

8/1/2016



August 01, 2016

Mr. Scot Fitzgerald  
CH2MHill Plateau Remediation Company  
MSIN R3-50 CHPRC  
PO Box 1600  
Richland, Washington 99352

Re: CHPRC SAF X16-005  
Work Order: 401101  
SDG: GEL401101

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on July 08, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

*B Luthman*  
Brielle Luthman for  
Heather Shaffer  
Project Manager

Purchase Order: 300071ES20 - 7H  
Chain of Custody: X16-005-251 and X16-005-256  
Enclosures



## Table of Contents

|  |    |
|--|----|
| Case Narrative.....                                | 1  |
| Chain of Custody and Supporting Documentation..... | 5  |
| Data Review Qualifier Definitions.....             | 9  |
| Laboratory Certifications.....                     | 11 |
| Volatile Analysis.....                             | 13 |
| Case Narrative.....                                | 14 |
| Sample Data Summary.....                           | 17 |
| Quality Control Summary.....                       | 20 |

# Case Narrative

**General Narrative  
for  
CH2MHill Plateau Remediation Company  
CHPRC SAF X16-005  
SDG: GEL401101**

**August 01, 2016**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary**

**Sample receipt**

The sample(s) arrived at GEL Laboratories, LLC, Charleston, South Carolina on July 08, 2016, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

**Items of Note** All efforts were made by the lab to meet any short hold times. Samples that were analyzed outside of the initial hold time but still within 2X hold time will be noted in the lab case narrative and DER.

**Sample Identification**

The laboratory received the following samples:

| <b>Laboratory<br/>Identification</b> | <b>Sample<br/>Description</b> |
|--------------------------------------|-------------------------------|
| 401101001                            | B365V0                        |
| 401101002                            | B365V1                        |

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package**

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: GC/MS Volatile.

We certify that this package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

8/1/2016

*B. Luthman*  
Brielle Luthman for  
Heather Shaffer  
Project Manager

**GC/MS Volatile  
Technical Case Narrative  
CH2M Hill Plateau Remediation Company (CPRC)  
SDG #: GEL401101  
Work Order #: 401101**

**Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

**Quality Control (QC) Information**

**Matrix Spike/Matrix Spike Duplicate Recovery Statement**

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

| Sample                            | Analyte              | Value              |
|-----------------------------------|----------------------|--------------------|
| 1203582165 (Non SDG 400887001PS)  | Acetone              | 55* (70.0%-130.0%) |
|                                   | Carbon tetrachloride | 5* (70.0%-130.0%)  |
| 1203582166 (Non SDG 400887001PSD) | 2-Butanone           | 65* (70.0%-130.0%) |
|                                   | Acetone              | 53* (70.0%-130.0%) |
|                                   | Carbon tetrachloride | 21* (70.0%-130.0%) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

# **Chain of Custody and Supporting Documentation**

172165

CH2M Hill Plateau Remediation Company  
401101

C.O.C.# X16-005-251  
Page 1 of 1

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

Collector: Dan Woehle CHPRG  
SAF No. X16-005  
Project Title: GW Sitewide Surv, FY16  
Shipped To (Lab): GEL Laboratories, LLC  
Protocol: SURV

Contact/Requester: WATERS-HUSTED, K  
Sampling Origin: Hanford Site  
Logbook No. HNF-N-506 86/44  
Method of Shipment: Commercial Carrier  
Priority: 30 Days

Telephone No. 376-4650  
Purchase Order/Charge Code 300071  
Ice Chest No. 605-515  
Bill of Lading/Air Bill No. 770694617793  
Offsite Property No. 68807

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
\*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

**SPECIAL INSTRUCTIONS**  
Batch with A, I, S, and W SAFs.

Hold Time: 14 Days  
Holding Time: 14 Days  
Preservative: HCl or H2SO4 to pH <2/Cool <=6C

Total Activity Exemption: Yes  No

| Sample No. | Filter | * | Date   | Time | No/Type Container | Sample Analysis        |
|------------|--------|---|--------|------|-------------------|------------------------|
| B365V0     | N      | W | 7/6/16 | 0920 | 4x40-mL aGs*      | 8260_VOA_GCIMS: COMMON |

| Relinquished By          | Print  | Sign        | Date/Time        | Received By          | Print       | Sign        | Date/Time        | Matrix *   |
|--------------------------|--|-------------|------------------|----------------------|-------------|-------------|------------------|--|
| Dan Woehle CHPRG         | [Signature]  | [Signature] | JUL 06 2016 1330 | SSU-1                | [Signature] | [Signature] | JUL 06 2016      | S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other |
| SSU-1                    | [Signature]  | [Signature] | JUL 07 2016 1159 | Janelle Zunker CHPRG | [Signature] | [Signature] | JUL 07 2016 1559 |  |
| Janelle Zunker CHPRG     | [Signature]  | [Signature] | JUL 07 2016 1400 | FEDEX                | [Signature] | [Signature] | JUL 07 2016 0910 |  |
| FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) |             |                  |                      |             |             | Disposed By      | Date/Time  |

**CH2M Hill Plateau Remediation Company**  
**C.O.C. # X16-005-256**  
 Page 1 of 1

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**  
 401101

Contact/Requester: WATERS-HUSTED, K Telephone No. 376-4650  
 Sampling Origin: Hanford Site Purchase Order/Charge Code 300071  
 Logbook No. HNF-N-506 86145 Icc Chest No. 805-515  
 Method of Shipment: Commercial Carrier Bill of Lading/Air Bill No. 776694617793  
 Priority: 30 Days **PRIORITY** Offsite Property No. 6807  
 SPECIAL INSTRUCTIONS: Hold Time Total Activity Exemption: Yes  No   
 Batch with A, I, S, and W SAFs.

