estimate results for aromatic compounds due to receiving cooler temperature higher than acceptable range. R¹ – All dioxane sample results were rejected (R) due to 1,4 dioxane and 1,4 dioxane-d₈ results not meeting the RRF>0.0050 initial and continuing calibration criteria. R² – Reject the non-detected results of analytes associated with DMC 1,1,2,2-Tetrachloroethane-d₂ in samples A45B6, A45C5, A45C6, A45C7, A45C8 due to poor recovery. Results may be biased low. R³ – Reject the non-detected results of analytes associated with DMC Chloroform-d in samples A45C5 and A45C8 due to poor recovery. Results may be biased low. J/UJ² – Estimate results (J) and (UJ) of analytes associated with DMC Chloroform-d in samples A45B6, A45C6, and A45C7 due to poor recovery. Results may be biased low.

VOLATILE ORGANICS

DQO (list all DQOs)	Sampling and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability**	Potential Usability Issues
		Analytical Error	Sampling Error*		
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, and a well-documented Record of Decision (ROD) may be developed.	Yes, analytical method CLP SOW SOMO2.1 and sampling procedures according to the requirements of the QAPP are appropriate for all samples.	Refer to qualifications in R/S key: J¹, R¹, R², R³, J/UJ², J/UJ³	Refer to qualifications in R/S key: None		J/UJ ³ – Estimate results for acetone for samples A45D1 and A45J5 due to disparate field duplicate results.

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

** Sampling variability is not assessed in data validation.

TABLE II
VOLATILE TENTATIVELY IDENTIFIED COMPOUND SUMMARY
Chlor-Alkali Facility (Former) Superfund Site
Case 41448; SDG A45B9

No tentatively identified compounds found in the volatile analyses.

DATA SUMMARY TABLE
Tier II Validated Data
Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH
CASE NO.: 41448 SDG NO.: A45B9

Sample Name Sample Location Lab Sample ID Station ID Dilution Factor Sample Date Date Analyzed		A45A8 MW-13B K1128-04A MW-13B-0611-01A 1 27 Jun 11 01 Jul 11	A45B2 MW-17 K1128-13A MW-17-0611-01A 1 28 Jun 11 01 Jul 11	A45B6 MW-21 K1128-05A MW-21-0611-01A 1 27 Jun 11 01 Jul 11	A45B9 MW-23B K1128-01A MW-23B-0611-01A 1 23 Jun 11 29 Jun 11
Chemical	CRQL				
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	R	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 UJ	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5 U	5 U	5 UJ
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 UJ
1,2-Dibromo-3-chloropropane	5	5 U	5 U	R	5 U
1,2-Dibromoethane	5	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 UJ
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 UJ
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 UJ
1,4-Dioxane	100	R	R	R	R
2-Butanone	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U
Acetone	10	10 U	10 U	37	10 U
Benzene	5	5 U	5 U	5 U	5 UJ
Bromochloromethane	5	5 U	5 U	5 UJ	5 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	2.2 J	5 U
Bromomethane	5	5 U	5 U	5 U	5 U
Carbon disulfide	5	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 UJ
Chloroethane	5	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	160 J	5 U
Chloromethane	5	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 UJ	5 U
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 UJ
Isopropylbenzene	5	5 U	5 U	5 U	5 UJ
m,p-Xylene	5	5 U	5 U	5 U	5 UJ
Methyl acetate	5	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U	5 U
Methylene chloride	5	5 U	5 U	5 U	5 U
o-Xylene	5	5 U	5 U	5 U	5 UJ
Styrene	5	5 U	5 U	5 U	5 UJ
Tetrachloroethene	5	5 U	5 U	7.2	5 U
Toluene	5	5 U	5 U	5 U	5 UJ
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	15	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE

Tier II Validated Data

Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH

CASE NO.: 41448 SDG NO.: A45B9

Sample Name Sample Location Lab Sample ID Station ID Dilution Factor Sample Date Date Analyzed		A45C5 MW-25B1 K1128-06A MW-25B1-0611-02A 1 27 Jun 11 01 Jul 11	A45C6 MW-26B2 K1128-14A MW-26B2-0611-01A 1 28 Jun 11 01 Jul 11	A45C7 MW-26B2 K1128-15A MW-26B2-0611-02A 1 28 Jun 11 01 Jul 11	A45C8 MW-26B2 K1128-07A MW-26B2-0611-03A 1 27 Jun 11 01 Jul 11
Chemical	CRQL				
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	R	R	R	R
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	R	5 UJ	5 UJ	R
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5	R	R	R	R
1,2-Dibromoethane	5	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U
1,4-Dioxane	100	R	R	R	R
2-Butanone	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U
Acetone	10	73	10 U	10 U	29
Benzene	5	5 U	5 U	5 U	5 U
Bromochloromethane	5	R	5 UJ	5 UJ	R
Bromodichloromethane	5	5 U	5 U	5 U	5 U
Bromoform	5	R	5 UJ	5 UJ	R
Bromomethane	5	5 U	5 U	5 U	5 U
Carbon disulfide	5	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U
Chloroform	5	41 J	41 J	40 J	42 J
Chloromethane	5	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U	5 U
Dibromochloromethane	5	R	5 UJ	5 UJ	R
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U
Isopropylbenzene	5	5 U	5 U	5 U	5 U
m,p-Xylene	5	5 U	5 U	5 U	5 U
Methyl acetate	5	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U	5 U
Methylene chloride	5	5 U	5 U	5 U	3 J
o-Xylene	5	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U
Tetrachloroethene	5	61	15	11	13
Toluene	5	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Trichloroethene	5	46	20	16	23
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE
Tier II Validated Data
Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH
CASE NO.: 41448 SDG NO.: A45B9

Sample Name Sample Location Lab Sample ID Station ID Dilution Factor Sample Date Date Analyzed		A45C9 MW-28B1 K1128-16A MW-28B1-0611-01A 1 28 Jun 11 01 Jul 11	A45D0 MW-28B1 K1128-17A MW-28B1-0611-02A 1 28 Jun 11 01 Jul 11	A45D1 MW-28B1 K1128-08A MW-28B1-0611-03A 1 27 Jun 11 01 Jul 11	A45E8 MW-39O1 K1128-18A MW-39O1-0611-01A 1 28 Jun 11 02 Jul 11
Chemical	CRQL				
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U	5 U
1,4-Dioxane	100	R	R	R	R
2-Butanone	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U
Acetone	10	10 U	10 U	10 U	10 U
Benzene	5	5 U	5 U	5 U	5 U
Bromochloromethane	5	5 U	5 U	5 U	5 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U
Carbon disulfide	5	5 U	5 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	11	5 U
Chloromethane	5	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U
Isopropylbenzene	5	5 U	5 U	5 U	5 U
m,p-Xylene	5	5 U	5 U	5 U	5 U
Methyl acetate	5	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U	5 U
Methylene chloride	5	5 U	5 U	5 U	5 U
o-Xylene	5	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U
Tetrachloroethene	5	11	24	10	5 U
Toluene	5	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	3.5 J	3.1 J	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Trichloroethene	5	12	31	23	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	5 U	5 U

