M67001.AR.006887
MCB CAMP LEJUENE
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VALIDATED DATA PACKAGE, A501311, MCB CAMP LEJUENE NC
4/2/2015
ENVIRONMENTAL DATA SERVICES

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
MCB CAMP LEJEUNE, NORTH CAROLINA

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: A501311
Laboratory: Environmental Conservation Laboratories, Inc., Orlando, Florida
Site: MCB Camp Lejeune, CTO-WE4A, AOPC 9
Date: April 2, 2015

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	BB09-EB-030315	A501311-01	Water
2	BB09-GW09IW-15A	A501311-02	Water
2MS	BB09-GW09IW-15AMS	A501311-02MS	Water
2MSD	BB09-GW09IW-15AMSD	A501311-02MSD	Water
3	BB09-GW14IWD-15A	A501311-03	Water
4	BB09-GW13IW-15A	A501311-04	Water
5	BB09-GW14IW-15A	A501311-05	Water
6	BB09-GW06IW-15A	A501311-06	Water
7	BB09-TB-030315	A501311-07	Water

A full data validation was performed on the analytical data for five water samples, one aqueous equipment blank sample, and one aqueous trip blank sample collected on March 2-3, 2015 by CH2M HILL at MCB Camp Lejeune in North Carolina. The samples were analyzed under the Environmental Protection Agency (USEPA) "Test Methods for the Evaluation of Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions".

Specific method references are as follows:

Analysis	*Method References*
VOCs	USEPA SW-846 Method 8260B

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

Organics

- Holding times and sample preservation
- Gas Chromatography/Mass Spectroscopy (GC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample (LCS) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Tentatively Identified Compounds (TICs)
- Field Duplicate sample precision

Overall Usability Issues:

There were no rejections of data. Overall the data is acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

Volatile Organic Compounds (VOC)

Holding Times

- All samples were analyzed within 14 days for preserved water samples.

GC/MS Tuning

- All criteria were met.

Initial Calibration

- All %RSD and/or correlation coefficients and mean RRF criteria were met.

Continuing Calibration

- All %D and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field Blank

- Field QC results are summarized below.

Blank ID	Compound	Conc. ug/L	Qualifier	Affected Samples
BB09-EB-030315	None - ND	-	-	-
BB09-TB-030315	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values except the following.

Sample ID	Surrogate	%R	Qualifier
1	Toluene-d8	87%	J/UJ
3	Toluene-d8	88%	J/UJ
4	Toluene-d8	88%	J/UJ
5	Toluene-d8	88%	J/UJ
6	Toluene-d8	88%	J/UJ

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD sample exhibited acceptable %R and RPD values.

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Tentatively Identified Compounds (TICs)

- TICs were not reported.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

VOCs				
Compound	BB09-GW14IW-15A ug/L	BB09-GW14IWD-15A ug/L	RPD	Qualifier
MTBE	50	48	4%	None

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver Dated: 4/2/15

Nancy Weaver
Senior Chemist

Data Qualifiers

U = The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

UJ = The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).

J+ = The result is an estimated quantity, but the result may be biased high.

J- = The result is an estimated quantity, but the result may be biased low.

R = The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

ORGANIC ANALYSIS DATA SHEET

EPA 8260B

BB09-EB-030315

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Water
Laboratory ID: A501311-01
File ID: 2CB006.D
Sampled: 03/03/15 14:00
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 12:31
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ	
1634-04-4	Methyl-tert-Butyl Ether	1	<1.0 UJ	~~U~~	0.60	1.0	2.0	SSL

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	47	93	80 - 119	
Toluene-d8	50.0	43	87	89 - 112	*
4-Bromofluorobenzene	50.0	48	95	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	411682	10.97	360813	11	
1,4-Difluorobenzene	707847	11.54	613683	11.57	
Chlorobenzene-d5	601918	14.22	591959	14.25	
1,4-Dichlorobenzene-d4	255032	16.49	257796	16.52	

* Values outside of QC limits

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ORGANIC ANALYSIS DATA SHEET

EPA 8260B

BB09-GW09IW-15A

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Water
Laboratory ID: A501311-02
File ID: 2CB007.D
Sampled: 03/02/15 15:10
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 13:00
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
1634-04-4	Methyl-tert-Butyl Ether	1	<1.0	U	0.60	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	47	94	80 - 119	
Toluene-d8	50.0	44	89	89 - 112	
4-Bromofluorobenzene	50.0	47	93	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	407572	10.96	360813	11	
1,4-Difluorobenzene	691488	11.54	613683	11.57	
Chlorobenzene-d5	605120	14.22	591959	14.25	
1,4-Dichlorobenzene-d4	256640	16.48	257796	16.52	