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
 \*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

| Sample No. | Filter | * | Date   | Time | No/Type Container | Sample Analysis       | Holding Time | Preservative                    |
|------------|--------|---|--------|------|-------------------|-----------------------|--------------|---------------------------------|
| B365V1     | N      | W | 7-7-16 | 1113 | 4x40-mL aGs*      | 8260_VOA_GCMS: COMMON | 14 Days      | HCl or H2SO4 to pH <2/Cool <=6C |

| Relinquished By         | Print | Sign            | Date/Time        | Received By             | Print             | Sign | Date/Time        |
|-------------------------|-------|-----------------|------------------|-------------------------|-------------------|------|------------------|
| Dan Woehle<br>CHPRC     |       | <i>D Woehle</i> | JUL 07 2016 1210 | Janelle Zunker<br>CHPRC | <i>J Zunker</i>   |      | JUL 07 2016 1218 |
| Janelle Zunker<br>CHPRC |       | <i>J Zunker</i> | JUL 07 2016 1450 | FEDEX                   |                   |      |                  |
| Relinquished By         |       | <i>J Zunker</i> | JUL 07 2016 1450 | Received By             | <i>M. Karstow</i> |      | 7-8-16 0910      |
| Relinquished By         |       | <i>J Zunker</i> |                  | Received By             |                   |      |                  |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Date/Time  
 PRINTED ON 6/27/2016 FSR ID = FSR33720 A-6004-842 (REV 2)

**SAMPLE RECEIPT & REVIEW FORM**

|  |   |  |
|--|---|--|
| Client: <u>CPRC</u>  |   | SDG/AR/COC/Work Order:   |
| Received By: <u>mk</u>   |   | Date Received: <u>7-8-16</u>   |
| Suspected Hazard Information   | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
| COC/Samples marked as radioactive?                                       | <input checked="" type="checkbox"/>                                 | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>cpm 0</u>                                      |
| Classified Radioactive II or III by RSO?                                 | <input checked="" type="checkbox"/>                                 | If yes, Were swipes taken of sample containers < action levels?  |
| COC/Samples marked containing PCBs?                                      | <input checked="" type="checkbox"/>                                 |  |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | <input checked="" type="checkbox"/>                                 | If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.                     |
| Shipped as a DOT Hazardous?  | <input checked="" type="checkbox"/>                                 | Hazard Class Shipped: UN#:   |
| Samples identified as Foreign Soil?                                      | <input checked="" type="checkbox"/>                                 |  |

| Sample Receipt Criteria   | Yes                                 | NA                                  | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)   |
|---|-------------------------------------|-------------------------------------|-------------------------------------|---|
| 1 Shipping containers received intact and sealed?                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Circle Applicable: Seals broken Damaged container Leaking container Other (describe)                              |
| 2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Preservation Method: Ice bags Blue ice Dry ice None Other (describe)<br>*all temperatures are recorded in Celsius |
| 2a Daily check performed and passed on IR temperature gun?        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Temperature Device Serial #: <u>13041290</u><br>Secondary Temperature Device Serial # (if Applicable):            |
| 3 Chain of custody documents included with shipment?              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 4 Sample containers intact and sealed?                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Circle Applicable: Seals broken Damaged container Leaking container Other (describe)                              |
| 5 Samples requiring chemical preservation at proper pH?           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's, containers affected and observed pH:<br>If Preservation added, Lot#:                                 |
| 6 Do Low Level Perchlorate samples have headspace as required?    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's and containers affected:  |
| 7 VOA vials contain acid preservation?                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (If unknown, select No)   |
| 8 VOA vials free of headspace (defined as < 6mm bubble)?          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's and containers affected:  |
| 9 Are Encore containers present?                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (If yes, immediately deliver to Volatiles laboratory)   |
| 10 Samples received within holding time?                          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | ID's and tests affected:  |
| 11 Sample ID's on COC match ID's on bottles?                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's and containers affected:  |
| 12 Date & time on COC match date & time on bottles?               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's affected:   |
| 13 Number of containers received match number indicated on COC?   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's affected:   |
| 14 Are sample containers identifiable as GEL provided?            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 15 COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |

16 Carrier and tracking number.

Circle Applicable: FedEx Air  FedEx Ground  UPS  Field Services  Courier  Other

7766 9461 7793

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials EM Date 7/16/16 Page 1 of 1