DATA SUMMARY TABLE

Tier II Validated Data

Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH

CASE NO.: 41448 SDG NO.: A45B9

Sample Name Sample Location Lab Sample ID Station ID Dilution Factor Sample Date Date Analyzed		A45F1 MW-40B1 K1128-02A MW-40B1-0611-03A 1/100 23 Jun 11 29 Jun 11	A45F2 MW-40O1 K1128-19A MW-40O1-0611-01A 1 28 Jun 11 02 Jul 11	A45J3 Equipment Blank K1128-10A EB-03-0611-03A 1 27 Jun 11 01 Jul 11	A45J4 Trip Blank K1128-03A TB-05-0611-05A 1 27 Jun 11 29 Jun 11
Chemical	CRQL				
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 UJ	5 U	5 U	5 UJ
1,2,4-Trichlorobenzene	5	5 UJ	5 U	5 U	5 UJ
1,2-Dibromo-3-chloropropane	5	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 UJ	5 U	5 U	5 UJ
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 UJ	5 U	5 U	5 UJ
1,4-Dichlorobenzene	5	5 UJ	5 U	5 U	5 UJ
1,4-Dioxane	100	R	R	R	R
2-Butanone	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U
Acetone	10	29 J	10 U	10 U	10 U
Benzene	5	5 UJ	5 U	5 U	5 UJ
Bromochloromethane	5	5 U	5 U	5 U	5 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U
Carbon disulfide	5	10000 D	5 U	5 U	4.7 J
Carbon tetrachloride	5	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 UJ	5 U	5 U	5 UJ
Chloroethane	5	5 U	5 U	5 U	5 U
Chloroform	5	1100 D	5 U	5 U	3.5 J
Chloromethane	5	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 UJ	5 U	5 U	5 UJ
Isopropylbenzene	5	5 UJ	5 U	5 U	5 UJ
m,p-Xylene	5	5 UJ	5 U	5 U	5 UJ
Methyl acetate	5	5 U	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U	5 U
Methylene chloride	5	39	5 U	5 U	5 U
o-Xylene	5	5 UJ	5 U	5 U	5 UJ
Styrene	5	5 UJ	5 U	5 U	5 UJ
Tetrachloroethene	5	5 U	5 U	5 U	5 U
Toluene	5	5 UJ	5 U	5 U	5 UJ
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	5 U	5 U

"D" result from 1:100
dilution.

DATA SUMMARY TABLE

Tier II Validated Data

Aqueous - ug/L

SITE: Chlor-Alkali Facility (Former) - Berlin, NH

CASE NO.: 41448 SDG NO.: A45B9

Sample Name Sample Location Lab Sample ID Station ID Dilution Factor Sample Date Date Analyzed		A45J5 MW-28B1 K1128-11A DUP-03-0611-03A 1 27 Jun 11 01 Jul 11	A45J6 Trip Blank K1128-12A TB-06-0611-06A 1 27 Jun 11 01 Jul 11	A45J7 Trip Blank K1128-20A TB-07-0611-07A 1 29 Jun 11 02 Jul 11
Chemical	CRQL			
1,1,1-Trichloroethane	5	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U
1,2-Dibromo-3-chloropropane	5	5 U	5 U	5 U
1,2-Dibromoethane	5	5 U	5 U	5 U
1,2-Dichlorobenzene	5	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U
1,3-Dichlorobenzene	5	5 U	5 U	5 U
1,4-Dichlorobenzene	5	5 U	5 U	5 U
1,4-Dioxane	100	R	R	R
2-Butanone	10	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U
Acetone	10	21 J	10 U	10 U
Benzene	5	5 U	5 U	5 U
Bromochloromethane	5	5 U	5 U	5 U
Bromodichloromethane	5	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U
Carbon disulfide	5	5 U	5 U	5 U
Carbon tetrachloride	5	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U
Chloroform	5	11	5 U	5 U
Chloromethane	5	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U
Cyclohexane	5	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U
Dichlorodifluoromethane	5	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U
Isopropylbenzene	5	5 U	5 U	5 U
m,p-Xylene	5	5 U	5 U	5 U
Methyl acetate	5	5 U	5 U	5 U
Methyl tert-butyl ether	5	5 U	5 U	5 U
Methylcyclohexane	5	5 U	5 U	5 U
Methylene chloride	5	5 U	5 U	5 U
o-Xylene	5	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U
Tetrachloroethene	5	9.1	5 U	5 U
Toluene	5	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	2.9 J	5 U	5 U
trans-1,3-Dichloropropene	5	5 U	5 U	5 U
Trichloroethene	5	21	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U
Vinyl chloride	5	5 U	5 U	5 U

REGION I, EPA-NE ORGANIC REGIONAL DATA ASSESSMENT (ORDA)*

CASE #: 41448

SITE NAME: Chlor-Alkali

LAB NAME: Mitkem / Spectrum Analytical

OF SAMPLES/MATRIX: _____

SDG #: A45B9

VALIDATION CONTRACTOR: Nobis

SOW #/CONTRACT #: _____

VALIDATOR'S NAME: Lori Cox

EPA-NE DV TIER LEVEL: II

DATE DP REC'D BY EPA-NE: 7/13/11

TPO/PO: **ACTION _____ FYI _____

DV COMPLETION DATE: 7/29/11

ANALYTICAL DATA QUALITY SUMMARY

	<u>VOA</u>	<u>SV</u>	<u>Pest/PCB</u>
1. Preservation and Contractual Holding Times	<u>0¹</u>		
2. GC/MS / GC/ECD Instrument Performance Check	<u>0</u>		
3. Initial Calibration	<u>0²</u>		
4. Continuing Calibration	<u>0²</u>		
5. Blanks	<u>0³</u>		
6. Surrogate Compounds	<u>0⁴</u>		
7. Internal Standards	<u>0</u>		
8. Matrix Spike/Matrix Spike Duplicate	<u>0</u>		
9. Sensitivity Check	<u>0</u>		
10. PE Samples-Accuracy Check	<u>0</u>		
11. Target Compound Identification	<u>0</u>		
12. Compound Quantitation and Reported QLs	<u>0</u>		
13. Tentatively Identified Compounds	<u>0</u>		
14. Semivolatile Cleanup/Pesticide/PCB Cleanup	<u>1</u>		
15. Data Completeness	<u>0</u>		
16. Overall Evaluation of Data	<u>0</u>		

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 major contractual problems.

