M67001.AR.006939
MCB CAMP LEJUENE
5090.3a

VALIDATED DATA PACKAGE, A406845, MCB CAMP LEJUENE NC
2/12/2015
ENVIRONMENTAL DATA SERVICES

**ENVIRONMENTAL**
Data Services, Inc.

# DATA VALIDATION SUMMARY REPORT
# MCB CAMP LEJEUNE, NORTH CAROLINA

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: A406845
Laboratory: Environmental Conservation Laboratories, Inc., Orlando, Florida
Site: MCB Camp Lejeune, LTM FY2015 Q1, Site 3, CTO-WE86
Date: February 12, 2015

| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
|---|---|---|---|
| 1 | IR03-EB01-121114-GW | A406845-01 | Water |
| 2 | IR03-EB02-121114-GW | A406845-02 | Water |
| 3 | IR03-GW02IW-14D | A406845-03 | Water |
| 4 | IR03-GW02-14D | A406845-04 | Water |
| 5 | IR03-GW02D-14D | A406845-05 | Water |

A full data validation was performed on the analytical data for three water samples and two aqueous equipment blank samples collected on December 10-11, 2014 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* |
|---|---|
| SVOCs | USEPA SW-846 Method 8270D |
| PAH | USEPA SW-846 Method 8270DSIM |

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 Laboratories 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

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

## 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.

## Semivolatile Organic Compounds (SVOC/PAH)

### Holding Times

- All samples were extracted within 7 days for water samples and analyzed within 40 days.

### 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 |
|---|---|---|---|---|
| IR03-EB01-121114-GW | Naphthalene | 0.080 | U | 3 |
| IR03-EB02-121114-GW | Naphthalene | 0.051 | None | Applies to samples in other data packages |

## Surrogate Spike Recoveries

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

| Sample ID | Surrogate | %R | Qualifier |
|---|---|---|---|
| 4 | Terphenyl-d14 | 137% | None for 1 Out per Fraction |

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

- A MS/MSD sample was not collected.

## 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 except for IS6-perylene-d12. However, this internal standard is not associated with the reported compound and no qualifications were required.

## 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.

| SVOCs/PAH | | | | |
|---|---|---|---|---|
| Compound | IR03-GW02-14D ug/L | IR03-GW02D-14D ug/L | RPD | Qualifier |
| Dibenzofuran | 4.1 | 3.9 | 5% | None |
| Naphthalene | 3.7 | 6.0 | 47% | |

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

Signed: Nancy Weaver Dated: 2/16/15

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 8270D

IR03-EB01-121114-GW

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-01 | File ID: | 1ab008.D |
| Sampled: | 12/11/14 07:45 | Prepared: | 12/17/14 08:50 | Analyzed: | 01/07/15 16:42 |
| Solids: | | Preparation: | EPA 3510C_MS | Initial/Final: | 485 mL / 0.5 mL |

Batch: 4L17008 Sequence: AA32052 Calibration: 1501007 Instrument: OSVGCMS1

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 132-64-9 | Dibenzofuran | 1 | <3.0 | U | 2.8 | 3.0 | 10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| 2-Fluorophenol | 51.5 | 22 | 43 | 19 - 119 | |
| Phenol-d5 | 51.5 | 16 | 31 | 10 - 115 | |
| Nitrobenzene-d5 | 51.5 | 33 | 65 | 44 - 120 | |
| 2-Fluorobiphenyl | 51.5 | 37 | 71 | 44 - 119 | |
| 2,4,6-Tribromophenol | 51.5 | 38 | 75 | 43 - 140 | |
| Terphenyl-d14 | 51.5 | 56 | 108 | 50 - 134 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene-d4 | 322353 | 6.836 | 312803 | 6.966 | |
| Naphthalene-d8 | 1189734 | 8.415 | 1202138 | 8.546 | |
| Acenaphthene-d10 | 617656 | 10.622 | 663746 | 10.753 | |
| Phenanthrene-d10 | 1017045 | 12.501 | 1098576 | 12.637 | |
| Chrysene-d12 | 628482 | 16.065 | 565336 | 16.253 | |
| Perylene-d12 | 447779 | 19.006 | 404946 | 19.226 | * |

