GEL Laboratories LLC
a member of The GEL Group INC

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July 13, 2017

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

Re: CHPRC SAF W17-006
Work Order: 425603
SDG: GEL425603

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 16, 2017. 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: 300085 - 7H
Chain of Custody: W17-006-051, W17-006-052, W17-006-055, W17-006-097, W17-006-098, W17-006-099, W17-006-100, W17-006-101, W17-006-107, W17-006-207, W17-006-208 and W17-006-213
Enclosures

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# Case Narrative

**General Narrative**
**for**
**CH2MHill Plateau Remediation Company**
**CHPRC SAF W17-006**
**SDG: GEL425603**

**July 13, 2017**

**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 June 16, 2017, 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.

**Sample Identification**
The laboratory received the following samples:

| Laboratory Identification | Sample Description |
|---|---|
| 425603001 | B39NF9 |
| 425603002 | B39NH6 |
| 425603003 | B39NH7 |
| 425603004 | B39NJ7 |
| 425603005 | B39NJ8 |
| 425603006 | B39NM7 |
| 425603007 | B39NH8 |
| 425603008 | B39NH2 |
| 425603009 | B39NH9 |
| 425603010 | B39NH3 |
| 425603011 | B39NM5 |
| 425603012 | B39NM8 |
| 425603013 | B3B3F8 |
| 425603014 | B3B3F7 |
| 425603015 | B3B3H4 |

**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 Semivolatile Herbicide, GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry and Metals.

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.

B Luthman

Brielle Luthman for
Heather Shaffer
Project Manager

**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

# GC/MS Volatile

**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**

**Blank (MB) Statement**
Target analytes were detected in the blank 1203818381 (MB) below the reporting limit.

**Miscellaneous Information**

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples 425603010 (B39NH3) and 425603011 (B39NM5) may have required manual integrations due to software limitations.

# GC/MS Semivolatile

**Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**

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.

**Calibration Information**

**CCV Requirements**
All Calibration Verification Standards (ICV, CCV) did not meet the acceptance criteria as outlined in Method 8270D for samples 425603008 (B39NH2), 425603010 (B39NH3) and 425603011 (B39NM5) and the associated QC. 4-Chlorophenylphenylether, Pentachloronitrobenzene, 4-Nitroquinoline-1-oxide, Kepone, Sulfotepp, and Hexachlorophene exceeded the %Max Drift. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. Since 4-Nitroquinoline-1-oxide was biased low, the samples and associated MB were re-analyzed on an instrument that passed CCV acceptance criteria. The re-analyses confirmed the absence of the target analytes in the sample and MB. The data are therefore reported from the original analyses only for all target analytes.

**Quality Control (QC) Information**

**Surrogate Recoveries**
Samples (See Below) did not meet surrogate recovery acceptance criteria. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

| Sample | Analyte | Value |
|---|---|---|
| 1203814915 (MB) | 2-Fluorophenol | 41* (70%-130%) |
| | Nitrobenzene-d5 | 68* (70%-130%) |
| | Phenol-d5 | 26* (70%-130%) |
| 1203814916 (LCS) | 2-Fluorophenol | 38* (70%-130%) |
| | Nitrobenzene-d5 | 67* (70%-130%) |
| | Phenol-d5 | 24* (70%-130%) |
| | p-Terphenyl-d14 | 68* (70%-130%) |
| 1203814919 (B39NH2MS) | 2-Fluorophenol | 51* (70%-130%) |
| | Nitrobenzene-d5 | 65* (70%-130%) |
| | Phenol-d5 | 40* (70%-130%) |
| | p-Terphenyl-d14 | 65* (70%-130%) |
| 1203814920 (B39NH2MSD) | 2-Fluorophenol | 52* (70%-130%) |
| | Nitrobenzene-d5 | 68* (70%-130%) |
| | Phenol-d5 | 40* (70%-130%) |
| 425603008 (B39NH2) | 2-Fluorobiphenyl | 69* (70%-130%) |
| | 2-Fluorophenol | 37* (70%-130%) |
| | Nitrobenzene-d5 | 61* (70%-130%) |
| | Phenol-d5 | 23* (70%-130%) |
| 425603010 (B39NH3) | 2,4,6-Tribromophenol | 68* (70%-130%) |
| | 2-Fluorobiphenyl | 62* (70%-130%) |
| | 2-Fluorophenol | 33* (70%-130%) |
| | Nitrobenzene-d5 | 55* (70%-130%) |
| | Phenol-d5 | 20* (70%-130%) |
| 425603011 (B39NM5) | 2-Fluorobiphenyl | 62* (70%-130%) |
| | 2-Fluorophenol | 31* (70%-130%) |
| | Nitrobenzene-d5 | 54* (70%-130%) |
| | Phenol-d5 | 19* (70%-130%) |
| | p-Terphenyl-d14 | 62* (70%-130%) |

**Laboratory Control Sample (LCS) Recovery**
The LCS and/or LCSD (See Below) did not meet spike recovery acceptance criteria. The failures are known to be poor responding analytes as stated per the Method. This may account for the low recoveries and the data were reported.

| Sample | Analyte | Value |
|---|---|---|
| 1203814916 (LCS) | Several | See applicable report |

The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

| Sample | Analyte | Value |
|---|---|---|
| 1203814916 (LCS) | Several | See applicable report |

**Internal Standard (ISTD) Acceptance**
Sample 425603010 (B39NH3) failed ISTD acceptance criteria. The sample was re-analyzed on a second instrument, passed ISTD acceptance criteria, and confirmed the absence of any target analytes. The data were therefore reported from the original analysis.

**Miscellaneous Information**

**Manual Integrations**
Sample 1203814916 (LCS) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

# GC Semivolatile Pesticide

**Organochlorine Pesticides and Chlorinated Hydrocarbons**

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.

**Technical Information**

**Florisil**
Florisil clean-up was not performed on client and quality control samples in this batch.

**Miscellaneous Information**

**Additional Comments**

The Toxaphene and/or Chlordane standards were analyzed for this SDG as a retention time marker and pattern reference. A five-point calibration curve and calibration verification standard forms were not submitted in the data package since Toxaphene and/or Chlordane were not detected in the client samples.