ACTION ITEMS: (z items) _____

AREAS OF CONCERN: (m items) _____

COMMENTS: 0¹ - HT/preservation - no preservation/elevated temp - J/VJ - 3 samples
0² - 1,4-dioxane - out R/T - analyze in all samples
0³ - CS₂ + chloroform in TB - no quals needed
0⁴ - pmcs out J/VJ/T/R analyzed

*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: Lori A. L. Cox Date: 7/25/11

INSTRUCTIONS ON REVERSE SIDE

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name Mittum SOW/Method No. SOM01.2
Case/Project No. 41448 Sampling Date(s) _____
SDG No. A45B9 Shipping Date(s) _____
No. of Samples/Matrix _____ Date Rec'd by lab _____

Traffic Report Sample Nos. A45B9, A45F1, A45B2, A45B6, A45C5-A45C9,
A45D0, A45D1, A45E8, A45F2

Trip Blank No. A45J4, A45J6, A45J7
Equipment Blank No. A45J3
Bottle Blank No. _____
Field Duplicate Nos. _____
PES Nos. A45J2 (VLC0173)

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision 1996 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 QAPjP or amendment to QAPjP).

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 | - Field Duplicates |
| - Data Completeness (CSF Audit - Tier I) | - Sensitivity Check |
| - Preservation & Technical Holding Times | - PE Samples/Accuracy Check |
| - GC/MS & GC/ECD Instrument Performance Check | - Target Compound Identification |
| - Initial & Continuing Calibrations | - Compound Quantitation and Reported Quantitation Limits |
| - Blanks | - TICs |
| - Surrogate Compounds | - Semivolatile and Pesticide/PCB Cleanup |
| - Internal Standards | - System Performance |
| - Matrix Spike/Matrix Spike Duplicate | |

Region I Definitions and Qualifiers:

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

Validator's Name Lori Cox Company Name NOBIS Phone Number 603-513-1010

Date Validation Started 7/21/11 Date Validation Completed 7/25/11

Check if all criteria are met and no hard copy worksheet provided. Indicate NA if worksheet is not applicable to 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.

VOA/SV worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	/
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	
VOA/SV-II	GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)	✓
VOA/SV-III	INITIAL CALIBRATION	
VOA/SV-IV	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
VOA-VI	VOA SURROGATE SPIKE RECOVERIES	
SV-VI	SV SURROGATE SPIKE RECOVERIES	N/A
VOA/SV-VII	INTERNAL STANDARD PERFORMANCE	✓
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	✓
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	✓
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	✓
VOA/SV-Pest/PCB-XII	TARGET COMPOUND IDENTIFICATION	
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	
VOA/SV-XIV	TENTATIVELY IDENTIFIED COMPOUNDS	
VOA/SV-XV	SEMIVOLATILE CLEANUP	N/A
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	

Pest/PCB worksheets:

VOA/SV-Pest/PCB	COMPLETE SDG FILE (CSF) AUDIT	
VOA/SV-Pest/PCB-I	PRESERVATION AND HOLDING TIMES	
Pest/PCB-IIA	GC/ECD INSTRUMENT PERFORMANCE CHECK- RESOLUTION	
Pest/PCB-IIB	GC/ECD INSTRUMENT PERFORMANCE CHECK- RETENTION TIMES	
Pest/PCB-IIC	GC/ECD INSTRUMENT PERFORMANCE CHECK- ACCURACY CHECK OF INITIAL CALIBRATION	
Pest/PCB-IID	GC/ECD INSTRUMENT PERFORMANCE CHECK- PESTICIDE DEGRADATION	
Pest/PCB-III	INITIAL CALIBRATION	
Pest/PCB-IV	CONTINUING CALIBRATION	
VOA/SV-Pest/PCB-V-A	BLANK ANALYSIS	
VOA/SV-Pest/PCB-V-B	BLANK ANALYSIS	
Pest/PCB-VI	SURROGATE COMPOUNDS: SPIKE RECOVERIES AND RETENTION TIME SHIFT	
Pest/PCB-VII	PESTICIDE CLEANUP	
VOA/SV-Pest/PCB-VIII	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	
VOA/SV-Pest/PCB-IX	FIELD DUPLICATE PRECISION	
VOA/SV-Pest/PCB-X	SENSITIVITY CHECK	
VOA/SV-Pest/PCB-XI	ACCURACY CHECK	
Pest/PCB-XII	COMPOUND IDENTIFICATION	
VOA/SV-Pest/PCB-XIII	SAMPLE QUANTITATION	
TABLE II-WORKSHEET	OVERALL EVALUATION OF DATA	

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

Signature: Lori A. L. Cox
Date: 7/25/11

Name: LORI COX

I. PRESERVATION AND HOLDING TIMES -

Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

[illegible]

(*Extraction Code:)

- L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

J - Estimate (J) Detected Values
 UJ - Estimate (UJ) Non-Detected Values
 R - Reject (R) Non-Detected Values

Validator: Don U. J. Cox Date: 7/25/11

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

[illegible]

Validator: Lori A. L. Cox

Date: 7/25/11

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

[illegible]

Validator: Lou A. L. Cox

Date: 7/25/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-A

V. BLANK ANALYSIS

List the blank contamination below.

Concentration Level:

Sampler: _____ Company: _____

Contacted: Yes No Date:

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
	6/29/11	VOC/Water	A45J4 (Trip)	DB-624	Carbon disulfide	4.7 J
	↓	↓	↓	↓	Chloroform	3.5 J

Validator: Lori A. L. Cox

Date: 7/29/11

3. Blank Actions - List the maximum concentrations of blank compounds.

[illegible]

Comments: No detected analytes in TB originating on same day. Contaminant Qualifications apply only to samples shipped in same cooler.

Validator: Lou A. L. Cox

Date: 7/25/11

VI. VOA SURROGATE SPIKE RECOVERIES - List all surrogate compound recoveries that are outside the method QC acceptance criteria.

Method		Volatile Method QC Acceptance Critlera							
		Toluene-d₈		BFB		DCE-d₄			Other:
OLM03.2		Water 88-110	Soil 84-138	Water 86-115	Soil 59-113	Water 76-114	Soil 70-121		
OLC02.1		78-121 NA		50-156 80-120		73-125 NA			
Other:		Chloroform-d		1,4-Dioxane-d₈		1,1,2,2-Tetrachloroethane-d₂			
Sample Number/Matrix	Date/Time	%Recovery		%Recovery		%Recovery		%Recovery	Actions
A45B9				210 ✓					J/A
A45 F1		201							J/A
A45F1DL				31 ✓					J/UJ
A45J3				47 ✓					J/UJ
A45J6				46 ✓					J/UJ
A45A8MSD				38					J/UJ
A45B6		16				0			J/UJ, J/R
A45C5		4				0			J/R, J/R
A45C8		4				0			J/R, J/R
A45D1				25 ✓					J/UJ
A45J5				37 ✓					J/UJ
A45B2				37 ✓					J/UJ
A45C6		10				0			J/UJ, J/R
A45C7		10		34 ✓		0			J/UJ, J/R

A45J7

A45F2

150 ✓
28 ✓J/A
J/UJValidator: Don A. L. CoxDate: 7/25/11

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.
Use a separate worksheet for each field duplicate pair.