# **Data Review Qualifier Definitions**

## Project Specific Qualifier Definitions for GEL Client Code: CPRC

| Qualifier | Qualifier Definition  | Department        | Fraction      |
|-----------|---|-------------------|---------------|
| U         | Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.  |                   |               |
| J         | The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated                                    | Organics          |               |
| P         | Aroclor target analyte with greater than 25% difference between column analyses.  | Organics          |               |
| C         | Analyte has been confirmed by GC/MS analysis  | Organics          | Pesticide     |
| B         | The analyte was detected in both the associated QC blank and in the sample.   | Organics          |               |
| E         | Concentration exceeds the calibration range of the instrument   | Organics          |               |
| A         | The TIC is a suspected aldol-condensation product   | Organics          | Semi-Volatile |
| X         | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  |                   |               |
| N         | Spike Sample recovery is outside control limits.  |                   |               |
| *         | Duplicate analysis not within control limits  | Inorganics        |               |
| >         | Result greater than quantifiable range or greater than upper limit of the analysis range  | General Chemistry |               |
| Z         | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  |                   |               |
| B         | The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).   | Inorganics        | Metals        |
| D         | Results are reported from a diluted aliquot of sample.  |                   |               |
| E         | Reported value is estimated due to interferences. See comment in narrative.   | Inorganics        | Metals        |
| M         | Duplicate precision not met.  | Inorganics        | Metals        |
| o         | Analyte failed to recover within LCS limits (Organics only)   | Organics          |               |
| S         | Reported value determined by the Method of Standard Additions (MSA)   | Inorganics        |               |
| T         | Spike and/or spike duplicate sample recovery is outside control limits.   | Organics          |               |
| W         | Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency.   | Inorganics        |               |
| B         | The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is $\geq$ MDA for this sample  | Radiological      |               |
| Y         | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  |                   |               |
| +         | Correlation coefficient for Method of Standard Additions (MSA) is < 0.995   | Inorganics        |               |
| B         | The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).   | General Chemistry |               |
| C         | Target analyte was detected in the sample and the associated blank. The associated blank concentration is $\geq$ EQL or is > 5% of the measured concentration and/or decision level for associated samples. | Inorganics        | Metals        |
| C         | Target analyte was detected in the sample and the associated blank. The associated blank concentration is $\geq$ EQL or is > 5% of the measured concentration and/or decision level for associated samples. | General Chemistry |               |
| <         | Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide   | General Chemistry |               |
| UX        | Gamma Spectroscopy--Uncertain identification  | Radiological      |               |

# Laboratory Certifications

## List of current GEL Certifications as of 01 August 2016

| State                    | Certification                |
|--------------------------|------------------------------|
| Alaska                   | UST-0110                     |
| Arkansas                 | 88-0651                      |
| CLIA                     | 42D0904046                   |
| California               | 2940                         |
| Colorado                 | SC00012                      |
| Connecticut              | PH-0169                      |
| Delaware                 | SC00012                      |
| DoD ELAP/ ISO17025 A2LA  | 2567.01                      |
| Florida NELAP            | E87156                       |
| Foreign Soils Permit     | P330-15-00283, P330-15-00253 |
| Georgia                  | SC00012                      |
| Georgia SDWA             | 967                          |
| Hawaii                   | SC00012                      |
| Idaho Chemistry          | SC00012                      |
| Idaho Radiochemistry     | SC00012                      |
| Illinois NELAP           | 200029                       |
| Indiana                  | C-SC-01                      |
| Kansas NELAP             | E-10332                      |
| Kentucky SDWA            | 90129                        |
| Kentucky Wastewater      | 90129                        |
| Louisiana NELAP          | 03046 (AI33904)              |
| Louisiana SDWA           | LA160006                     |
| Maryland                 | 270                          |
| Massachusetts            | M-SC012                      |
| Michigan                 | 9976                         |
| Mississippi              | SC00012                      |
| Nebraska                 | NE-OS-26-13                  |
| Nevada                   | SC000122016-1                |
| New Hampshire NELAP      | 205415                       |
| New Jersey NELAP         | SC002                        |
| New Mexico               | SC00012                      |
| New York NELAP           | 11501                        |
| North Carolina           | 233                          |
| North Carolina SDWA      | 45709                        |
| North Dakota             | R-158                        |
| Oklahoma                 | 9904                         |
| Pennsylvania NELAP       | 68-00485                     |
| S.Carolina Radchem       | 10120002                     |
| South Carolina Chemistry | 10120001                     |
| Tennessee                | TN 02934                     |
| Texas NELAP              | T104704235-16-11             |
| Utah NELAP               | SC000122016-20               |
| Vermont                  | VT87156                      |
| Virginia NELAP           | 460202                       |
| Washington               | C780                         |
| West Virginia            | 997404                       |

# **Volatile Analysis**

# Case Narrative

**GC/MS Volatile  
Technical Case Narrative  
CH2MHill Plateau Remediation Company (CPRC)  
SDG #: GEL401101  
Work Order #: 401101**

