M67001.AR.006988
MCB CAMP LEJEUNE
5090.3a

VALIDATED DATA PACKAGE, 140-2756-1, MCB CAMP LEJEUNE NC
5/20/2015
ENVIRONMENTAL DATA SERVICES

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
MCB CAMP LEJEUNE, NORTH CAROLINA

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: 140-2756-1
Laboratory: Test America, Knoxville, Tennessee
Site: MCB Camp Lejeune, LTM FY2015 Q2, Site 89, CTO-WE86
Date: May 20, 2015

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	IR89-SG03-15A	140-2756-1	Air
2	IR89-SG03D-15A	140-2756-2	Air
3	IR89-SG04-15A	140-2756-3	Air

A full data validation was performed on the analytical data for three air samples collected on February 12, 2015 by CH2M HILL at the MCB Camp Lejeune in North Carolina. The samples were analyzed under "*Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition January 1999, EPA/625/R-96/010B*", Compendium Method TO-15, "*Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS)*".

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 in conjunction with the USEPA Region II Standard Operating Procedure (SOP) for Validating Volatile Air Samples as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008;
- The USEPA Region II Data Review Standard Operating Procedure (SOP) Number HW-31, Revision 4, October 2006: Validating Air Samples - Volatile Organic Analysis of Ambient Air in Canister;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

Organics

- Holding Times and sample preservation
- Laboratory Control Sample (LCS) recoveries
- Matrix Spike/Matrix Spike Duplicate recoveries
- Surrogate Spike Recoveries
- GC/MS Tuning
- Canister Certification Blanks

- Canister Certification Pressures Differences
- Method Blank contamination
- Field Blank contamination
- Initial Calibration
- Continuing Calibration
- Compound Quantitation
- Internal Standard (IS) Area Performance
- Field Duplicate Sample Precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Overall Evaluation of Data and Potential 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 30 days for air samples.

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries.

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

- A MS/MSD sample was not collected.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

GC/MS Tuning

- All criteria were met.

Canister Certification Blanks

- The batch blank checks were non-detect or < RL.

Canister Certification Pressures Differences

- All criteria were met.

Method Blank

- The method blanks were free of contamination.

Field and Trip Blanks

- Field QC samples were not collected.

Initial Calibration

- The initial calibration exhibited acceptable %RSD values and/or correlation coefficients and mean RRF values.

Continuing Calibration

- The continuing calibrations exhibited acceptable %D and RRF values.

Compound Quantitation

- All criteria were met.

Internal Standard (IS) Area Performance

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

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Compound	IR89-SG03-15A ppbv	IR89-SG03D-15A ppbv	RPD	Qualifier
Tetrachloroethene	1.4	1.3	7%	None
Trichloroethene	13	12	8%	None

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

Signed: Nancy Weaver Dated: 5/25/15

Nancy Weaver
Senior Chemist

Data Qualifiers

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.

U = The analyte was analyzed for, but was not detected above the sample reporting limit.

R = The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

Report Date: 23-Feb-2015 09:21:39 Chrom Revision: 2.2 15-Jan-2015 13:05:58

TestAmerica Knoxville
Target Compound Quantitation Report

Data File:	\\KNXCHROM\ChromData\MG\20150219-1383.b\GB20P105.D				
Lims ID:	140-2756-A-1 EDS #1	Lab Sample ID:	140-2756-1		
Client ID:	IR89-SG03-15A				
Sample Type:	Client				
Inject. Date:	20-Feb-2015 17:47:30	ALS Bottle#:	5	Worklist Smp#:	9
Purge Vol:	500.000 mL	Dil. Factor:	1.0000		
Sample Info:	140-2756-a-1				
Misc. Info.:	G022015,TO15,140-0001383-009				
Operator ID:	7126	Instrument ID:	MG		
Method:	\\KNXCHROM\ChromData\MG\20150219-1383.b\MG_TO15.m				
Limit Group:	MSA TO14A_15 DOD ICAL				
Last Update:	23-Feb-2015 09:21:29	Calib Date:	11-Feb-2015 20:25:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\KNXCHROM\ChromData\MG\20150211-1363.b\GB02IC09.D				
Column 1 :	RTX-5 (0.32 mm)		Det: MS SCAN		
Process Host:	XAWRK036				