Sample Number A4SD1 Duplicate Sample Number A45J5 Matrix water

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
	Acetone	10 U	10	20	21	10	20		N/A	J/UJ

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision?

(Y) N

Comments: _____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: Lori A. L. Cox Date: 1/25/11

XIII. SAMPLE QUANTITATION

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 fraction. (Note: Although Section XIII, C.1.a, requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, 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, list sample numbers _____

Fraction		Calculation
VOA		$\frac{(2498164)(50)(100)(5)}{(928286)(1.296)(5)} = 10383 \mu\text{g/L} \rightarrow 10\,000 \mu\text{g/L}$ $\frac{5 \mu\text{g}}{\text{L}} \times \frac{5 \text{ ml}}{5 \text{ ml}} \times 100 = 500 \frac{\mu\text{g}}{\text{L}}$
Sample No.:	A45F1DL	
Reported Compound:	Carbon disulfide	
Reported Value:	10 000 $\mu\text{g/L}$	
Not Detected Compound:	Chloromethane	
Reported Quantitation Limit:	500 $\mu\text{g/L}$	
BNA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
Pesticide/PCB		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		

Validator: Lou A. L. Cox

Date: 7/25/01

Regional CCS Defect Report

Page 1

15:30 Tue, Jul 12, 2011

SDG A45B9 Lab MITKEM Case 41448 Contract EPW11033 Client EPA Region 1 SOW SOM01.2 Stage 3 Tracking ID 125536 Version 7.091
 DRD 07/07/2011 LRD 06/30/2011 Mailed 07/12/2011 Submission Type First Submission Screening Type Semi-Automated

Sample Summary and Lab Receipt Date

Sample/Number	VOA Trace	VOA SIM	VOA	BNA	BNA SIM	PEST	AROCLOR	Automated	Manual
A45A8			06/29/2011						
A45A8MS			06/29/2011						
A45A8MSD			06/29/2011						
A45B2			06/30/2011						
A45B6			06/29/2011						
A45B9			06/28/2011						
A45C5			06/29/2011						
A45C6			06/30/2011						
A45C7			06/30/2011						
A45C8			06/29/2011						
A45C9			06/30/2011						
A45D0			06/30/2011						
A45D1			06/29/2011						
A45E8			06/30/2011						
A45F1			06/28/2011						
A45F1DL			06/28/2011						
A45F2			06/30/2011						
A45J2			06/29/2011						
A45J3			06/29/2011						
A45J4			06/28/2011						
A45J5			06/29/2011						
A45J6			06/29/2011						
A45J7			06/30/2011						
Totals	0	0	23	0	0	0	0		

Regional CCS Defect Report

Page 2

15:30 Tue, Jul 12, 2011

SDG A45B9	Lab MITKEM	Case 41448	Contract EPW11033	Client EPA Region 1	SOW SOM01.2	Stage 3	Tracking ID 125536	Version 7.091
DRD 07/07/2011	LRD 06/30/2011	Mailed 07/12/2011	Submission Type First Submission	Screening Type Semi-Automated				

Regional CCS Defect Report

Page 3

15:30 Tue, Jul 12, 2011

SDG A45B9	Lab MITKEM	Case 41448	Contract EPW11033	Client EPA Region 1	SOW SOM01.2	Stage 3	Tracking ID 125536	Version 7.091
DRD 07/07/2011	LRD 06/30/2011	Mailed 07/12/2011	Submission Type First Submission	Screening Type Semi-Automated				

Regional Defect Detail

NONE FOUND

Regional CCS Defect Report

Page 4

15:30 Tue, Jul 12, 2011

SDG A45B9	Lab MITKEM	Case 41448	Contract EPW11033	Client EPA Region 1	SOW SOM01.2	Stage 3	Tracking ID 125536	Version 7.091
DRD 07/07/2011	LRD 06/30/2011	Mailed 07/12/2011	Submission Type First Submission	Screening Type Semi-Automated				

General Comments

NONE FOUND

PES SCORING EVALUATION REPORT

Rev: 1

EPA Sample No.: A45J2

Report Date: 07/14/2011

Page 1 of 1

Lab Name: Mitkem Laboratories

Contract: EP-W-11-033

SDG No.: A45B9

Lab File ID: V2M1865.D

Sample Wt./Vol. (g/mL): 5.0 ML

Purge Volume (mL): 5.0 mL

Length (m): NA

Dilution Factor: 1.0

Case No.: 41448

Matrix: Water

Date Received: 06/29/2011

Level: Low

GC Column: DB-624

Soil Extract. Vol. (uL): NA

Units: ug/L

Lab Code: MITKEM

SAS/Client No.: NA

Lab Sample ID: K1128-09A

Date Analyzed: 07/01/2011

% Moisture (not dec.): NA

ID (mm): 0.25

Soil Aliquot Vol. (uL): NA

Analysis Method: SOM01.2

Scoring Method: SOM01.1

Comments:

[illegible]

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

(1 of 3)
VLM0173
EPA SAMPLE NO.
A45J2

Lab Name: MITKEM LABORATORIES Contract: EP-W-11-033
Lab Code: MITKEM Case No.: 41448 Mod. Ref No.: SDG No.: A45B9
Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: K1128-09A
Sample wt/vol: 5.00 (g/mL) ML Lab File ID: V2M1865.D
Level: (TRACE/LOW/MED) LOW Date Received: 06/29/2011
% Moisture: not dec. Date Analyzed: 07/01/2011
GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)
Purge Volume: 5.0 (mL).

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) μ G/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	51	
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	72	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	37	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	25	
67-64-1	Acetone	79	
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	49	
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	70	
156-59-2	cis-1,2-Dichloroethene	24	
78-93-3	2-Butanone	45	
74-97-5	Bromochloromethane	40	
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	88	
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	15	
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	160	

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

(2 of 3)
VLM0173
EPA SAMPLE NO.
A45J2

Lab Name: MITKEM LABORATORIES Contract: EP-W-11-033
Lab Code: MITKEM Case No.: 41448 Mod. Ref No.: SDG No.: A45B9
Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: K1128-09A
Sample wt/vol: 5.00 (g/mL) ML Lab File ID: V2M1865.D
Level: (TRACE/LOW/MED) LOW Date Received: 06/29/2011
% Moisture: not dec. Date Analyzed: 07/01/2011
GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)
Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) μ G/L	Q
79-01-6	Trichloroethene	17	
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	23	
75-27-4	Bromodichloromethane	38	
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	27	
10061-02-6	trans-1,3-Dichloropropene	21	
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	22	
591-78-6	2-Hexanone	83	
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	45	
100-41-4	Ethylbenzene	25	
179601-23-1	m,p-Xylene	5.0	U
95-47-6	o-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	23	
98-82-8	Isopropylbenzene	34	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	44	
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	17	
120-82-1	1,2,4-Trichlorobenzene	33	
87-61-6	1,2,3-Trichlorobenzene	5.0	U

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

(30f3)
VLM0173
EPA SAMPLE NO.