**Product: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**

**Analytical Method: SW846 8260C**

**Analytical Procedure: GL-OA-E-038 REV# 22**

**Analytical Batch: 1580638**

The following samples were analyzed using the above methods and analytical procedure(s).

| <b><u>GEL Sample ID#</u></b> | <b><u>Client Sample Identification</u></b>   |
|------------------------------|--|
| 401101001                    | B365V0                                       |
| 401101002                    | B365V1                                       |
| 1203582165                   | 400887001(NonSDG) Post Spike (PS)            |
| 1203582166                   | 400887001(NonSDG) Post Spike Duplicate (PSD) |
| 1203583229                   | Method Blank (MB)                            |
| 1203583230                   | Laboratory Control Sample (LCS)              |

The samples in this SDG were analyzed on an "as received" basis.

**Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

**Quality Control (QC) Information**

**Matrix Spike/Matrix Spike Duplicate Recovery Statement**

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

| <b>Sample</b>                     | <b>Analyte</b>       | <b>Value</b>       |
|-----------------------------------|----------------------|--------------------|
| 1203582165 (Non SDG 400887001PS)  | Acetone              | 55* (70.0%-130.0%) |
|                                   | Carbon tetrachloride | 5* (70.0%-130.0%)  |
| 1203582166 (Non SDG 400887001PSD) | 2-Butanone           | 65* (70.0%-130.0%) |
|                                   | Acetone              | 53* (70.0%-130.0%) |
|                                   | Carbon tetrachloride | 21* (70.0%-130.0%) |

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**GEL LABORATORIES LLC**

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

**Qualifier Definition Report  
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL401101 GEL Work Order: 401101

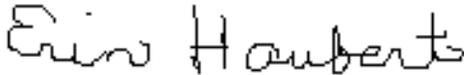
**The Qualifiers in this report are defined as follows:**

- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

**Review/Validation**

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Erin Haubert

Date: 29 JUL 2016

Title: Data Validator

# Sample Data Summary

Volatile  
Certificate of Analysis  
Sample Summary

Page 1 of 1

|                             |                                  |                      |
|-----------------------------|----------------------------------|----------------------|
| SDG Number: GEL401101       | Date Collected: 07/06/2016 09:20 | Matrix: WATER        |
| Lab Sample ID: 401101001    | Date Received: 07/08/2016 09:10  |                      |
| Client ID: B365V0           | Client: CPRC001                  | Project: CPRC0X16005 |
| Batch ID: 1580638           | Method: SW846 8260C              | SOP Ref: GL-OA-E-038 |
| Run Date: 07/12/2016 11:59  | Inst: VOA3.I                     | Dilution: 1          |
| Prep Date: 07/12/2016 11:59 | Analyst: CDS1                    | Purge Vol: 5 mL      |
| Data File: 071216V3\3R209.D | Column: DB-624                   |                      |

| CAS No.   | Parmname              | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL  |
|-----------|-----------------------|-----------|--------|-------|---------|---------|------|
| 71-55-6   | 1,1,1-Trichloroethane | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 79-00-5   | 1,1,2-Trichloroethane | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 107-06-2  | 1,2-Dichloroethane    | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 71-43-2   | Benzene               | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 75-15-0   | Carbon disulfide      | U         | 1.60   | ug/L  | 1.60    | 10.0    | 5.00 |
| 56-23-5   | Carbon tetrachloride  | TU        | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 108-90-7  | Chlorobenzene         | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 67-66-3   | Chloroform            | J         | 4.34   | ug/L  | 0.300   | 2.00    | 5.00 |
| 100-41-4  | Ethylbenzene          | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 75-09-2   | Methylene chloride    | J         | 2.85   | ug/L  | 1.60    | 5.00    | 5.00 |
| 127-18-4  | Tetrachloroethylene   | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 108-88-3  | Toluene               | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 79-01-6   | Trichloroethylene     | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 75-34-3   | 1,1-Dichloroethane    | U         | 0.300  | ug/L  | 0.300   | 2.00    | 10.0 |
| 75-35-4   | 1,1-Dichloroethylene  | U         | 0.300  | ug/L  | 0.300   | 2.00    | 10.0 |
| 78-93-3   | 2-Butanone            | TU        | 3.00   | ug/L  | 3.00    | 10.0    | 10.0 |
| 108-10-1  | 4-Methyl-2-pentanone  | U         | 3.00   | ug/L  | 3.00    | 10.0    | 10.0 |
| 75-01-4   | Vinyl chloride        | J         | 0.590  | ug/L  | 0.300   | 2.00    | 10.0 |
| 1330-20-7 | Xylenes (total)       | U         | 0.300  | ug/L  | 0.300   | 6.00    | 10.0 |
| 67-64-1   | Acetone               | TU        | 3.00   | ug/L  | 3.00    | 10.0    | 20.0 |