First Level Reviewer: tajh Date: 23-Feb-2015 09:09:50

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	9.080	9.096	-0.016	77	315970	4.00	
* 2 1,4-Difluorobenzene	114	11.237	11.242	-0.005	95	1501496	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.918	15.917	0.001	87	1463973	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	17.551	17.551	0.000	92	1054576	4.02	
59 Trichloroethene	130	11.938	11.943	-0.005	97	180953	1.29	
76 Tetrachloroethene	129	15.098	15.098	0.000	91	20060	0.1400	

Reagents:

MAissur1_00002 Amount Added: 40.00 Units: mL Run Reagent

ppb v/v

PCE Conc. $\frac{20060 \times 4.00}{1463973 \times 0.391b} = \frac{0.140 \times 500}{50} = 1.4$

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FORM I

AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-2756-1

SDG No.:

Client Sample ID: IR89-SG03-15A | Lab Sample ID: 140-2756-1

Matrix: Air | Lab File ID: GB20P105.D

Analysis Method: TO-15 | Date Collected: 02/12/2015 09:20

Sample wt/vol: 50(mL) | Date Analyzed: 02/20/2015 17:47

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 2417 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	LOQ	DL
79-34-5	1,1,2,2-Tetrachloroethane	167.85	0.40	U	0.80	0.24
79-00-5	1,1,2-Trichloroethane	133.41	0.40	U	0.80	0.21
156-59-2	cis-1,2-Dichloroethene	96.94	0.40	U	0.80	0.24
127-18-4	Tetrachloroethene	165.83	1.4		0.80	0.16
156-60-5	trans-1,2-Dichloroethene	96.94	0.20	U	0.80	0.20
79-01-6	Trichloroethene	131.39	13		0.40	0.14
75-01-4	Vinyl chloride	62.50	0.40	U	0.80	0.29

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		60-140

NW 5/20/15

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FORM I

AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-2756-1

SDG No.:

Client Sample ID: IR89-SG03-15A Lab Sample ID: 140-2756-1

Matrix: Air Lab File ID: GB20P105.D

Analysis Method: TO-15 Date Collected: 02/12/2015 09:20

Sample wt/vol: 50(mL) Date Analyzed: 02/20/2015 17:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 2417 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	LOQ	DL
79-34-5	1,1,2,2-Tetrachloroethane	167.85	2.7	U	5.5	1.6
79-00-5	1,1,2-Trichloroethane	133.41	2.2	U	4.4	1.1
156-59-2	cis-1,2-Dichloroethene	96.94	1.6	U	3.2	0.95
127-18-4	Tetrachloroethene	165.83	9.5		5.4	1.1
156-60-5	trans-1,2-Dichloroethene	96.94	0.79	U	3.2	0.79
79-01-6	Trichloroethene	131.39	69		2.1	0.75
75-01-4	Vinyl chloride	62.50	1.0	U	2.0	0.74

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		60-140

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FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville
Job No.: 140-2756-1
SDG No.:
Client Sample ID: IR89-SG03D-15A
Lab Sample ID: 140-2756-2
Matrix: Air
Lab File ID: GB20P106.D
Analysis Method: TO-15
Date Collected: 02/12/2015 09:20
Sample wt/vol: 50(mL)
Date Analyzed: 02/20/2015 18:28
Soil Aliquot Vol:
Dilution Factor: 1
Soil Extract Vol.:
GC Column: RTX-5 ID: 0.32(mm)
% Moisture:
Level: (low/med) Low
Analysis Batch No.: 2417
Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	LOQ	DL
79-34-5	1,1,2,2-Tetrachloroethane	167.85	0.40	U	0.80	0.24
79-00-5	1,1,2-Trichloroethane	133.41	0.40	U	0.80	0.21
156-59-2	cis-1,2-Dichloroethene	96.94	0.40	U	0.80	0.24
127-18-4	Tetrachloroethene	165.83	1.3		0.80	0.16
156-60-5	trans-1,2-Dichloroethene	96.94	0.20	U	0.80	0.20
79-01-6	Trichloroethene	131.39	12		0.40	0.14
75-01-4	Vinyl chloride	62.50	0.40	U	0.80	0.29