A45J2

Lab Name: MITKEM LABORATORIES Contract: EP-W-11-033
Lab Code: MITKEM Case No.: 41448 Mod. Ref No.: SDG No.: A45B9
Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: K1128-09A
Sample wt/vol: 5.00 (g/mL) ML Lab File ID: V2M1865.D
Level: (TRACE or LOW/MED) LOW Date Received: 06/29/2011
% Moisture: not dec. Date Analyzed: 07/01/2011
GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)
CONCENTRATION UNITS: (ug/L or ug/Kg) µG/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	96-18-4	Propane, 1,2,3-trichloro-	12.144	22	NJ
	E966796 ¹	Total Alkanes	N/A		

¹EPA-designated Registry Number.

12/10/09

9:45 Arrived on-site. Enpro on-site already.

Kevin Kenney and Nate.

Site is not plowed out, has about 5" of snow on access road. Relatively sure truck will make it down though.

Drive down to tank to pump off stored water. Run a submersible pump down and power with a portable generator.

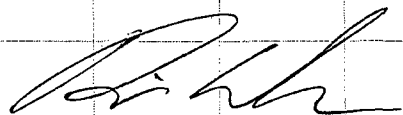
DG organizes and inventories the conex box. Enpro fills 3 full cube carboys and a partial. Estimated volume: 900 gallons. Contact Liyang to get the example manifest and sign the original.

11:30 Enpro off-site.

DG inventories and organizes/clean trailer. Pack up equip/supplies coming back to Concord.

13:00 DG leaves site.

(34)



60013.03/0334 Chlor GW Sampling
Travel Day, mob. to Site.

0600 Met @ Concord office load equipment and consumables depart for Site @ 0700.

0930 Arrived on-Site, health and Safety briefing, discuss Site specific details and schedule for week.

1000 Some individuals work on synoptic WL round for wells to be sampled, WL and PID screening, Refer to Field Sheets. Other individuals working on instrument calibration VSI's and LaMotte's.

1100 Trip to Gorham Air Gas acquire Nitrogen Cylinders (15) cylinders picked up, additional (15) scheduled for delivery on Thurs. 6/23.

* Note: No Key located for Conex box, lock removed and replaced.

6/22/11

10:3

ETZ

80013.03/0336 Chlor GW Sampling
Fedex Delivery - EnviroSys
consumable items Zip-loc
bags.

Dumpster delivered to Site
Staged adjacent to building.

Ambient air reading in Conex
box utilizing Jerome .0001/Hr.

* Note: Some sample vials
for mercury observed to be
broken full inventory towards
end week. Cooler Staged
outside Conex open.

Staffing issues, personality
conflicts during wL synoptic
Round. Liyang Chu (Nobis)
contacted regarding issues.

Ken M., Rich R., Heidi B and
Jeli G., Jay W. and Erik J
Setup on wells.

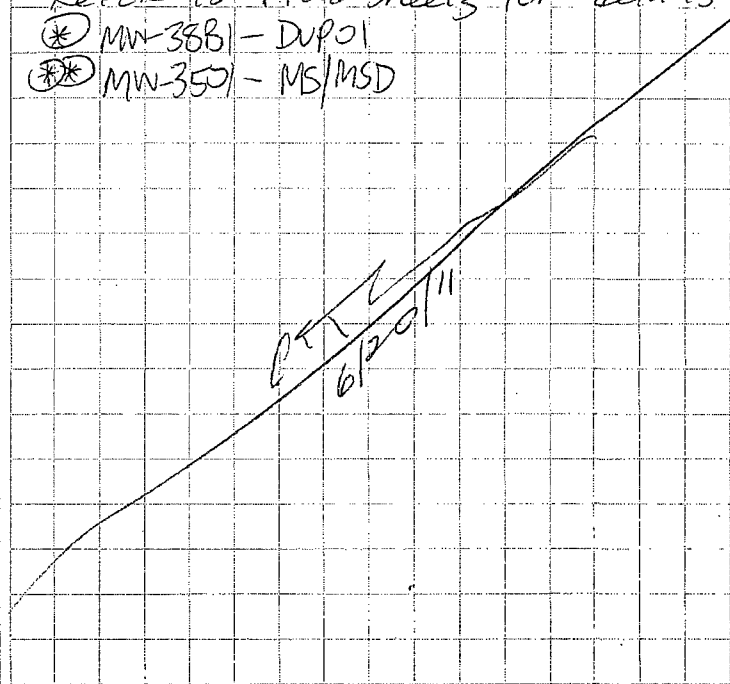
6/20/11 2013 CTD

80013.03/0336 Chlor GW Sampling
Jason F. Input data into Scribe
prep bottles for samples.

Wells Completed	Sampler	Bottles
① * MW-3881 (HMS)	KM	No PCB or D/F
② MW-3701	EJ	All
③ * MW-3501	RR	All
④ MW-3281	HB/CG	No PCB or D/F
⑤ MW-3601	JW	All

- Refer to Field Sheets for details.

* MW-3881 - DUPOL
** MW-3501 - MS/MSD



6/20/11 2013 CTD

80013.03/0336

0700 Nobis on-Site, instrument calibration, pump decon

0800 Tail gate health & Safety meeting conducted by CR

Discussed buried waterline, heat, hydration, Porta-Pot status and wildlife.

(AM) Field Team Setup following locations:

ID	Sampler	Bottles
① MW-1	AB	No PCB/D/F
② MW-38B1 (175')	KM/JG	No PCB or D/F
③ MW-34J1	JW	All
④ MW-34B1 (30')	EJ	No PCB or D/F
⑤ MW-35B1 (113')	RR	All
⑥ MW-32B1 (25')	HR	No PCB or D/F

*MW-35B1 (175') *Noted obstruction @ 119'

0900 Obstruction noted @ MW-35B1, measured depth = 119 ft below MP. Previous measured depth 2010, 206 ft below MP

Contacted DM (Nobis) regarding observation. Concluded possible well collapse, unable to sample deep interval 175'

6/21/11

LOF 3 CV

80013.03/0336

0900 (cont.) Sample from 113' and 26' intervals.

*Equipment Blank - EB-01

Sampler Ken M., bladder pump utilized for samples MW-38J1 and MW-38B1 (175'). DI H₂O

Lot No. 2110 No Exp. date noted.

(PM) Sampling Locations:

ID	Sampler	Bottles
② MW-12	AB	All
③ MW-33B1 (75')	HR	No PCB or D/F
④ MW-38B1 (30')	KM	No PCB or D/F
⑤ MW-35B1 (26')	RR	All
⑥ MW-34B1 (120')	EJ	No PCB or D/F

1330 Trip Blank - TB-01

Pierce (R) Water LC-MS Grade

Lot # MB13909410

1400 Jay W. assist Jason F. w/ sample management, as well as other samples, YSI post cal.

6/21/11

2 OF 3

CIT 2

80013.03/0336

Lori Olin (Nobis) contacted re-
garding status of Porta-Pot.
Response, expected delivery
by end of day Wed. 6/22/11.