# GC Semivolatile PCB

**Analysis of Polychlorinated Biphenyls by ECD**

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**

**Surrogate Recoveries**
Samples (See Below) did not meet the client require surrogate recovery acceptance criteria, but met the

laboratory acceptance criteria.

| Sample | Analyte | Value |
|---|---|---|
| 1203827653 (MB) | 4cmx | 68* (70%-130%) |
| 1203827654 (LCS) | 4cmx | 64* (70%-130%) |
| | 4cmx | 65* (70%-130%) |
| 1203827659 (B3B3F7MS) | 4cmx | 69* (70%-130%) |
| 1203827660 (B3B3F7MSD) | 4cmx | 67* (70%-130%) |
| | 4cmx | 68* (70%-130%) |

**Technical Information**

**Preparation/Analytical Method Verification**
All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences.

**Miscellaneous Information**

**Manual integrations**
Samples 1203827654 (LCS), 1203827659 (B3B3F7MS) and 1203827660 (B3B3F7MSD) required manual integration to correctly position the baseline as set in the calibration standard injections and to properly identify one or more peaks.

# GC Semivolatile Herbicide

**Analysis of Chlorophenoxy Acid Herbicides by ECD**

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.

**Calibration Information**

**Continuing Calibration Verification (CCV) Requirements**
The calibration verification standards (CCV) did not meet acceptance criteria. One or more target analytes failed acceptance criteria with a positive bias on one or both analytical columns in the standards bracketing samples and associated QC. The positive bias for the analytical data is a result of instrument response increasing after the initial calibration. As there were no target analytes detected in the associated samples, the data were reported. All analytes were within the established retention time windows for this method. The calibration verification standards (CCV) did not meet acceptance criteria. One or more target analytes failed acceptance criteria with a negative bias on one analytical column in the standards bracketing samples and associated QC. The negative bias for the analytical data is a result of instrument response decreasing after the initial calibration. The instrument response never decreased to a point where the target analytes would not be detected. All analytes were within the established retention time windows for this method.

**Quality Control (QC) Information**

**Surrogate Recoveries**

The MS and MSD (See Below) did not meet surrogate recovery acceptance criteria. Since there were no target analytes detected in the associated parent sample above the reporting limits, the biased high surrogate recoveries had no adverse impact on the reported data.

| Sample | Analyte | Value |
|---|---|---|
| 1203815815 (B3B3F8MS) | 2,4-Dichlorophenylacetic acid | 135* (70%-130%) |
| 1203815816 (B3B3F8MSD) | 2,4-Dichlorophenylacetic acid | 135* (70%-130%) |

**Laboratory Control Sample (LCS) Recovery**
The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

| Sample | Analyte | Value |
|---|---|---|
| 1203815812 (LCS) | Dinoseb | 68* (70%-130%) |
| | MCPP | 62* (70%-130%) |

# Metals

**Determination of Metals by ICP**

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**

**Method Blank (MB) Statement**
The method blanks (MB) analyzed with this SDG met the acceptance criteria. However, where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

| Sample | Analyte | Value |
|---|---|---|
| 1203813659 (MB) | Potassium | 51.5 betw (50 - 75) |
| | Sodium | 114 betw (100 - 150) |

**Determination of Metals by ICP-MS**

There are no exceptions, anomalies or deviations from the specified methods. 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.

**Determination of Metals by ICP-MS**

There are no exceptions, anomalies or deviations from the specified methods. 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.

**Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**

There are no exceptions, anomalies or deviations from the specified methods. 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.

# General Chemistry

**Cyanide, Total**

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.

**Technical Information**

**Sample Re-analysis**
Sample1203814051 (LCS) was re-analyzed due to instrument failure. The results from the reanalysis are reported.

**Ion Chromatography**

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.

**Technical Information**

**Sample Dilutions**
The following samples 1203813079 (B39NM7DUP), 1203813080 (B39NM7PS), 425603001 (B39NF9), 425603003 (B39NH7), 425603005 (B39NJ8) and 425603006 (B39NM7) were diluted because target analyte concentrations exceeded the calibration range.

| Analyte | 425603 | | | |
|---|---|---|---|---|
| | **001** | **003** | **005** | **006** |
| Several | 10X<br>1X | 10X<br>1X | 10X<br>1X | 20X 10X<br>1X |

**Miscellaneous Information**

**Manual Integrations**
Samples 1203813079 (B39NM7DUP), 1203813080 (B39NM7PS), 425603001 (B39NF9), 425603002 (B39NH6), 425603003 (B39NH7), 425603004 (B39NJ7), 425603005 (B39NJ8) and 425603006 (B39NM7) were manually integrated to correctly position the baseline as set in the calibration standards.

**Sulfide, Total**

There are no exceptions, anomalies or deviations from the specified methods. 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.

**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

July 13, 2017

CH2MHill Plateau Remediation Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

425603

C.O.C. # W17-006-097

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| Collector | Juan Aguilar /CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | W17-006 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 300071 |
| Project Title | RCRA, JUNE 2017 | Logbook No. | HNF-N-506 92/93 | Ice Chest No. | GW3-618 |
| Shipped To (Lab) | GEL Laboratories, LLC | Method of Shipment | Commercial Carrier | Bill of Lading/Air Bill No. | 779415203402 |
| Protocol | RCRA | Priority: | 30 Days PRIORITY | Offsite Property No. | 8053 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NF9 | N | W | 6-15-17 | 1212 | 1x125-mL G/P | 9056_ANIONS_IC: COMMON | 48 Hours | Cool <=6C |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Juan Aguilar /CHPRC | | JUN 15 2017 | 1245 | Curt Hoffman CHPRC | | JUN 15 2017 | 1245 |
| Curt Hoffman CHPRC | | JUN 15 2017 | 1400 | FEDEX | | | |
| | | FED EX | | STACY BOONE | | 6-16-17 | 9:15 |
| | | | | | | | |

Matrix *

| | | | |
|---|---|---|---|
| S | = Soil | DS | = Drum Solids |
| SE | = Sediment | DL | = Drum Liquids |
| SO | = Solid | T | = Tissue |
| SL | = Sludge | WI | = Wipe |
| W | = Water | L | = Liquid |
| O | = Oil | V | = Vegetation |
| A | = Air | X | = Other |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/15/2017 FSR ID = FSR34761 A-6004-842 (REV 2)

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CH2MHill Plateau Remediation Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

4256603

C.O.C. # W17-006-098

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92/93 | **Ice Chest No.** | GWS-578 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 779414398361 |
| **Protocol** | RCRA | **Priority:** | 30 Days **PRIORITY** | **Offsite Property No.** | 8050 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NH6 | N | W | 6-15-17 | 0845 | 1x125-mL G/P | 9056_ANIONS_IC: COMMON | 48 Hours | Cool <=6C |