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		60-140

MW 5/20/15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville
Job No.: 140-2756-1
SDG No.:
Client Sample ID: IR89-SG03D-15A
Lab Sample ID: 140-2756-2
Matrix: Air
Lab File ID: GB20P106.D
Analysis Method: TO-15
Date Collected: 02/12/2015 09:20
Sample wt/vol: 50(mL)
Date Analyzed: 02/20/2015 18:28
Soil Aliquot Vol:
Dilution Factor: 1
Soil Extract Vol.:
GC Column: RTX-5 ID: 0.32(mm)
% Moisture:
Level: (low/med) Low
Analysis Batch No.: 2417
Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	LOQ	DL
79-34-5	1,1,2,2-Tetrachloroethane	167.85	2.7	U	5.5	1.6
79-00-5	1,1,2-Trichloroethane	133.41	2.2	U	4.4	1.1
156-59-2	cis-1,2-Dichloroethene	96.94	1.6	U	3.2	0.95
127-18-4	Tetrachloroethene	165.83	8.5		5.4	1.1
156-60-5	trans-1,2-Dichloroethene	96.94	0.79	U	3.2	0.79
79-01-6	Trichloroethene	131.39	63		2.1	0.75
75-01-4	Vinyl chloride	62.50	1.0	U	2.0	0.74

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		60-140

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FORM I

AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-2756-1

SDG No.:

Client Sample ID: IR89-SG04-15A Lab Sample ID: 140-2756-3

Matrix: Air Lab File ID: GB20P107.D

Analysis Method: TO-15 Date Collected: 02/12/2015 09:50

Sample wt/vol: 50(mL) Date Analyzed: 02/20/2015 19:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 2417 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	LOQ	DL
79-34-5	1,1,2,2-Tetrachloroethane	167.85	0.40	U	0.80	0.24
79-00-5	1,1,2-Trichloroethane	133.41	0.40	U	0.80	0.21
156-59-2	cis-1,2-Dichloroethene	96.94	0.40	U	0.80	0.24
127-18-4	Tetrachloroethene	165.83	1.5		0.80	0.16
156-60-5	trans-1,2-Dichloroethene	96.94	0.20	U	0.80	0.20
79-01-6	Trichloroethene	131.39	3.5		0.40	0.14
75-01-4	Vinyl chloride	62.50	0.40	U	0.80	0.29

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		60-140

MW 5/20/15

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FORM I

AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-2756-1

SDG No.:

Client Sample ID: IR89-SG04-15A Lab Sample ID: 140-2756-3

Matrix: Air Lab File ID: GB20P107.D

Analysis Method: TO-15 Date Collected: 02/12/2015 09:50

Sample wt/vol: 50(mL) Date Analyzed: 02/20/2015 19:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 2417 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	LOQ	DL
79-34-5	1,1,2,2-Tetrachloroethane	167.85	2.7	U	5.5	1.6
79-00-5	1,1,2-Trichloroethane	133.41	2.2	U	4.4	1.1
156-59-2	cis-1,2-Dichloroethene	96.94	1.6	U	3.2	0.95
127-18-4	Tetrachloroethene	165.83	9.9		5.4	1.1
156-60-5	trans-1,2-Dichloroethene	96.94	0.79	U	3.2	0.79
79-01-6	Trichloroethene	131.39	19		2.1	0.75
75-01-4	Vinyl chloride	62.50	1.0	U	2.0	0.74

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		60-140

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