Additional Zero D₂ solution
for Calibration requested. To
be delivered to Concord office
Orli G. to bring to Site on
Thurs. 6/23/11.

CIT 2
6/22/11

6/24/11

3 OF 3

CIT 2

80013.03/0336

0700 Nobis on-site, health and
Safety briefing, instrument
calibration.

Note: Heidi B. utilized for day
helping process samples w/
Jason F. instead of sample
collecting. After finishing
final interval @ MW-33B1(30').
Extra person for sample
process will be big help to Jason.

(AM) Sample Locations:

ID	Sampler	Bottles
① MW-33B1(30')	TB	No PCB or D/F
⑧ MW-18A	AB	All
⑨ MW-22	RR	All
⑫ MW-2401	JW	No PCB or D/F
⑭ MW-240B	ES	No PCB or D/F
⑯ MW-16A	KM	All

Jason F. and Heidi B. processing
samples for Wed. 6/22/11 shipment.
All samples collected Mon. & Tues.
Scheduled for shipping
6/22/11 1 OF 2 CIT 2

80013.03/0336

Wed. 6/22/11 Samples to be processed on Thurs. 6/23/11 in AM for shipping. Working Schedule: Samples collected daily to be processed and shipped the following day, due to quick holding and TAT.

Orli G. departed the Site @ 1200 evening days Boston to return Thurs. 6/23/11.

(PM) Sample Locations:

ID	Sampler	Bottles
23 MW-19 (MS/MSD) RR		All
24 MW-18B AB		All
25 MW-16B (DUP22) KM		All
26 MW-24B1 ES/JW		No PCB or D/F
27 MW-14R JW/ES		All

CR Trip to Concord office end of day for Cal solution and additional coolers for shipping, equipment returned, PID, YSH(1), and MP-10H.

6/22/11

2042 CR

80013.03/0336

0200 Nobis on-Site, H&S briefing and (AM) instrument cal, well assignments.

Heidi B. working w/ Jason F. Sample processing, including shipments and helping post cal instrument checks.

(AM) Sample Locations:

ID	Sampler	Bottles
28 MW-23A AB		All
29 MW-10B RR		All
30 MW-24B1 (23') JW		No PCB or D/F
31 MW-40B1 (40') ES		All
32 MW-9 KM		All

Additional cal. solutions requested from Procurement expected delivery to Concord office by Fri. 6/24/11. Pickup on Mon 6/27/11.

Rich R. depart Site @ 1500.

6/23/11

1042 CR

80013.03/0336

Transcription error, Ken M. setup @ MW-12 and ready to sample. MW-12 already sampled should have been setup @ MW-21. Ken M. pulled pump decon and assisted w/ post cal check while others were collecting samples.

Note: To late in day for Ken M. to setup on new location.

(PM) Sample Locations:

ID	Sampler	Bottles
33 MW-23B	AB	All
34 MW-7	JW	No PCB or D/F
35 MW-40B1(175)	EJ	All
MW-12 (Should have been MW-21)		

~~CT 6/23/11~~

6/23/11

2 of 2 C12

80013.03/0336

0700 Nobis on Site, H&S meeting, (AM) instrument calibration, well assignments, (1) less sampler for day, RR departed Thurs. 6/23/11

(AM) Sample Locations:

ID	Sampler	Bottles
36 MW-2	JW	No PCB or D/F
37 MW-13A	KM	No PCB or D/F
38 MW-25B1	AB	No PCB or D/F
39 MW-40B1(155)	EJ	All

Prep for afternoon departure.

Gail D. (Nobis) contacted for Sat.

6/25/11 laboratory delivery. All

Samples collected Thurs. 6/23/11

Scheduled for shipping. Fri 6/24/11

VOC and Metals Samples collected

to be included w/ shipment due

to short HT and quick TATs.

Sample coolers delivered to Kinkas

in Concord, NH for shipping.

0900-0930 Meeting time on Site for 6/27/11

6/24/11 1 of 1 C12

80013.03/0336

Travel Day from Lowell and Concord offices to Site Berlin, NH.
0930 NOBOS on-site, H&S meetings,
(AM) instrument calibration, well assignments.

Week of 6/27/11 Field Crew:

Carey Rousseau - CR
Jason Fapiano - JF
Heidi Borchers - HB
ERIK Johnson - EJ
Jay Ward - JW
Ken Marks - KM
Alesha Belleville - AB
Paul Yingling - PY

(AM) Sample Locations:

ID	Sampler	Bottles
⑨ * MW-13B (MS/MSD)	KM	No PCB or D/F
④ MW-25B1 (38')	AB	No PCB or D/F
④ MW-26B2 (155')	EJ	All
④ MW-21	PY	All
④ MW-28B1 (155') (DUP)	JW	All
(* MS/MSD NO PCB OR D/F)		

6/27/11

10#2

CR

80013.03/0336

Equipment Blank - E303
Collected by CR from ES bladder pump, DI H₂O Let# 0110 NO
Exp. Date Noted.

* Shipment ERROR:

Jason F. located (2) VOA samples that should have been included w/ Fri. 6/24/11 shipment but were not. Gail D. contacted regarding shipment error.

Gail D. to contact lab for ~~exp~~ to expedite sample preservation upon sample receipt. Samples not included Fri. 6/24/11:

MW-40B1-03A and MW-23B-01A

* VOL bottles ONLY * All other bottles associated w/ samples to be shipped Mon. 6/27/11.

CR transfer purge H₂O into frac-tank utilizing whale pump.

Post cal. check off-site.

6/27/11

20#2 CR

80013.03/0336

0700 Nobis on site, H&S meeting,
(AM) instrument calibration, well
assignments.

(AM) Sample Locations:

ID	Sampler	Bottles
④⑤ MW-17	PY	All
④⑥ MW-4001	KM	All
④⑦ MW-26B2(25')	EJ	All
④⑧ MW-28B1(20')	JW	All
④⑨ MW-3901	AB	All

Heidi B. and Jason F. sample
processing and packaging.

CR purge H₂O transfer into
Frac tank utilizing whale pump.

Collect and start packing rental
equipment for return to Concord
office.

1745 Ali B. Ken M. and Paul Y.
finished sample collection,
complete Post cal check and
6/28/11 1 of 3 CR

80013.03/0336

continue packing rental equip.
for return.

(PM) Sample Location:

ID	Sampler	Bottles
③⑩ MW-26B2(75')	EJ/JW	All

Lori Olin (Nobis) contacted to
stop equipment rental and arrange
for pickup.

Sample coolers delivered to Kinko
FedEx in Concord, NH.

Rental equipment staged in Storage
unit #130.

Heidi B. and Paul Y. completed
Mercury sample inventory noting
broken vials. Samples transferred
to trash bag lined cooler, sealed
and returned to Conex box.

Conex box secured, Gate secured.