July 13, 2017

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | Juan Aguilar /CHPRC | | JUN 15 2017 1045 | | Curt Hoffman CHPRC | | JUN 15 2017 1045 |
| Relinquished By | Curt Hoffman CHPRC | | Date/Time JUN 15 2017 1400 | Received By | FEDEX | | Date/Time |
| Relinquished By | | | Date/Time FEDEX | Received By | STACY ROONE | | Date/Time 6/16/17 9:15 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

| **FINAL SAMPLE DISPOSITION** | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|

PRINTED ON 5/23/2017 FSR ID = FSR25971 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

4256603

C.O.C. # W17-006-099

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92193 | **Ice Chest No.** | GW5578 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 779414398361 |
| **Protocol** | RCRA | **Priority:** | 30 Days PRIORITY | **Offsite Property No.** | 8050 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NH7 | N | W | 6-15-17 | 1103 | 1x125-mL G/P | 9056_ANIONS_IC: COMMON | 48 Hours | Cool <=6C |

| | Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|---|
| 1 | Juan Aguilar /CHPRC | | | JUN 15 2017 1145 | Curt Hoffman CHPRC | | | JUN 15 2017 1148 |
| 2 | Curt Hoffman CHPRC | | | Date/Time 1400 JUN 15 2017 | Received By | FEDEX | | Date/Time |
| 3 | Relinquished By | | | Date/Time FEDEX | Received By | STACY BOONE | | Date/Time 6/16/17 9:15 |
| 4 | Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

| **FINAL SAMPLE DISPOSITION** | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|

PRINTED ON 5/15/2017

FSR ID = FSR8642

A-6004-842 (REV 2)

July 13, 2017

17 of 202

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 425603 | C.O.C. # W17-006-100 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92/93 | **Ice Chest No.** | GWS-323 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 7794 1230 5085 |
| **Protocol** | RCRA | **Priority:** | 30 Days PRIORITY | **Offsite Property No.** | 8046 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NJ7 | N | W | 6-15-17 | 0800 | 1x125-mL G/P | 9056_ANIONS_IC: COMMON | 48 Hours | Cool <=6C |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | Juan Aguilar /CHPRC | | JUN 15 2017 0830 | | Lesly Wall /CHPRC | Lesly Wall | JUN 15 2017 0830 |
| Relinquished By | Lesly Wall /CHPRC | Lesly Wall | JUN 15 2017 1400 | Received By | FEDEX | | Date/Time |
| Relinquished By | | | FEDEX Date/Time | Received By | STACY BOOWG | | 6/16/17 9:15 Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

| FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|

PRINTED ON 5/15/2017 FSR ID = FSR45132 A-6004-842 (REV 2)



July 13, 2017

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 425603 | C.O.C. # W17-006-101 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92/93 | **Ice Chest No.** | GWS-578 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 7794 1439 8361 |
| **Protocol** | RCRA | **Priority:** | 30 Days PRIORITY | **Offsite Property No.** | 8050 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NJ8 | N | W | 6-15-17 | 0948 | 1x125-mL G/P | 9056_ANIONS_IC: COMMON | 48 Hours | Cool <=6C |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | Juan Aguilar /CHPRC | | JUN 15 2017 1045 | | Curt Hoffman CHPRC | | JUN 15 2017 1045 |
| Relinquished By | Curt Hoffman CHPRC | | Date/Time JUN 15 2017 1400 | Received By | FEDEX | | Date/Time |
| Relinquished By | | | Date/Time FED EX | Received By | | | Date/Time STACY BOONE 6/16/17 9:15 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

**PRINTED ON** 5/15/2017 **FSR ID = FSR37529** A-6004-842 (REV 2)

July 13, 2017

**CH2MHill Plateau Remediation Company**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

425603

C.O.C. # **W17-006-107**

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92 / 93 | **Ice Chest No.** | 0w5-618 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 7794 1520 3402 |
| **Protocol** | RCRA | **Priority:** | **30 Days** **PRIORITY** | **Offsite Property No.** | 8053 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NM7 | N | W | 6-15-17 | 1300 | 1x125-mL G/P | 9056_ANIONS_IC: COMMON | 48 Hours | Cool <=6C |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Juan Aguilar /CHPRC | | JUN 15 2017 | 1332 | Curt Hoffman CHPRC | | | JUN 15 2017 1332 |
| Curt Hoffman CHPRC | | | JUN 15 2017 1400 | FEDEX | | | |
| FEDEX | | | 6-16-17 | STACY DOOMS | | | 6-16-17 9:45 |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/15/2017 FSR ID = FSR45136 A-6004-842 (REV 2)

July 13, 2017

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CH2MHill Plateau Remediation Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

4251603

C.O.C. # W17-006-051

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92 / 93 | **Ice Chest No.** | GWS-323 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 779412305085 |
| **Protocol** | RCRA | **Priority:** | 30 Days PRIORITY | **Offsite Property No.** | 8046 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NH8 | Y | W | 6-15-17 | 0845 | 1x500-mL G/P | 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 28 Days | HNO3 to pH <2 |
| B39NH2 | N | W | 6-15-17 | 0845 | 1x1-L G/P | 4500D_SULFIDE: COMMON | 7 Days | ZnAc+NaOH to pH > 9/Cool <=6C |
| B39NH2 | N | W | 6-15-17 | 0845 | 1x500-mL G/P | 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 28 Days | HNO3 to pH <2 |
| B39NH2 | N | W | 6-15-17 | 0845 | 5x40-mL aGs* | 8260_VOA_GCMS_IX: COMMON REV 1 | 14 Days | HCl or H2SO4 to pH <2/Cool <=6C |
| B39NH2 | N | W | 6-15-17 | 0845 | 4x1-L aG | 8270_SVOA_GCMS_IX: COMMON REV 1 | 7/40 Days | Cool <=6C |
| B39NH2 | N | W | 6-15-17 | 0845 | 1x250-mL aG | 9012_CYANIDE (TOTAL): COMMON | 14 Days | NaOH to pH >=12/Cool <=6C |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | Juan Aguilar /CHPRC | | JUN 15 2017 1045 | | Lesly Wall /CHPRC | | JUN 15 2017 1045 |
| Relinquished By | Lesly Wall /CHPRC | | JUN 15 2017 1400 | Received By | FEDEX | | |
| Relinquished By | | | FEDEX | Received By | STACY POONE | | 6/16/17 9:15 |
| Relinquished By | | | | Received By | | | |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/23/2017 FSR ID = FSR25971 A-6004-842 (REV 2)