Volatile  
Certificate of Analysis  
Sample Summary

Page 1 of 1

|                                    |   |                             |
|------------------------------------|---|-----------------------------|
| <b>SDG Number:</b> GEL401101       | <b>Date Collected:</b> 07/07/2016 11:13 | <b>Matrix:</b> WATER        |
| <b>Lab Sample ID:</b> 401101002    | <b>Date Received:</b> 07/08/2016 09:10  |                             |
| <b>Client ID:</b> B365V1           | <b>Client:</b> CPRC001                  | <b>Project:</b> CPRC0X16005 |
| <b>Batch ID:</b> 1580638           | <b>Method:</b> SW846 8260C              | <b>SOP Ref:</b> GL-OA-E-038 |
| <b>Run Date:</b> 07/12/2016 12:30  | <b>Inst:</b> VOA3.I                     | <b>Dilution:</b> 1          |
| <b>Prep Date:</b> 07/12/2016 12:30 | <b>Analyst:</b> CDS1                    | <b>Purge Vol:</b> 5 mL      |
| <b>Data File:</b> 071216V3\3R210.D | <b>Column:</b> DB-624                   |                             |

| CAS No.   | Parmname              | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL  |
|-----------|-----------------------|-----------|--------|-------|---------|---------|------|
| 71-55-6   | 1,1,1-Trichloroethane | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 79-00-5   | 1,1,2-Trichloroethane | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 107-06-2  | 1,2-Dichloroethane    | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 71-43-2   | Benzene               | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 75-15-0   | Carbon disulfide      | U         | 1.60   | ug/L  | 1.60    | 10.0    | 5.00 |
| 56-23-5   | Carbon tetrachloride  | TU        | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 108-90-7  | Chlorobenzene         | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 67-66-3   | Chloroform            |           | 18.1   | ug/L  | 0.300   | 2.00    | 5.00 |
| 100-41-4  | Ethylbenzene          | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 75-09-2   | Methylene chloride    | U         | 1.60   | ug/L  | 1.60    | 5.00    | 5.00 |
| 127-18-4  | Tetrachloroethylene   | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 108-88-3  | Toluene               | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 79-01-6   | Trichloroethylene     | U         | 0.300  | ug/L  | 0.300   | 2.00    | 5.00 |
| 75-34-3   | 1,1-Dichloroethane    | U         | 0.300  | ug/L  | 0.300   | 2.00    | 10.0 |
| 75-35-4   | 1,1-Dichloroethylene  | U         | 0.300  | ug/L  | 0.300   | 2.00    | 10.0 |
| 78-93-3   | 2-Butanone            | TU        | 3.00   | ug/L  | 3.00    | 10.0    | 10.0 |
| 108-10-1  | 4-Methyl-2-pentanone  | U         | 3.00   | ug/L  | 3.00    | 10.0    | 10.0 |
| 75-01-4   | Vinyl chloride        | U         | 0.300  | ug/L  | 0.300   | 2.00    | 10.0 |
| 1330-20-7 | Xylenes (total)       | U         | 0.300  | ug/L  | 0.300   | 6.00    | 10.0 |
| 67-64-1   | Acetone               | TU        | 3.00   | ug/L  | 3.00    | 10.0    | 20.0 |

# Quality Control Summary

**GEL LABORATORIES LLC**

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

**QC Summary**

Report Date: July 29, 2016

Page 1 of 6

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 401101

| Parmname              | NOM     | Sample Qual | QC   | Units | RPD% | REC% | Range      | Anlst | Date     | Time  |
|-----------------------|---------|-------------|------|-------|------|------|------------|-------|----------|-------|
| <b>Volatile-GC/MS</b> |         |             |      |       |      |      |            |       |          |       |
| Batch                 | 1580638 |             |      |       |      |      |            |       |          |       |
| QC1203583230          | LCS     |             |      |       |      |      |            |       |          |       |
| 1,1,1-Trichloroethane | 50.0    |             | 56.8 | ug/L  |      | 114  | (70%-130%) | CDS1  | 07/12/16 | 08:57 |
| 1,1,2-Trichloroethane | 50.0    |             | 48.6 | ug/L  |      | 97   | (70%-130%) |       |          |       |
| 1,1-Dichloroethane    | 50.0    |             | 54.9 | ug/L  |      | 110  | (70%-130%) |       |          |       |
| 1,1-Dichloroethylene  | 50.0    |             | 55.8 | ug/L  |      | 112  | (70%-130%) |       |          |       |
| 1,2-Dichloroethane    | 50.0    |             | 50.2 | ug/L  |      | 100  | (70%-130%) |       |          |       |
| 2-Butanone            | 250     |             | 290  | ug/L  |      | 116  | (70%-130%) |       |          |       |
| 4-Methyl-2-pentanone  | 250     |             | 223  | ug/L  |      | 89   | (70%-130%) |       |          |       |
| Acetone               | 250     |             | 287  | ug/L  |      | 115  | (70%-130%) |       |          |       |
| Benzene               | 50.0    |             | 53.6 | ug/L  |      | 107  | (70%-130%) |       |          |       |
| Carbon disulfide      | 250     |             | 253  | ug/L  |      | 101  | (70%-130%) |       |          |       |
| Carbon tetrachloride  | 50.0    |             | 54.3 | ug/L  |      | 109  | (70%-130%) |       |          |       |
| Chlorobenzene         | 50.0    |             | 50.7 | ug/L  |      | 101  | (70%-130%) |       |          |       |
| Chloroform            | 50.0    |             | 52.7 | ug/L  |      | 105  | (70%-130%) |       |          |       |
| Ethylbenzene          | 50.0    |             | 49.1 | ug/L  |      | 98   | (70%-130%) |       |          |       |
| Methylene chloride    | 50.0    |             | 55.7 | ug/L  |      | 111  | (70%-130%) |       |          |       |
| Tetrachloroethylene   | 50.0    |             | 50.5 | ug/L  |      | 101  | (70%-130%) |       |          |       |
| Toluene               | 50.0    |             | 48.8 | ug/L  |      | 98   | (70%-130%) |       |          |       |
| Trichloroethylene     | 50.0    |             | 54.0 | ug/L  |      | 108  | (70%-130%) |       |          |       |
| Vinyl chloride        | 50.0    |             | 46.5 | ug/L  |      | 93   | (70%-130%) |       |          |       |
| Xylenes (total)       | 150     |             | 148  | ug/L  |      | 98   | (70%-130%) |       |          |       |