* Values outside of QC limits

AW 2/12/15

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

IR03-EB01-121114-GW

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-01 | File ID: | 2lz024.D |
| Sampled: | 12/11/14 07:45 | Prepared: | 12/17/14 11:10 | Analyzed: | 12/31/14 17:07 |
| Solids: | | Preparation: | EPA 3511_MS | Initial/Final: | 35 mL / 2 mL |

Batch: 4L17004 Sequence: AA31976 Calibration: 1405053 Instrument: OSVGCMS2

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 91-20-3 | Naphthalene | 1 | 0.080 | J | 0.035 | 0.090 | 0.10 |
| 56-55-3 | Benzo(a)anthracene | 1 | <0.090 | U | 0.037 | 0.090 | 0.10 |
| 205-99-2 | Benzo(b)fluoranthene | 1 | <0.090 | U | 0.059 | 0.090 | 0.10 |
| 207-08-9 | Benzo(k)fluoranthene | 1 | <0.090 | U | 0.046 | 0.090 | 0.10 |
| 50-32-8 | Benzo(a)pyrene | 1 | <0.090 | U | 0.043 | 0.090 | 0.10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| p-Terphenyl | 5.71 | 4.4 | 78 | 58 - 132 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| Naphthalene-d8 | 283224 | 5.562 | 291841 | 5.595 | |
| Acenaphthene-d10 | 240381 | 7.341 | 212305 | 7.371 | |
| Phenanthrene-d10 | 470334 | 8.842 | 395591 | 8.855 | |
| Chrysene-d12 | 463772 | 11.962 | 452622 | 11.957 | |
| Perylene-d12 | 424220 | 14.264 | 364367 | 14.239 | |

* Values outside of QC limits



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# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

IR03-EB02-121114-GW

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-02 | File ID: | 1ab009.D |
| Sampled: | 12/11/14 08:15 | Prepared: | 12/17/14 08:50 | Analyzed: | 01/07/15 17:11 |
| Solids: | | Preparation: | EPA 3510C_MS | Initial/Final: | 500 mL / 0.5 mL |

Batch: 4L17008 Sequence: AA32052 Calibration: 1501007 Instrument: OSVGCMS1

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 132-64-9 | Dibenzofuran | 1 | <3.0 | U | 2.8 | 3.0 | 10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| 2-Fluorophenol | 50.0 | 24 | 49 | 19 - 119 | |
| Phenol-d5 | 50.0 | 20 | 40 | 10 - 115 | |
| Nitrobenzene-d5 | 50.0 | 32 | 65 | 44 - 120 | |
| 2-Fluorobiphenyl | 50.0 | 36 | 73 | 44 - 119 | |
| 2,4,6-Tribromophenol | 50.0 | 41 | 81 | 43 - 140 | |
| Terphenyl-d14 | 50.0 | 64 | 128 | 50 - 134 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene-d4 | 264272 | 6.836 | 312803 | 6.966 | |
| Naphthalene-d8 | 1002363 | 8.415 | 1202138 | 8.546 | |
| Acenaphthene-d10 | 528896 | 10.622 | 663746 | 10.753 | |
| Phenanthrene-d10 | 862982 | 12.489 | 1098576 | 12.637 | |
| Chrysene-d12 | 524411 | 16.054 | 565336 | 16.253 | |
| Perylene-d12 | 366971 | 19.006 | 404946 | 19.226 | * |

* Values outside of QC limits

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IR03-EB02-121114-GW

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-02 | File ID: | 2lz025.D |
| Sampled: | 12/11/14 08:15 | Prepared: | 12/17/14 11:10 | Analyzed: | 12/31/14 17:28 |
| Solids: | | Preparation: | EPA 3511_MS | Initial/Final: | 35 mL / 2 mL |