* Values outside of QC limits

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ORGANIC ANALYSIS DATA SHEET

EPA 8260B

BB09-GW14IWD-15A

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Water
Laboratory ID: A501311-03
File ID: 2CB008.D
Sampled: 03/03/15 10:50
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 13:29
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
1634-04-4	Methyl-tert-Butyl Ether	1	48 J		0.60	1.0	2.0

SSL

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	47	94	80 - 119	
Toluene-d8	50.0	44	88	89 - 112	*
4-Bromofluorobenzene	50.0	46	92	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	411697	10.97	360813	11	
1,4-Difluorobenzene	691590	11.54	613683	11.57	
Chlorobenzene-d5	603152	14.22	591959	14.25	
1,4-Dichlorobenzene-d4	257673	16.48	257796	16.52	

* Values outside of QC limits

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BB09-GW13IW-15A

ORGANIC ANALYSIS DATA SHEET

EPA 8260B

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Water
Laboratory ID: A501311-04
File ID: 2CB009.D
Sampled: 03/02/15 16:55
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 13:58
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
1634-04-4	Methyl-tert-Butyl Ether	1	<1.0 UJ	~~U~~	0.60	1.0	2.0

SSL

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	48	95	80 - 119	
Toluene-d8	50.0	44	88	89 - 112	*
4-Bromofluorobenzene	50.0	48	95	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	405313	10.97	360813	11	
1,4-Difluorobenzene	686679	11.54	613683	11.57	
Chlorobenzene-d5	587194	14.22	591959	14.25	
1,4-Dichlorobenzene-d4	254189	16.49	257796	16.52	

* Values outside of QC limits

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ORGANIC ANALYSIS DATA SHEET

EPA 8260B

BB09-GW14IW-15A

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Water
Laboratory ID: A501311-05
File ID: 2CB010.D
Sampled: 03/03/15 10:45
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 14:27
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
1634-04-4	Methyl-tert-Butyl Ether	1	50 J		0.60	1.0	2.0

SSL

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	47	95	80 - 119	
Toluene-d8	50.0	44	88	89 - 112	*
4-Bromofluorobenzene	50.0	48	96	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	402204	10.97	360813	11	
1,4-Difluorobenzene	687852	11.54	613683	11.57	
Chlorobenzene-d5	585604	14.22	591959	14.25	
1,4-Dichlorobenzene-d4	250068	16.49	257796	16.52	

* Values outside of QC limits

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BB09-GW06IW-15A

ORGANIC ANALYSIS DATA SHEET

EPA 8260B

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Water
Laboratory ID: A501311-06
File ID: 2CB011.D
Sampled: 03/03/15 10:10
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 14:57
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
1634-04-4	Methyl-tert-Butyl Ether	1	<1.0 UJ	U	0.60	1.0	2.0

SSL

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	48	97	80 - 119	
Toluene-d8	50.0	44	88	89 - 112	*
4-Bromofluorobenzene	50.0	48	95	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	399400	10.97	360813	11	
1,4-Difluorobenzene	692605	11.54	613683	11.57	
Chlorobenzene-d5	592168	14.23	591959	14.25	
1,4-Dichlorobenzene-d4	249489	16.49	257796	16.52	

* Values outside of QC limits

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ORGANIC ANALYSIS DATA SHEET

EPA 8260B

BB09-TB-030315

Laboratory: ENCO Orlando
SDG: A501311-CTOWE4A
Client: CH2M Hill, Inc. (CH031)
Project: CTO-WE4A MCB Camp Lejeune, AOPC 9

Matrix: Ground Water
Laboratory ID: A501311-07
File ID: 2CB005.D
Sampled: 03/03/15 00:00
Prepared: 03/07/15 00:00
Analyzed: 03/07/15 12:01
Solids:
Preparation: EPA 5030B_MS
Initial/Final: 5 mL / 5 mL
Batch: 5C07002
Sequence: AA32863
Calibration: 1502029
Instrument: OVGCMS2

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	LOD	LOQ
1634-04-4	Methyl-tert-Butyl Ether	1	<1.0	U	0.60	1.0	2.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Dibromofluoromethane	50.0	48	95	80 - 119	
Toluene-d8	50.0	45	89	89 - 112	
4-Bromofluorobenzene	50.0	46	92	85 - 114	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	416738	10.97	360813	11	
1,4-Difluorobenzene	701576	11.54	613683	11.57	
Chlorobenzene-d5	609097	14.22	591959	14.25	
1,4-Dichlorobenzene-d4	261250	16.49	257796	16.52	

* Values outside of QC limits

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