July 13, 2017

CH2MHill Plateau Remediation Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

425603

C.O.C. # W17-006-052

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| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92193 | **Ice Chest No.** | GWS-578 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 779414398361 |
| **Protocol** | RCRA | **Priority:** | 30 Days PRIORITY | **Offsite Property No.** | 8050 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NH9 | Y | W | 6-15-17 | 1103 | 1x500-mL G/P | 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 28 Days | HNO3 to pH <2 |
| B39NH3 | N | W | 6-15-17 | 1103 | 1x1-L G/P | 4500D_SULFIDE: COMMON | 7 Days | ZnAc+NaOH to pH > 9/Cool <=6C |
| B39NH3 | N | W | 6-15-17 | 1103 | 1x500-mL G/P | 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 28 Days | HNO3 to pH <2 |
| B39NH3 | N | W | 6-15-17 | 1103 | 5x40-mL aGs* | 8260_VOA_GCMS_IX: COMMON REV 1 | 14 Days | HCl or H2SO4 to pH <2/Cool <=6C |
| B39NH3 | N | W | 6-15-17 | 1103 | 4x1-L aG | 8270_SVOA_GCMS_IX: COMMON REV 1 | 7/40 Days | Cool <=6C |
| B39NH3 | N | W | 6-15-17 | 1103 | 1x250-mL aG | 9012_CYANIDE (TOTAL): COMMON | 14 Days | NaOH to pH >=12/Cool <=6C |

July 13, 2017

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Juan Aguilar /CHPRC | | | JUN 15 2017 1145 | Curt Hoffman CHPRC | | | JUN 15 2017 1145 |
| Curt Hoffman CHPRC | | | JUN 15 2017 1400 | | FEDEX | | |
| | | | FEDEX | STACY BOONE | | | 6/16/17 9:15 |
| | | | | | | | |

| Matrix * | | | |
|---|---|---|---|
| S = Soil | DS = Drum Solids | | |
| SE = Sediment | DL = Drum Liquids | | |
| SO = Solid | T = Tissue | | |
| SL = Sludge | WI = Wipe | | |
| W = Water | L = Liquid | | |
| O = Oil | V = Vegetation | | |
| A = Air | X = Other | | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/15/2017 FSR ID = FSR8642 A-6004-842 (REV 2)

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| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 425603 | C.O.C. # W17-006-055 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92 193 | **Ice Chest No.** | GWS-544 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 7794159358 96 |
| **Protocol** | RCRA | **Priority:** | 30 Days **PRIORITY** | **Offsite Property No.** | 8054 |

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B39NM5 | N | W | 6-15-17 | 1300 | 1x1-L G/P | 4500D_SULFIDE: COMMON | 7 Days | ZnAc+NaOH to pH > 9/Cool <=6C |
| B39NM5 | N | W | ↓ | 1300 | 1x500-mL G/P | 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 28 Days | HNO3 to pH <2 |
| B39NM5 | N | W | | 1300 | 5x40-mL aGs* | 8260_VOA_GCMS_IX: COMMON REV 1 | 14 Days | HCl or H2SO4 to pH <2/Cool <=6C |
| B39NM5 | N | W | | 1300 | 4x1-L aG | 8270_SVOA_GCMS_IX: COMMON REV 1 | 7/40 Days | Cool <=6C |
| B39NM5 | N | W | | 1300 | 1x250-mL aG | 9012_CYANIDE (TOTAL): COMMON | 14 Days | NaOH to pH >=12/Cool <=6C |
| B39NM8 | Y | W | 6-15-17 | 1300 | 1x500-mL G/P | 7470_MERCURY_CV: COMMON (AQUEOUS); 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 28 Days | HNO3 to pH <2 |

July 13, 2017

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| Juan Aguilar /CHPRC | | | JUN 15 2017 1332 | Curt Hoffman CHPRC | | | JUN 15 2017 1332 |
| Curt Hoffman CHPRC | | | JUN 15 2017 1400 | | FEDEX | | |
| | | | FEDEX | | | | |
| | | | | | STACY BOOWE | | 6-16-17 9:15 |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/15/2017 FSR ID = FSR45136 A-6004-842 (REV 2)

CH2MHill Plateau Remediation Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

425603

C.O.C. # W17-006-207

Page 1 of 1

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92 193 | **Ice Chest No.** | GWS-578 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 779414398361 |
| **Protocol** | RCRA | **Priority:** | **30 Days** PRIORITY | **Offsite Property No.** | 8050 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B3B3F8 | N | W | 6-15-17 | 0845 | 4x1-L aG | 8081_PEST_GC: CH 01; 8081_PEST_GC: COMMON | 7/40 Days | Cool <=6C |
| B3B3F8 | N | W | 6-15-17 | 0845 | 4x1-L aG | 8082_PCB_GC: COMMON | None | Cool <=6C |
| B3B3F8 | N | W | 6-15-17 | 0845 | 4x1-L aG | 8151_HERBICIDE_GC: COMMON | 7/40 Days | Cool <=6C |

July 13, 2017

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | Juan Aguilar /CHPRC | | JUN 15 2017 1045 | | Curt Hoffman CHPRC | | JUN 15 2017 1045 |
| Relinquished By | Curt Hoffman CHPRC | | JUN 15 2017 1400 | Received By | FEDEX | | Date/Time |
| Relinquished By | | | FED | Received By | STACY BOONE | | 6/16/17 9:15 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

**FINAL SAMPLE DISPOSITION** Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PRINTED ON 5/23/2017 FSR ID = FSR25971 A-6004-842 (REV 2)

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 425603 | C.O.C. # W17-006-208 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | ~~Juan Aguilar~~ /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92 193 | **Ice Chest No.** | GWS - 618 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 7749152034O2 |
| **Protocol** | RCRA | **Priority:** | **30 Days** PRIORITY | **Offsite Property No.** | 8053 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B3B3F7 | N | W | 6-15-17 | 1103 | 4x1-L aG | 8081_PEST_GC: CH 01; 8081_PEST_GC: COMMON | 7/40 Days | Cool <=6C |
| B3B3F7 | N | W | 6-15-17 | 1103 | 4x1-L aG | 8082_PCB_GC: COMMON | None | Cool <=6C |
| B3B3F7 | N | W | 6-15-17 | 1103 | 4x1-L aG | 8151_HERBICIDE_GC: COMMON | 7/40 Days | Cool <=6C |