Batch: 4L17004 Sequence: AA31976 Calibration: 1405053 Instrument: OSVGCMS2

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 91-20-3 | Naphthalene | 1 | 0.051 | J | 0.035 | 0.090 | 0.10 |
| 56-55-3 | Benzo(a)anthracene | 1 | <0.090 | U | 0.037 | 0.090 | 0.10 |
| 205-99-2 | Benzo(b)fluoranthene | 1 | <0.090 | U | 0.059 | 0.090 | 0.10 |
| 207-08-9 | Benzo(k)fluoranthene | 1 | <0.090 | U | 0.046 | 0.090 | 0.10 |
| 50-32-8 | Benzo(a)pyrene | 1 | <0.090 | U | 0.043 | 0.090 | 0.10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| p-Terphenyl | 5.71 | 4.4 | 77 | 58 - 132 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| Naphthalene-d8 | 270031 | 5.562 | 291841 | 5.595 | |
| Acenaphthene-d10 | 229259 | 7.348 | 212305 | 7.371 | |
| Phenanthrene-d10 | 449951 | 8.842 | 395591 | 8.855 | |
| Chrysene-d12 | 437069 | 11.962 | 452622 | 11.957 | |
| Perylene-d12 | 402929 | 14.263 | 364367 | 14.239 | |

* Values outside of QC limits



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IR03-GW02IW-14D

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-03 | File ID: | 1ab010.D |
| Sampled: | 12/10/14 15:55 | Prepared: | 12/17/14 08:50 | Analyzed: | 01/07/15 17:39 |
| Solids: | | Preparation: | EPA 3510C_MS | Initial/Final: | 500 mL / 0.5 mL |

Batch: 4L17008 Sequence: AA32052 Calibration: 1501007 Instrument: OSVGCMS1

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 132-64-9 | Dibenzofuran | 1 | <3.0 | U | 2.8 | 3.0 | 10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| 2-Fluorophenol | 50.0 | 25 | 50 | 19 - 119 | |
| Phenol-d5 | 50.0 | 21 | 41 | 10 - 115 | |
| Nitrobenzene-d5 | 50.0 | 32 | 64 | 44 - 120 | |
| 2-Fluorobiphenyl | 50.0 | 37 | 74 | 44 - 119 | |
| 2,4,6-Tribromophenol | 50.0 | 42 | 84 | 43 - 140 | |
| Terphenyl-d14 | 50.0 | 61 | 121 | 50 - 134 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene-d4 | 220470 | 6.836 | 312803 | 6.966 | |
| Naphthalene-d8 | 843059 | 8.415 | 1202138 | 8.546 | |
| Acenaphthene-d10 | 442993 | 10.622 | 663746 | 10.753 | |
| Phenanthrene-d10 | 702024 | 12.489 | 1098576 | 12.637 | |
| Chrysene-d12 | 414124 | 16.054 | 565336 | 16.253 | |
| Perylene-d12 | 277691 | 19.006 | 404946 | 19.226 | * |

* Values outside of QC limits



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IR03-GW02IW-14D

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-03 | File ID: | 2lz026.D |
| Sampled: | 12/10/14 15:55 | Prepared: | 12/17/14 11:10 | Analyzed: | 12/31/14 17:50 |
| Solids: | | Preparation: | EPA 3511_MS | Initial/Final: | 35 mL / 2 mL |

Batch: 4L17004 Sequence: AA31976 Calibration: 1405053 Instrument: OSVGCMS2

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 91-20-3 | Naphthalene EBL | 1 | <0.090 ~~0.046~~ u | ~~J~~ | 0.035 | 0.090 | 0.10 |
| 56-55-3 | Benzo(a)anthracene | 1 | 0.14 | | 0.037 | 0.090 | 0.10 |
| 205-99-2 | Benzo(b)fluoranthene | 1 | <0.090 | U | 0.059 | 0.090 | 0.10 |
| 207-08-9 | Benzo(k)fluoranthene | 1 | <0.090 | U | 0.046 | 0.090 | 0.10 |
| 50-32-8 | Benzo(a)pyrene | 1 | <0.090 | U | 0.043 | 0.090 | 0.10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| p-Terphenyl | 5.71 | 5.1 | 90 | 58 - 132 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| Naphthalene-d8 | 280484 | 5.563 | 291841 | 5.595 | |
| Acenaphthene-d10 | 237175 | 7.341 | 212305 | 7.371 | |
| Phenanthrene-d10 | 481347 | 8.842 | 395591 | 8.855 | |
| Chrysene-d12 | 464030 | 11.962 | 452622 | 11.957 | |
| Perylene-d12 | 426731 | 14.26 | 364367 | 14.239 | |