6/28/11

2 of 3 CR

80013.03/0336

Rental vehicles returned to
Concord office and Lowell
office for Enterprise pickup.

All sample related documents
and paperwork to be transferred
to Earl D. once return to
office.

~~6/8/11~~
~~6/8/11~~

6/8/11

30#3 CTR

LABORATORY NAME <u>Mitkem Laboratories</u>	<i>Chlor-Alkali</i>
CITY/STATE <u>Warwick, RI</u>	<i>NOBIS</i>
CASE NO. <u>41448</u> SDG NO. <u>A45B9</u>	
SDG NOS. TO FOLLOW _____	
MOD. REF. NO. _____	
CONTRACT NO. <u>EP-W-11-033</u>	
SOW NO. <u>SOM01.2</u>	

All documents delivered in the Complete SDG File (CSF) must be original documents where possible.

	PAGE NOS		CHECK	
	FROM	TO	LAB	USEPA
1. <u>Inventory Sheet</u> (Form DC-2) (Do not number)	<u>1</u>	<u>6</u>	☒	☒
2. <u>SDG Case Narrative</u>	<u>7</u>	<u>13</u>	☒	☒
3. <u>SDG Cover Sheet/Traffic Report</u>			☒	☒
4. <u>Trace Volatiles Data</u>				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1 and VOA-2)	<u>N/A</u>	<u>N/A</u>	<u>T</u>	<u>N/A</u>
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA) (if requested by USEPA Region)				
Method Blank Summary (Form IV VOA)				
GC/MS Instrument Performance Check (Form V VOA)				
Internal Standard Area and RT Summary (Form VIII VOA)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)				
Tentatively Identified Compounds (Form I VOA-TIC)				
Reconstructed total ion chromatograms (RIC) for each sample				
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified				
Quantitation reports				
Mass Spectra of all reported TICs with three best library matches				
c. Standards Data (All Instruments)				
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)				
RICs and Quantitation Reports for all Standards				
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)				
RICs and Quantitation Reports for all Standards				
d. Raw/Quality Control (QC) Data				
BFB	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Blank Data				

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. <u>41448</u>	SDG NO. <u>A45B9</u>	SDG NOS. TO FOLLOW _____
		MOD. REF. NO. _____

	PAGE NOS		CHECK	
	FROM	TO	LAB	USEPA
Matrix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	<u>N/A</u>	<u>N/A</u>	<u>—</u>	<u>—</u>
e. Trace SIM Data (Place at the end of the Trace Volatiles Section)	<u>N/A</u>	<u>N/A</u>	<u>—</u>	<u>—</u>
[Form I VOA-SIM; Form II VOA-SIM1 and VOA-SIM2; Form IV-VOA-SIM; Form VI VOA-SIM; Form VII VOA-SIM; Form VIII VOA-SIM; and all raw data for QC, Samples, and Standards.]				
5. Low/Med Volatiles Data				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II VOA-1, VOA-2, VOA-3, VOA-4)	<u>14</u>	<u>15</u>	<u>✓</u>	<u>✓</u>
Matrix Spike/Matrix Spike Duplicate Recovery (Form III VOA-1 and VOA-2) (if requested by USEPA Region)	<u>16</u>	<u>16</u>	<u>✓</u>	<u>✓</u>
Method Blank Summary (Form IV VOA)	<u>17</u>	<u>18</u>	<u>✓</u>	<u>✓</u>
GC/MS Instrument Performance Check (Form V VOA)	<u>19</u>	<u>22</u>	<u>✓</u>	<u>✓</u>
Internal Standard Area and RT Summary (Form VIII VOA)	<u>23</u>	<u>25</u>	<u>✓</u>	<u>✓</u>
b. Sample Data	<u>26</u>	<u>234</u>		
TCL Results - Organics Analysis Data Sheet (Form I VOA-1 and VOA-2)			<u>✓</u>	<u>✓</u>
Tentatively Identified Compounds (Form I VOA-TIC)			<u>✓</u>	<u>✓</u>
Reconstructed total ion chromatograms (RIC) for each sample			<u>✓</u>	<u>✓</u>
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds identified			<u>✓</u>	<u>✓</u>
Quantitation reports			<u>✓</u>	<u>✓</u>
Mass Spectra of all reported TICs with three best library matches			<u>✓</u>	<u>✓</u>
c. Standards Data (All Instruments)	<u>235</u>	<u>276</u> <u>277</u> <u>7/27/04</u>		
Initial Calibration Data (Form VI VOA-1, VOA-2, VOA-3)			<u>✓</u>	<u>✓</u>
RICs and Quantitation Reports for all Standards			<u>✓</u>	<u>✓</u>
Continuing Calibration Data (Form VII VOA-1, VOA-2, VOA-3)			<u>✓</u>	<u>✓</u>
RICs and Quantitation Reports for all Standards			<u>✓</u>	<u>✓</u>
d. Raw/Quality Control (QC) Data				
BFB	<u>277</u>	<u>289</u>	<u>✓</u>	<u>✓</u>
Blank Data	<u>290</u>	<u>307</u>	<u>✓</u>	<u>✓</u>

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 41448 SDG NO. A45B9 SDG NOS. TO FOLLOW _____
MOD. REF. NO. _____

	PAGE NOS		CHECK	
	FROM	TO	LAB	USEPA
Martix Spike/Matrix Spike Duplicate Data (if requested by USEPA Region)	<u>308</u>	<u>317</u>	<u>✓</u>	<u>✓</u>
6. Semivolatiles Data				
a. QC Summary				
Deuterated Monitoring Compound Recovery (Form II SV-1, SV-2, SV-3, SV-4)	<u>N/A</u>	<u>N/A</u>	<u>-</u>	<u>N/A</u>
Matrix Spike/Matrix Spike Duplicate Recovery Summary (Form III SV-1 and SV-2) (if requested by USEPA Region)				
Method Blank Summary (Form IV SV)				
GC/MS Instrument Performance Check (Form V SV)				
Internal Standard Area and RT Summary (Form VIII SV-1 and SV-2)				
b. Sample Data				
TCL Results - Organics Analysis Data Sheet (Form I SV-1 and SV-2)				
Tentatively Identified Compounds (Form I SV-TIC)				
Reconstructed total ion chromatograms (RICs) for each sample				
For each sample:				
Raw Spectra and background-subtracted mass spectra of target compounds				
Quantitation reports				
Mass Spectra of TICs with three best library matches				
GPC chromatograms (if GPC is required)				
c. Standards Data (All Instruments)				
Initial Calibration Data (Form VI SV-1, SV-2, SV-3)				
RICs and Quantitation Reports for all Standards				
Continuing Calibration Data (Form VII SV-1, SV-2, SV-3)				
RICs and Quantitation Reports for all Standards				
d. Raw QC Data				
DFTPP				
Blank Data				
MS/MSD Data (if requested by USEPA Region)	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
e. Raw GPC Data	<u>N/A</u>	<u>N/A</u>	<u>-</u>	<u>N/A</u>