**GEL LABORATORIES LLC**

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

**QC Summary**

Workorder: 401101

Page 2 of 6

| Parmname                | NOM     | Sample | Qual | QC    | Units | RPD% | REC% | Range      | Anlst | Date     | Time  |
|-------------------------|---------|--------|------|-------|-------|------|------|------------|-------|----------|-------|
| <b>Volatile-GC/MS</b>   |         |        |      |       |       |      |      |            |       |          |       |
| Batch                   | 1580638 |        |      |       |       |      |      |            |       |          |       |
| **1,2-Dichloroethane-d4 | 50.0    |        |      | 43.8  | ug/L  |      | 88   | (70%-130%) | CDS1  | 07/12/16 | 08:57 |
| **Bromofluorobenzene    | 50.0    |        |      | 50.4  | ug/L  |      | 101  | (70%-130%) |       |          |       |
| **Toluene-d8            | 50.0    |        |      | 43.9  | ug/L  |      | 88   | (70%-130%) |       |          |       |
| QC1203583229            | MB      |        |      |       |       |      |      |            |       |          |       |
| 1,1,1-Trichloroethane   |         |        | U    | 0.300 | ug/L  |      |      |            |       | 07/12/16 | 09:57 |
| 1,1,2-Trichloroethane   |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| 1,1-Dichloroethane      |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| 1,1-Dichloroethylene    |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| 1,2-Dichloroethane      |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| 2-Butanone              |         |        | U    | 3.00  | ug/L  |      |      |            |       |          |       |
| 4-Methyl-2-pentanone    |         |        | U    | 3.00  | ug/L  |      |      |            |       |          |       |
| Acetone                 |         |        | U    | 3.00  | ug/L  |      |      |            |       |          |       |
| Benzene                 |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Carbon disulfide        |         |        | U    | 1.60  | ug/L  |      |      |            |       |          |       |
| Carbon tetrachloride    |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Chlorobenzene           |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Chloroform              |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Ethylbenzene            |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Methylene chloride      |         |        | U    | 1.60  | ug/L  |      |      |            |       |          |       |
| Tetrachloroethylene     |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Toluene                 |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |
| Trichloroethylene       |         |        | U    | 0.300 | ug/L  |      |      |            |       |          |       |