* Values outside of QC limits



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IR03-GW02-14D

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-04 | File ID: | 1ab011.D |
| Sampled: | 12/10/14 15:45 | Prepared: | 12/17/14 08:50 | Analyzed: | 01/07/15 18:07 |
| Solids: | | Preparation: | EPA 3510C_MS | Initial/Final: | 490 mL / 0.5 mL |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Batch: | 4L17008 | Sequence: | AA32052 | Calibration: | 1501007 | Instrument: | OSVGCMS1 |

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 132-64-9 | Dibenzofuran | 1 | 4.1 | J | 2.8 | 3.0 | 10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| 2-Fluorophenol | 51.0 | 31 | 61 | 19 - 119 | |
| Phenol-d5 | 51.0 | 25 | 49 | 10 - 115 | |
| Nitrobenzene-d5 | 51.0 | 39 | 76 | 44 - 120 | |
| 2-Fluorobiphenyl | 51.0 | 44 | 87 | 44 - 119 | |
| 2,4,6-Tribromophenol | 51.0 | 55 | 108 | 43 - 140 | |
| Terphenyl-d14 | 51.0 | 70 | 137 | 50 - 134 | * |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene-d4 | 252377 | 6.836 | 312803 | 6.966 | |
| Naphthalene-d8 | 940164 | 8.415 | 1202138 | 8.546 | |
| Acenaphthene-d10 | 481805 | 10.622 | 663746 | 10.753 | |
| Phenanthrene-d10 | 763785 | 12.489 | 1098576 | 12.637 | |
| Chrysene-d12 | 494388 | 16.054 | 565336 | 16.253 | |
| Perylene-d12 | 341488 | 19.006 | 404946 | 19.226 | * |

* Values outside of QC limits



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IR03-GW02-14D

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-04 | File ID: | 2lz027.D |
| Sampled: | 12/10/14 15:45 | Prepared: | 12/17/14 11:10 | Analyzed: | 12/31/14 18:11 |
| Solids: | | Preparation: | EPA 3511_MS | Initial/Final: | 35 mL / 2 mL |

Batch: 4L17004 Sequence: AA31976 Calibration: 1405053 Instrument: OSVGCMS2

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 91-20-3 | Naphthalene | 1 | 3.7 | | 0.035 | 0.090 | 0.10 |
| 56-55-3 | Benzo(a)anthracene | 1 | <0.090 | U | 0.037 | 0.090 | 0.10 |
| 205-99-2 | Benzo(b)fluoranthene | 1 | <0.090 | U | 0.059 | 0.090 | 0.10 |
| 207-08-9 | Benzo(k)fluoranthene | 1 | <0.090 | U | 0.046 | 0.090 | 0.10 |
| 50-32-8 | Benzo(a)pyrene | 1 | <0.090 | U | 0.043 | 0.090 | 0.10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| p-Terphenyl | 5.71 | 4.4 | 77 | 58 - 132 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| Naphthalene-d8 | 298636 | 5.563 | 291841 | 5.595 | |
| Acenaphthene-d10 | 230352 | 7.348 | 212305 | 7.371 | |
| Phenanthrene-d10 | 463116 | 8.842 | 395591 | 8.855 | |
| Chrysene-d12 | 451247 | 11.961 | 452622 | 11.957 | |
| Perylene-d12 | 407618 | 14.259 | 364367 | 14.239 | |

* Values outside of QC limits



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IR03-GW02D-14D

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-05 | File ID: | 1ab012.D |
| Sampled: | 12/10/14 15:50 | Prepared: | 12/17/14 08:50 | Analyzed: | 01/07/15 18:35 |
| Solids: | | Preparation: | EPA 3510C_MS | Initial/Final: | 495 mL / 0.5 mL |