CASE NO. 41448 SDG NO. A45B9 SDG NOS. TO FOLLOW _____
MOD. REF. NO. _____

SOM01.2 (4/2007)

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 41448 SDG NO. A45B9 SDG NOS. TO FOLLOW _____
MOD. REF. NO. _____

	PAGE NOS		CHECK	
	FROM	TO	LAB	USEPA
Calibration Verification Summary (Form VII PEST-4)			<u>1</u>	<u>N/A</u>
Analytical Sequence (Form VIII PEST)				
Florisil Cartridge Check (Form IX PEST-1)				
Pesticide GPC Calibration (Form IX PEST-2)				
Identification Summary for Single Component Analytes (Form X PEST-1)				
Identification Summary for Toxaphene (Form X PEST-2)				
Chromatograms and data system printouts				
A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data	<u>N/A</u>	<u>N/A</u>		
Matrix Spike/Matrix Spike Duplicate Data				
Laboratory Control Sample Data				
e. Raw GPC Data				
f. Raw Florisil Data	<u>N/A</u>	<u>N/A</u>		
8. <u>Aroclor Data</u>				
a. QC Summary				
Surrogate Recovery Summary (Form II ARO-1 and ARO-2)	<u>N/A</u>	<u>N/A</u>		
Matrix Spike/Matrix Spike Duplicate Summary (Form III ARO-1 and ARO-2)				
Laboratory Control Sample Recovery (Form III ARO-3 and ARO-4)				
Method Blank Summary (Form IV ARO)	<u>1</u>	<u>1</u>		
b. Sample Data	<u>N/A</u>	<u>N/A</u>		
TCL Results - Organics Analysis Data Sheet (Form I ARO)				
Chromatograms (Primary Column)				
Chromatograms from second GC column confirmation				
GC Integration report or data system printout				
Manual work sheets				
For Aroclors by GC/MS				
Copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			<u>1</u>	<u>1</u>

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 41448 SDG NO. A45B9 SDG NOS. TO FOLLOW _____

MOD. REF. NO. _____

	<u>PAGE NOS</u>		<u>CHECK</u>	
	<u>FROM</u>	<u>TO</u>	<u>LAB</u>	<u>USEPA</u>
c. Standards Data	<u>N/A</u>	<u>N/A</u>		
Aroclors Initial Calibration (Form VI ARO-1, ARO-2, and ARO-3)			—	<u>N/A</u>
Calibration Verification Summary (Form VII ARO-1)				
Analytical Sequence (Form VIII ARO)				
Identification Summary for Multicomponent Analytes (Form X ARO)				
Chromatograms and data system printouts				
A printout of Retention Times and corresponding peak areas or peak heights				
d. Raw QC Data				
Blank Data	<u>N/A</u>	<u>N/A</u>		
Matrix Spike/Matrix Spike Duplicate Data	<u>↓</u>	<u>↓</u>		
Laboratory Control Sample (LCS) Data				
e. Raw GPC Data (if performed)	<u>N/A</u>	<u>N/A</u>	—	<u>↓</u>
9. <u>Miscellaneous Data</u>				
Original preparation and analysis forms or copies of preparation and analysis logbook pages	<u>318</u>	<u>320</u>	✓	✓
Internal sample and sample extract transfer chain-of-custody records	<u>321</u>	<u>324</u>	✓	✓
Screening records	<u>N/A</u>	<u>N/A</u>	—	—
All instrument output, including strip charts from screening activities (describe or list)				
Primary, Intermediate and Working Standard Logbook Pages	<u>325</u>	<u>326</u>	✓	✓
	<u>N/A</u>	<u>N/A</u>	—	—
10. <u>EPA Shipping/Receiving Documents</u>				
Airbills (No. of shipments <u>3</u>)	<u>327</u>	<u>329</u>	✓	✓
Chain of Custody Records	<u>330</u>	<u>336</u>	✓	✓
Sample Tags (in a plastic bag, if present)			✓	✓
Sample Log-in Sheet (Lab & DC-1)	<u>337</u>	<u>2341</u> <u>to file</u>	✓	✓
Miscellaneous Shipping/Receiving Records (describe or list)				
PE Instructions	<u>342</u>	<u>344</u>	✓	✓
	<u>N/A</u>	<u>N/A</u>	—	—

ORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET
FORM DC-2 (CON'T)

CASE NO. 41448 SDG NO. A45B9 SDG NOS. TO FOLLOW _____
MOD. REF. NO. _____

	PAGE NOS		CHECK	
	FROM	TO	LAB	USEPA
11. <u>Internal Lab Sample Transfer Records and Tracking Sheets</u> (describe or list).				
_____	<u>N/A</u>	<u>N/A</u>	<u>—</u>	<u>—</u>
_____	<u>N/A</u>	<u>N/A</u>	<u>—</u>	<u>—</u>

12. Other Records (describe or list)

Telephone Communication Log	<u>N/A</u>	<u>N/A</u>	<u>—</u>	<u>—</u>
E-mail(s)	<u>345</u>	<u>355</u>	<u>✓</u>	<u>✓</u>
_____	<u>N/A</u>	<u>N/A</u>	<u>—</u>	<u>—</u>

13. Comments

Completed by:
(CLP Lab)

Jennifer Emerson
(Signature)

Jennifer Emerson / Data Entry Specialist
(Printed Name/Title)

7/12/11
(Date)

Verified by:
(CLP Lab)

Edward Lankford
(Signature)

Edward Lankford / Deputy Director
(Printed Name/Title)

7/6/11
(Date)

Audited by:
(USEPA)

Samantha Hendrick
(Signature)

Samantha Hendrick / Field Technician
(Printed Name/Title)

7/13/11
(Date)

EPA-NE - DQO SUMMARY FORM

Page 1 of 3

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. 0103313/NA _____ (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 <u>Draft Quality Assurance Project Plan</u> <u>Chlor-Alkali Facility (Former), Berlin, New Hampshire</u>	
Approved by: <u>Darryl Luce</u>	Date of Approval: <u>TBD</u>
Title of Approving Official: <u>Task Order Project Officer</u>	Organization*: <u>EPA</u>
*If other than EPA, record date approval authority was delegated: _____	
EPA Oversight Project (circle one) <u>Y</u> <u>N</u>	
Confirmatory Analysis for Field Screening <u>Y</u> <u>N</u>	
Are comparability criteria documented? <u>Y</u> <u>N</u>	
Type of EPA Oversight (circle one) PRP or FF Other: <u>FF</u> If EPA Oversight or Confirmatory: % splits _____	

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 Perchlorate	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	148/50	148/50	148/50	148/50	50	
f.	Field QC:								
	Field Duplicate Pairs	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	
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		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 | 7. K ₂ Cr ₂ O ₇ |
| 2. HNO ₃ | 8. Freeze |
| 3. NaHSO ₄ | 9. Room Temperature (avoid excessive heat) |
| 4. H ₂ SO ₄ | 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