July 13, 2017

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| ~~Juan Aguilar~~ /CHPRC | | | JUN 15 2017 1145 | Curt Hoffman CHPRC | | | JUN 15 2017 1145 |
| Relinquished By | Curt Hoffman CHPRC | | Date/Time JUN 15 2017 1400 | Received By | FEDEX | | Date/Time |
| Relinquished By | | | Date/Time FEDEX | Received By | R. STACY BOONE | | Date/Time 6-16-17 9:11 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | DS | = Drum Solids | | |
| SE | = Sediment | DL | = Drum Liquids | | |
| SO | = Solid | T | = Tissue | | |
| SL | = Sludge | WI | = Wipe | | |
| W | = Water | L | = Liquid | | |
| O | = Oil | V | = Vegetation | | |
| A | = Air | X | = Other | | |

| **FINAL SAMPLE DISPOSITION** | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|

PRINTED ON 5/15/2017 FSR ID = FSR8642 A-6004-842 (REV 2)

93165

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 425603 | C.O.C. # W17-006-213 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Collector** | Juan Aguilar /CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | W17-006 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 300071 |
| **Project Title** | RCRA, JUNE 2017 | **Logbook No.** | HNF-N-506 92 / 93 | **Ice Chest No.** | GWS-544 |
| **Shipped To (Lab)** | GEL Laboratories, LLC | **Method of Shipment** | Commercial Carrier | **Bill of Lading/Air Bill No.** | 779411593589 6 |
| **Protocol** | RCRA | **Priority:** | 30 Days **PRIORITY** | **Offsite Property No.** | 9054 |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B3B3H4 | N | W | 6-15-17 | 1300 | 4x1-L aG | 8081_PEST_GC: CH 01; 8081_PEST_GC: COMMON | 7/40 Days | Cool <=6C |
| B3B3H4 | N | W | 6-15-17 | 1300 | 4x1-L aG | 8082_PCB_GC: COMMON | None | Cool <=6C |
| B3B3H4 | N | W | 6-15-17 | 1300 | 4x1-L aG | 8151_HERBICIDE_GC: COMMON | 7/40 Days | Cool <=6C |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | Juan Aguilar /CHPRC | | JUN 15 2017 | | Curt Hoffman CHPRC | | JUN 15 2017 |
| Relinquished By | Curt Hoffman CHPRC | | Date/Time JUN 15 2017 1400 | Received By | FEDEX | | Date/Time |
| Relinquished By | | | Date/Time FED EX | Received By | Ltr Rm STACY BOONT | | Date/Time 6-16-17 9:14 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

| | | | | | |
|---|---|---|---|---|---|
| S | = Soil | | DS | = Drum Solids | |
| SE | = Sediment | | DL | = Drum Liquids | |
| SO | = Solid | | T | = Tissue | |
| SL | = Sludge | | WI | = Wipe | |
| W | = Water | | L | = Liquid | |
| O | = Oil | | V | = Vegetation | |
| A | = Air | | X | = Other | |

| **FINAL SAMPLE DISPOSITION** | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time |
|---|---|---|---|

**PRINTED ON** 5/15/2017 **FSR ID = FSR45136** A-6004-842 (REV 2)

July 13, 2017

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| Client: CPRC | SDG/AR/COC/Work Order: 428203 |
| Received By: Stacy Boone | Date Received: 16-JUNE-17 |
| Carrier and Tracking Number | Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other<br>7794 1520 3402-1c 7794 1593 6896-1c<br>7794 1439 8361-1c<br>7794 1230 5085-1c |

| Suspected Hazard Information | Yes | No | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
|---|---|---|---|
| Shipped as a DOT Hazardous? | | ✓ | Hazard Class Shipped: UN#: |
| COC/Samples marked or classified as radioactive? | | ✓ | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr<br>Classified as: Rad 1 Rad 2 Rad 3 |
| Is package, COC, and/or Samples marked HAZ? | | ✓ | If yes, select Hazards below, and contact the GEL Safety Group.<br>PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: |

| | Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Chain of custody documents included with shipment? | ✓ | | | |
| 3 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | | | Preservation Method: Wet Ice Ice Packs Dry ice None Other:<br>*all temperatures are recorded in Celsius TEMP:_____ |
| 4 | Daily check performed and passed on IR temperature gun? | ✓ | | | Temperature Device Serial #: IR3-17<br>Secondary Temperature Device Serial # (If Applicable): |
| 5 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 6 | Samples requiring chemical preservation at proper pH? | ✓ | | | Sample ID's and Containers Affected:<br>If Preservation added, Lot#: |
| 7 | Do any samples require Volatile Analysis? | ✓ | | | If Yes, Are Encores or Soil Kits present? Yes___ No✓ (If yes, take to VOA Freezer)<br>Do VOA vials contain acid preservation? Yes✓ No___ N/A (If unknown, select No)<br>VOA vials free of headspace? Yes ✓ No___ N/A<br>Sample ID's and containers affected: |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | Sample ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | Sample ID's affected: |
| 11 | Number of containers received match number indicated on COC? | ✓ | | | Sample ID's affected: |
| 12 | Are sample containers identifiable as GEL provided? | | | ✓ | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials NS Date 6/19/17 Page 1 of 1

GL-CHL-SR-001 Rev 5

# Data Review Qualifier Definitions

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 (843) 556−8171

Report Date: 13−JUL−17

# 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 (0rganics 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 >= 2X the MDA and, after corrections, result is >= 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 >= 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 >= 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 13 July 2017**

| 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 | LA170010 |
| Maryland | 270 |
| Massachusetts | M−SC012 |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE−OS−26−13 |
| Nevada | SC000122017−1 |
| 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 | T104704235−17−12 |
| Utah NELAP | SC000122017−22 |
| 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 #: GEL425603**
**Work Order #: 425603**

**Product:** **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
**Analytical Method:** SW846 8260C
**Analytical Procedure:** GL-OA-E-038 REV# 26
**Analytical Batch:** 1676993

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603008 | B39NH2 |
| 425603010 | B39NH3 |
| 425603011 | B39NM5 |
| 1203818381 | Method Blank (MB) |
| 1203818383 | Laboratory Control Sample (LCS) |
| 1203818384 | 425725004(NonSDG) Post Spike (PS) |
| 1203818385 | 425725004(NonSDG) Post Spike Duplicate (PSD) |

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**

**Blank (MB) Statement**
Target analytes were detected in the blank 1203818381 (MB) below the reporting limit.

**Miscellaneous Information**

**Manual Integrations**
Some initial calibration standards, continuing calibration standards, and/or samples 425603010 (NonSDG) and 425603011 (NonSDG) may have required manual integrations due to software limitations.