Batch: 4L17008 Sequence: AA32052 Calibration: 1501007 Instrument: OSVGCMS1

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 132-64-9 | Dibenzofuran | 1 | 3.9 | J | 2.8 | 3.0 | 10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| 2-Fluorophenol | 50.5 | 23 | 45 | 19 - 119 | |
| Phenol-d5 | 50.5 | 19 | 38 | 10 - 115 | |
| Nitrobenzene-d5 | 50.5 | 29 | 58 | 44 - 120 | |
| 2-Fluorobiphenyl | 50.5 | 33 | 65 | 44 - 119 | |
| 2,4,6-Tribromophenol | 50.5 | 48 | 96 | 43 - 140 | |
| Terphenyl-d14 | 50.5 | 64 | 126 | 50 - 134 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene-d4 | 227567 | 6.836 | 312803 | 6.966 | |
| Naphthalene-d8 | 854341 | 8.415 | 1202138 | 8.546 | |
| Acenaphthene-d10 | 452378 | 10.622 | 663746 | 10.753 | |
| Phenanthrene-d10 | 723010 | 12.489 | 1098576 | 12.637 | |
| Chrysene-d12 | 472917 | 16.054 | 565336 | 16.253 | |
| Perylene-d12 | 344249 | 19.006 | 404946 | 19.226 | * |

* Values outside of QC limits



MW 2/12/15

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IR03-GW02D-14D

# ORGANIC ANALYSIS DATA SHEET

## EPA 8270D

| | | | |
|---|---|---|---|
| Laboratory: | ENCO Orlando | SDG: | A406845-CTOWE86 |
| Client: | CH2M Hill, Inc. (CH025) | Project: | CTO-WE86 MCB Camp Lejeune Site 3 |

| | | | | | |
|---|---|---|---|---|---|
| Matrix: | Ground Water | Laboratory ID: | A406845-05 | File ID: | 2lz028.D |
| Sampled: | 12/10/14 15:50 | Prepared: | 12/17/14 11:10 | Analyzed: | 12/31/14 18:33 |
| Solids: | | Preparation: | EPA 3511_MS | Initial/Final: | 35 mL / 2 mL |

Batch: 4L17004 Sequence: AA31976 Calibration: 1405053 Instrument: OSVGCMS2

| CAS NO. | COMPOUND | DILUTION | CONC. (ug/L) | Q | DL | LOD | LOQ |
|---|---|---|---|---|---|---|---|
| 91-20-3 | Naphthalene | 1 | 6.0 | | 0.035 | 0.090 | 0.10 |
| 56-55-3 | Benzo(a)anthracene | 1 | <0.090 | U | 0.037 | 0.090 | 0.10 |
| 205-99-2 | Benzo(b)fluoranthene | 1 | <0.090 | U | 0.059 | 0.090 | 0.10 |
| 207-08-9 | Benzo(k)fluoranthene | 1 | <0.090 | U | 0.046 | 0.090 | 0.10 |
| 50-32-8 | Benzo(a)pyrene | 1 | <0.090 | U | 0.043 | 0.090 | 0.10 |

| SYSTEM MONITORING COMPOUND | ADDED (ug/L) | CONC (ug/L) | % REC | QC LIMITS | Q |
|---|---|---|---|---|---|
| p-Terphenyl | 5.71 | 4.7 | 81 | 58 - 132 | |

| INTERNAL STANDARD | AREA | RT | REF AREA | REF RT | Q |
|---|---|---|---|---|---|
| Naphthalene-d8 | 271734 | 5.56 | 291841 | 5.595 | |
| Acenaphthene-d10 | 228393 | 7.341 | 212305 | 7.371 | |
| Phenanthrene-d10 | 448792 | 8.842 | 395591 | 8.855 | |
| Chrysene-d12 | 443442 | 11.962 | 452622 | 11.957 | |
| Perylene-d12 | 412316 | 14.258 | 364367 | 14.239 | |

* Values outside of QC limits



MW 2/12/15