**GEL LABORATORIES LLC**

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

**QC Summary**

Workorder: 401101

Page 3 of 6

| Parmname                  | NOM     | Sample | Qual   | QC    | Units | RPD% | REC% | Range      | Anlst | Date     | Time  |
|---------------------------|---------|--------|--------|-------|-------|------|------|------------|-------|----------|-------|
| <b>Volatile-GC/MS</b>     |         |        |        |       |       |      |      |            |       |          |       |
| Batch                     | 1580638 |        |        |       |       |      |      |            |       |          |       |
| Vinyl chloride            |         |        | U      | 0.300 | ug/L  |      |      |            | CDS1  | 07/12/16 | 09:57 |
| Xylenes (total)           |         |        | U      | 0.300 | ug/L  |      |      |            |       |          |       |
| **1,2-Dichloroethane-d4   | 50.0    |        |        | 47.8  | ug/L  |      | 96   | (70%-130%) |       |          |       |
| **Bromofluorobenzene      | 50.0    |        |        | 48.3  | ug/L  |      | 97   | (70%-130%) |       |          |       |
| **Toluene-d8              | 50.0    |        |        | 46.2  | ug/L  |      | 92   | (70%-130%) |       |          |       |
| QC1203582165 400887001 PS |         |        |        |       |       |      |      |            |       |          |       |
| 1,1,1-Trichloroethane     | 50.0    | U      | 0.00   | 53.1  | ug/L  |      | 106  | (70%-130%) |       | 07/12/16 | 17:05 |
| 1,1,2-Trichloroethane     | 50.0    | U      | 0.00   | 49.0  | ug/L  |      | 98   | (70%-130%) |       |          |       |
| 1,1-Dichloroethane        | 50.0    | U      | 0.00   | 52.9  | ug/L  |      | 106  | (70%-130%) |       |          |       |
| 1,1-Dichloroethylene      | 50.0    | U      | 0.00   | 51.1  | ug/L  |      | 102  | (70%-130%) |       |          |       |
| 1,2-Dichloroethane        | 50.0    | U      | 0.00   | 49.2  | ug/L  |      | 98   | (70%-130%) |       |          |       |
| 2-Butanone                | 250     | TU     | 0.00   | 181   | ug/L  |      | 72   | (70%-130%) |       |          |       |
| 4-Methyl-2-pentanone      | 250     | U      | 0.00   | 228   | ug/L  |      | 91   | (70%-130%) |       |          |       |
| Acetone                   | 250     | TU     | 0.00   | T 139 | ug/L  |      | 55 * | (70%-130%) |       |          |       |
| Benzene                   | 50.0    | U      | 0.00   | 52.5  | ug/L  |      | 105  | (70%-130%) |       |          |       |
| Carbon disulfide          | 250     | U      | 0.00   | 254   | ug/L  |      | 102  | (70%-130%) |       |          |       |
| Carbon tetrachloride      | 50.0    | ET     | 183 ET | 185   | ug/L  |      | 5 *  | (70%-130%) |       |          |       |
| Chlorobenzene             | 50.0    | U      | 0.00   | 49.2  | ug/L  |      | 98   | (70%-130%) |       |          |       |
| Chloroform                | 50.0    |        | 8.32   | 56.5  | ug/L  |      | 96   | (70%-130%) |       |          |       |
| Ethylbenzene              | 50.0    | U      | 0.00   | 49.3  | ug/L  |      | 99   | (70%-130%) |       |          |       |
| Methylene chloride        | 50.0    | U      | 0.00   | 51.7  | ug/L  |      | 103  | (70%-130%) |       |          |       |
| Tetrachloroethylene       | 50.0    | U      | 0.00   | 47.6  | ug/L  |      | 95   | (70%-130%) |       |          |       |

**GEL LABORATORIES LLC**

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

**QC Summary**

Workorder: 401101

Page 4 of 6

| Parname                    | NOM     | Sample | Qual | QC     | Units | RPD% | REC% | Range      | Anlst | Date     | Time  |
|----------------------------|---------|--------|------|--------|-------|------|------|------------|-------|----------|-------|
| <b>Volatile-GC/MS</b>      |         |        |      |        |       |      |      |            |       |          |       |
| Batch                      | 1580638 |        |      |        |       |      |      |            |       |          |       |
| Toluene                    | 50.0    | U      | 0.00 | 48.8   | ug/L  |      | 98   | (70%-130%) | CDS1  | 07/12/16 | 17:05 |
| Trichloroethylene          | 50.0    |        | 8.15 | 58.8   | ug/L  |      | 101  | (70%-130%) |       |          |       |
| Vinyl chloride             | 50.0    | U      | 0.00 | 43.9   | ug/L  |      | 88   | (70%-130%) |       |          |       |
| Xylenes (total)            | 150     | U      | 0.00 | 142    | ug/L  |      | 95   | (70%-130%) |       |          |       |
| **1,2-Dichloroethane-d4    | 50.0    |        | 44.6 | 42.8   | ug/L  |      | 86   | (70%-130%) |       |          |       |
| **Bromofluorobenzene       | 50.0    |        | 47.0 | 47.3   | ug/L  |      | 95   | (70%-130%) |       |          |       |
| **Toluene-d8               | 50.0    |        | 48.5 | 46.9   | ug/L  |      | 94   | (70%-130%) |       |          |       |
| QC1203582166 400887001 PSD |         |        |      |        |       |      |      |            |       |          |       |
| 1,1,1-Trichloroethane      | 50.0    | U      | 0.00 | 53.3   | ug/L  | 0    | 107  | (0%-20%)   |       | 07/12/16 | 17:36 |
| 1,1,2-Trichloroethane      | 50.0    | U      | 0.00 | 46.1   | ug/L  | 6    | 92   | (0%-20%)   |       |          |       |
| 1,1-Dichloroethane         | 50.0    | U      | 0.00 | 51.6   | ug/L  | 3    | 103  | (0%-20%)   |       |          |       |
| 1,1-Dichloroethylene       | 50.0    | U      | 0.00 | 49.5   | ug/L  | 3    | 99   | (0%-20%)   |       |          |       |
| 1,2-Dichloroethane         | 50.0    | U      | 0.00 | 47.8   | ug/L  | 3    | 96   | (0%-20%)   |       |          |       |
| 2-Butanone                 | 250     | TU     | 0.00 | T 161  | ug/L  | 12   | 65 * | (0%-20%)   |       |          |       |
| 4-Methyl-2-pentanone       | 250     | U      | 0.00 | 200    | ug/L  | 13   | 80   | (0%-20%)   |       |          |       |
| Acetone                    | 250     | TU     | 0.00 | T 132  | ug/L  | 5    | 53 * | (0%-20%)   |       |          |       |
| Benzene                    | 50.0    | U      | 0.00 | 50.8   | ug/L  | 3    | 102  | (0%-20%)   |       |          |       |
| Carbon disulfide           | 250     | U      | 0.00 | 240    | ug/L  | 6    | 96   | (0%-20%)   |       |          |       |
| Carbon tetrachloride       | 50.0    | ET     | 183  | ET 193 | ug/L  | 4    | 21 * | (0%-20%)   |       |          |       |
| Chlorobenzene              | 50.0    | U      | 0.00 | 46.9   | ug/L  | 5    | 94   | (0%-20%)   |       |          |       |
| Chloroform                 | 50.0    |        | 8.32 | 54.7   | ug/L  | 3    | 93   | (0%-20%)   |       |          |       |
| Ethylbenzene               | 50.0    | U      | 0.00 | 45.9   | ug/L  | 7    | 92   | (0%-20%)   |       |          |       |