**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: GEL425603 GEL Work Order: 425603

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

B The analyte was detected in both the associated QC blank and in the sample.

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

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:** Erin Haubert **Name: Erin Haubert**

**Date: 13 JUL 2017** **Title: Data Validator**

# Sample Data Summary

**Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603008** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH2** | **Method:** | **SW846 8260C** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1676993** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **06/27/2017 13:11** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/27/2017 13:11** | | | | |
| **Data File:** | **062717V9\9Y208.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL |
|---|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 1.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 1.7 |
| 56-23-5 | Carbon tetrachloride | U | 0.300 | ug/L | 0.300 | 2.00 | 3.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 4.00 |
| 100-41-4 | Ethylbenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 4.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 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 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 0.500 | ug/L | 0.500 | 2.00 | 5.00 |
| 106-93-4 | 1,2-Dibromoethane | 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 |
| 78-87-5 | 1,2-Dichloropropane | 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 |
| 75-27-4 | Bromodichloromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 75-25-2 | Bromoform | 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 |
| 108-90-7 | Chlorobenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 67-66-3 | Chloroform | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 124-48-1 | Dibromochloromethane | 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 |
| 100-42-5 | Styrene | U | 0.300 | ug/L | 0.300 | 2.00 | 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 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | 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 | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 107-05-1 | Allyl chloride | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 74-83-9 | Bromomethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 75-00-3 | Chloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 74-87-3 | Chloromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 74-95-3 | Dibromomethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |

**Volatile**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603008** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH2** | **Method:** | **SW846 8260C** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1676993** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **06/27/2017 13:11** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/27/2017 13:11** | | | | |
| **Data File:** | **062717V9\9Y208.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL |
|---|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 97-63-2 | Ethyl methacrylate | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 74-88-4 | Iodomethane | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 126-98-7 | Methacrylonitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 80-62-6 | Methyl methacrylate | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 107-12-0 | Propionitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 75-69-4 | Trichlorofluoromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 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 |
| 591-78-6 | 2-Hexanone | U | 3.00 | ug/L | 3.00 | 10.0 | 20.0 |
| 67-64-1 | Acetone | U | 3.00 | ug/L | 3.00 | 10.0 | 20.0 |
| 108-05-4 | Vinyl acetate | U | 1.60 | ug/L | 1.60 | 5.00 | 50.0 |
| 110-57-6 | trans-1,4-Dichloro-2-butene | U | 1.50 | ug/L | 1.50 | 10.0 | 50.0 |
| 75-05-8 | Acetonitrile | U | 16.7 | ug/L | 16.7 | 50.0 | 100 |
| 107-02-8 | Acrolein | U | 3.00 | ug/L | 3.00 | 10.0 | 100 |
| 107-13-1 | Acrylonitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 100 |
| 78-83-1 | Isobutyl alcohol | U | 33.0 | ug/L | 33.0 | 100 | 500 |

**Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603010** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH3** | **Method:** | **SW846 8260C** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1676993** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **06/27/2017 13:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/27/2017 13:40** | | | | |
| **Data File:** | **062717V9\9Y209.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL |
|---|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 1.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 1.7 |
| 56-23-5 | Carbon tetrachloride | U | 0.300 | ug/L | 0.300 | 2.00 | 3.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 4.00 |
| 100-41-4 | Ethylbenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 4.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 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 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 0.500 | ug/L | 0.500 | 2.00 | 5.00 |
| 106-93-4 | 1,2-Dibromoethane | 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 |
| 78-87-5 | 1,2-Dichloropropane | 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 |
| 75-27-4 | Bromodichloromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 75-25-2 | Bromoform | 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 |
| 108-90-7 | Chlorobenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 67-66-3 | Chloroform | J | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 124-48-1 | Dibromochloromethane | 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 |
| 100-42-5 | Styrene | U | 0.300 | ug/L | 0.300 | 2.00 | 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 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | 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 | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 107-05-1 | Allyl chloride | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 74-83-9 | Bromomethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 75-00-3 | Chloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 74-87-3 | Chloromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 74-95-3 | Dibromomethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |

**Volatile**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603010** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH3** | **Method:** | **SW846 8260C** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1676993** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **06/27/2017 13:40** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/27/2017 13:40** | | | | |
| **Data File:** | **062717V9\9Y209.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL |
|---|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 97-63-2 | Ethyl methacrylate | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 74-88-4 | Iodomethane | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 126-98-7 | Methacrylonitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 80-62-6 | Methyl methacrylate | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 107-12-0 | Propionitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 75-69-4 | Trichlorofluoromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 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 |
| 591-78-6 | 2-Hexanone | U | 3.00 | ug/L | 3.00 | 10.0 | 20.0 |
| 67-64-1 | Acetone | U | 3.00 | ug/L | 3.00 | 10.0 | 20.0 |
| 108-05-4 | Vinyl acetate | U | 1.60 | ug/L | 1.60 | 5.00 | 50.0 |
| 110-57-6 | trans-1,4-Dichloro-2-butene | U | 1.50 | ug/L | 1.50 | 10.0 | 50.0 |
| 75-05-8 | Acetonitrile | U | 16.7 | ug/L | 16.7 | 50.0 | 100 |
| 107-02-8 | Acrolein | U | 3.00 | ug/L | 3.00 | 10.0 | 100 |
| 107-13-1 | Acrylonitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 100 |
| 78-83-1 | Isobutyl alcohol | U | 33.0 | ug/L | 33.0 | 100 | 500 |

**Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603011** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NM5** | **Method:** | **SW846 8260C** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1676993** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **06/27/2017 14:09** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/27/2017 14:09** | | | | |
| **Data File:** | **062717V9\9Y210.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL |
|---|---|---|---|---|---|---|---|
| 79-01-6 | Trichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 1.00 |
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 1.7 |
| 56-23-5 | Carbon tetrachloride | U | 0.300 | ug/L | 0.300 | 2.00 | 3.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 4.00 |
| 100-41-4 | Ethylbenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 4.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 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 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 0.500 | ug/L | 0.500 | 2.00 | 5.00 |
| 106-93-4 | 1,2-Dibromoethane | 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 |
| 78-87-5 | 1,2-Dichloropropane | 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 |
| 75-27-4 | Bromodichloromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 75-25-2 | Bromoform | 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 |
| 108-90-7 | Chlorobenzene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 67-66-3 | Chloroform | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 124-48-1 | Dibromochloromethane | 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 |
| 100-42-5 | Styrene | U | 0.300 | ug/L | 0.300 | 2.00 | 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 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 0.300 | ug/L | 0.300 | 2.00 | 5.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | 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 | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 107-05-1 | Allyl chloride | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 74-83-9 | Bromomethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 75-00-3 | Chloroethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 74-87-3 | Chloromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 74-95-3 | Dibromomethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |

**Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603011** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NM5** | **Method:** | **SW846 8260C** | **SOP Ref:** | **GL-OA-E-038** |
| **Batch ID:** | **1676993** | **Inst:** | **VOA9.I** | **Dilution:** | **1** |
| **Run Date:** | **06/27/2017 14:09** | **Analyst:** | **RXY1** | **Purge Vol:** | **5 mL** |
| **Prep Date:** | **06/27/2017 14:09** | | | | |
| **Data File:** | **062717V9\9Y210.D** | **Column:** | **DB-624** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL |
|---|---|---|---|---|---|---|---|
| 75-71-8 | Dichlorodifluoromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 10.0 |
| 97-63-2 | Ethyl methacrylate | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 74-88-4 | Iodomethane | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 126-98-7 | Methacrylonitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 80-62-6 | Methyl methacrylate | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 107-12-0 | Propionitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 10.0 |
| 75-69-4 | Trichlorofluoromethane | U | 0.300 | ug/L | 0.300 | 2.00 | 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 |
| 591-78-6 | 2-Hexanone | U | 3.00 | ug/L | 3.00 | 10.0 | 20.0 |
| 67-64-1 | Acetone | U | 3.00 | ug/L | 3.00 | 10.0 | 20.0 |
| 108-05-4 | Vinyl acetate | U | 1.60 | ug/L | 1.60 | 5.00 | 50.0 |
| 110-57-6 | trans-1,4-Dichloro-2-butene | U | 1.50 | ug/L | 1.50 | 10.0 | 50.0 |
| 75-05-8 | Acetonitrile | U | 16.7 | ug/L | 16.7 | 50.0 | 100 |
| 107-02-8 | Acrolein | U | 3.00 | ug/L | 3.00 | 10.0 | 100 |
| 107-13-1 | Acrylonitrile | U | 3.00 | ug/L | 3.00 | 10.0 | 100 |
| 78-83-1 | Isobutyl alcohol | U | 33.0 | ug/L | 33.0 | 100 | 500 |