**GEL LABORATORIES LLC**

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

**QC Summary**

Workorder: 401101

Page 5 of 6

| Parname                 | NOM     | Sample | Qual | QC   | Units | RPD% | REC% | Range      | Anlst | Date     | Time  |
|-------------------------|---------|--------|------|------|-------|------|------|------------|-------|----------|-------|
| <b>Volatile-GC/MS</b>   |         |        |      |      |       |      |      |            |       |          |       |
| Batch                   | 1580638 |        |      |      |       |      |      |            |       |          |       |
| Methylene chloride      | 50.0    | U      | 0.00 | 51.7 | ug/L  | 0    | 103  | (0%-20%)   | CDS1  | 07/12/16 | 17:36 |
| Tetrachloroethylene     | 50.0    | U      | 0.00 | 46.0 | ug/L  | 3    | 92   | (0%-20%)   |       |          |       |
| Toluene                 | 50.0    | U      | 0.00 | 45.5 | ug/L  | 7    | 91   | (0%-20%)   |       |          |       |
| Trichloroethylene       | 50.0    |        | 8.15 | 56.4 | ug/L  | 4    | 96   | (0%-20%)   |       |          |       |
| Vinyl chloride          | 50.0    | U      | 0.00 | 41.2 | ug/L  | 6    | 82   | (0%-20%)   |       |          |       |
| Xylenes (total)         | 150     | U      | 0.00 | 134  | ug/L  | 6    | 90   | (0%-20%)   |       |          |       |
| **1,2-Dichloroethane-d4 | 50.0    |        | 44.6 | 41.8 | ug/L  |      | 84   | (70%-130%) |       |          |       |
| **Bromofluorobenzene    | 50.0    |        | 47.0 | 47.6 | ug/L  |      | 95   | (70%-130%) |       |          |       |
| **Toluene-d8            | 50.0    |        | 48.5 | 45.0 | ug/L  |      | 90   | (70%-130%) |       |          |       |

**Notes:**

The Qualifiers in this report are defined as follows:

- A The TIC is a suspected aldol-condensation product
- B The analyte was detected in both the associated QC blank and in the sample.
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of sample.
- E Concentration exceeds the calibration range of the instrument
- J The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate). Value is estimated
- N Spike Sample recovery is outside control limits.
- P Aroclor target analyte with greater than 25% difference between column analyses.
- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- o Analyte failed to recover within LCS limits (Organics only)

**GEL LABORATORIES LLC**

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

**QC Summary**

Workorder: 401101

Page 6 of 6

| <b>Parmname</b> | <b>NOM</b> | <b>Sample</b> | <b>Qual</b> | <b>QC</b> | <b>Units</b> | <b>RPD%</b> | <b>REC%</b> | <b>Range</b> | <b>Anlst</b> | <b>Date</b> | <b>Time</b> |
|-----------------|------------|---------------|-------------|-----------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|
|-----------------|------------|---------------|-------------|-----------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

## Surrogate Recovery Report

SDG Number: GEL401101

Matrix Type: LIQUID

| Sample ID  | Client ID             | DCED4<br>%REC | TOL<br>%REC | BFB<br>%REC |
|------------|-----------------------|---------------|-------------|-------------|
| 1203583230 | LCS for batch 1580638 | 88            | 88          | 101         |
| 1203583229 | MB for batch 1580638  | 96            | 92          | 97          |
| 401101001  | B365V0                | 91            | 95          | 92          |
| 401101002  | B365V1                | 101           | 97          | 97          |
| 1203582165 | B34Y05PS              | 86            | 94          | 95          |
| 1203582166 | B34Y05PSD             | 84            | 90          | 95          |

**Surrogate****Acceptance Limits**

DCED4 = 1,2-Dichloroethane-d4

(70%-130%)

TOL = Toluene-d8

(70%-130%)

BFB = Bromofluorobenzene

(70%-130%)

\* Recovery outside Acceptance Limits

# Column to be used to flag recovery values

D Sample Diluted