# Quality Control Summary

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

# QC Summary

**Report Date: July 6, 2017**



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| QC1203818383 LCS | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 50.0 | | | 53.8 | ug/L | | 108 | (70%-130%) | RXY1 | 06/27/17 | 11:17 |
| 1,1,1-Trichloroethane | 50.0 | | | 48.8 | ug/L | | 98 | (70%-130%) | | | |
| 1,1,2,2-Tetrachloroethane | 50.0 | | | 56.7 | ug/L | | 113 | (70%-130%) | | | |
| 1,1,2-Trichloroethane | 50.0 | | | 55.4 | ug/L | | 111 | (70%-130%) | | | |
| 1,1-Dichloroethane | 50.0 | | | 53.5 | ug/L | | 107 | (70%-130%) | | | |
| 1,1-Dichloroethylene | 50.0 | | | 51.0 | ug/L | | 102 | (70%-130%) | | | |
| 1,2,3-Trichloropropane | 50.0 | | | 52.7 | ug/L | | 105 | (70%-130%) | | | |
| 1,2-Dibromo-3-chloropropane | 50.0 | | | 54.3 | ug/L | | 109 | (70%-130%) | | | |
| 1,2-Dibromoethane | 50.0 | | | 53.6 | ug/L | | 107 | (70%-130%) | | | |
| 1,2-Dichloroethane | 50.0 | | | 48.3 | ug/L | | 97 | (70%-130%) | | | |
| 1,2-Dichloropropane | 50.0 | | | 53.7 | ug/L | | 107 | (70%-130%) | | | |
| 1,4-Dichlorobenzene | 50.0 | | | 51.3 | ug/L | | 103 | (70%-130%) | | | |
| 2-Butanone | 250 | | | 265 | ug/L | | 106 | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| 2-Hexanone | 250 | | | 269 | ug/L | | 107 | (70%-130%) | RXY1 | 06/27/17 | 11:17 |
| 4-Methyl-2-pentanone | 250 | | | 270 | ug/L | | 108 | (70%-130%) | | | |
| Acetone | 250 | | | 252 | ug/L | | 101 | (70%-130%) | | | |
| Acetonitrile | 1250 | | | 1290 | ug/L | | 103 | (70%-130%) | | | |
| Benzene | 50.0 | | | 52.2 | ug/L | | 104 | (70%-130%) | | | |
| Bromodichloromethane | 50.0 | | | 53.3 | ug/L | | 107 | (70%-130%) | | | |
| Bromoform | 50.0 | | | 58.0 | ug/L | | 116 | (70%-130%) | | | |
| Bromomethane | 50.0 | | | 42.4 | ug/L | | 85 | (70%-130%) | | | |
| Carbon disulfide | 250 | | | 247 | ug/L | | 99 | (70%-130%) | | | |
| Carbon tetrachloride | 50.0 | | | 49.4 | ug/L | | 99 | (70%-130%) | | | |
| Chlorobenzene | 50.0 | | | 51.9 | ug/L | | 104 | (70%-130%) | | | |
| Chloroethane | 50.0 | | | 46.1 | ug/L | | 92 | (70%-130%) | | | |
| Chloroform | 50.0 | | | 50.1 | ug/L | | 100 | (70%-130%) | | | |
| Chloromethane | 50.0 | | | 46.7 | ug/L | | 93 | (70%-130%) | | | |
| Dibromochloromethane | 50.0 | | | 56.3 | ug/L | | 113 | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| Dibromomethane | 50.0 | | | 51.2 | ug/L | | 102 | (70%-130%) | RXY1 | 06/27/17 | 11:17 |
| Dichlorodifluoromethane | 50.0 | | | 36.6 | ug/L | | 73 | (70%-130%) | | | |
| Ethylbenzene | 50.0 | | | 52.0 | ug/L | | 104 | (70%-130%) | | | |
| Iodomethane | 250 | | | 228 | ug/L | | 91 | (70%-130%) | | | |
| Methylene chloride | 50.0 | | B | 53.6 | ug/L | | 107 | (70%-130%) | | | |
| Styrene | 50.0 | | | 54.0 | ug/L | | 108 | (70%-130%) | | | |
| Tetrachloroethylene | 50.0 | | | 48.0 | ug/L | | 96 | (70%-130%) | | | |
| Toluene | 50.0 | | | 52.9 | ug/L | | 106 | (70%-130%) | | | |
| Trichloroethylene | 50.0 | | | 51.2 | ug/L | | 102 | (70%-130%) | | | |
| Trichlorofluoromethane | 50.0 | | | 41.7 | ug/L | | 83 | (70%-130%) | | | |
| Vinyl acetate | 250 | | | 234 | ug/L | | 94 | (70%-130%) | | | |
| Vinyl chloride | 50.0 | | | 44.3 | ug/L | | 89 | (70%-130%) | | | |
| Xylenes (total) | 150 | | | 162 | ug/L | | 108 | (70%-130%) | | | |
| cis-1,2-Dichloroethylene | 50.0 | | | 52.7 | ug/L | | 105 | (70%-130%) | | | |
| cis-1,3-Dichloropropylene | 50.0 | | | 54.7 | ug/L | | 109 | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | |
| trans-1,2-Dichloroethylene | 50.0 | | | 53.5 | ug/L | | 107 | (70%-130%) | RXY1 | 06/27/17 11:17 |
| trans-1,3-Dichloropropylene | 50.0 | | | 57.0 | ug/L | | 114 | (70%-130%) | | |
| **1,2-Dichloroethane-d4 | 50.0 | | | 47.0 | ug/L | | 94 | (70%-130%) | | |
| **Bromofluorobenzene | 50.0 | | | 52.8 | ug/L | | 106 | (70%-130%) | | |
| **Toluene-d8 | 50.0 | | | 51.5 | ug/L | | 103 | (70%-130%) | | |
| QC1203818381 MB | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | | | U | 0.300 | ug/L | | | | | 06/27/17 12:42 |
| 1,1,1-Trichloroethane | | | U | 0.300 | ug/L | | | | | |
| 1,1,2,2-Tetrachloroethane | | | U | 0.300 | ug/L | | | | | |
| 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 | | | | | |
| 1,2,3-Trichloropropane | | | U | 0.300 | ug/L | | | | | |
| 1,2-Dibromo-3-chloropropane | | | U | 0.500 | ug/L | | | | | |
| 1,2-Dibromoethane | | | U | 0.300 | ug/L | | | | | |
| 1,2-Dichloroethane | | | U | 0.300 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| 1,2-Dichloropropane | | | U | 0.300 | ug/L | | | | RXY1 | 06/27/17 | 12:42 |
| 1,4-Dichlorobenzene | | | U | 0.300 | ug/L | | | | | | |
| 2-Butanone | | | U | 3.00 | ug/L | | | | | | |
| 2-Chloro-1,3-butadiene | | | U | 0.300 | ug/L | | | | | | |
| 2-Hexanone | | | U | 3.00 | ug/L | | | | | | |
| 4-Methyl-2-pentanone | | | U | 3.00 | ug/L | | | | | | |
| Acetone | | | U | 3.00 | ug/L | | | | | | |
| Acetonitrile | | | U | 16.7 | ug/L | | | | | | |
| Acrolein | | | U | 3.00 | ug/L | | | | | | |
| Acrylonitrile | | | U | 3.00 | ug/L | | | | | | |
| Allyl chloride | | | U | 3.00 | ug/L | | | | | | |
| Benzene | | | U | 0.300 | ug/L | | | | | | |
| Bromodichloromethane | | | U | 0.300 | ug/L | | | | | | |
| Bromoform | | | U | 0.300 | ug/L | | | | | | |
| Bromomethane | | | U | 0.300 | ug/L | | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | |
| Carbon disulfide | | | U | 1.60 | ug/L | | | | RXY1 | 06/27/17 12:42 |
| Carbon tetrachloride | | | U | 0.300 | ug/L | | | | | |
| Chlorobenzene | | | U | 0.300 | ug/L | | | | | |
| Chloroethane | | | U | 0.300 | ug/L | | | | | |
| Chloroform | | | U | 0.300 | ug/L | | | | | |
| Chloromethane | | | U | 0.300 | ug/L | | | | | |
| Dibromochloromethane | | | U | 0.300 | ug/L | | | | | |
| Dibromomethane | | | U | 0.300 | ug/L | | | | | |
| Dichlorodifluoromethane | | | U | 0.300 | ug/L | | | | | |
| Ethyl methacrylate | | | U | 3.00 | ug/L | | | | | |
| Ethylbenzene | | | U | 0.300 | ug/L | | | | | |
| Iodomethane | | | U | 3.00 | ug/L | | | | | |
| Isobutyl alcohol | | | U | 33.0 | ug/L | | | | | |
| Methacrylonitrile | | | U | 3.00 | ug/L | | | | | |
| Methyl methacrylate | | | U | 3.00 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | |
| Methylene chloride | | | J | 2.38 | ug/L | | | | RXY1 | 06/27/17 12:42 |
| Propionitrile | | | U | 3.00 | ug/L | | | | | |
| Styrene | | | U | 0.300 | ug/L | | | | | |
| Tetrachloroethylene | | | U | 0.300 | ug/L | | | | | |
| Toluene | | | U | 0.300 | ug/L | | | | | |
| Trichloroethylene | | | U | 0.300 | ug/L | | | | | |
| Trichlorofluoromethane | | | U | 0.300 | ug/L | | | | | |
| Vinyl acetate | | | U | 1.60 | ug/L | | | | | |
| Vinyl chloride | | | U | 0.300 | ug/L | | | | | |
| Xylenes (total) | | | U | 0.300 | ug/L | | | | | |
| cis-1,2-Dichloroethylene | | | U | 0.300 | ug/L | | | | | |
| cis-1,3-Dichloropropylene | | | U | 0.300 | ug/L | | | | | |
| trans-1,2-Dichloroethylene | | | U | 0.300 | ug/L | | | | | |
| trans-1,3-Dichloropropylene | | | U | 0.300 | ug/L | | | | | |
| trans-1,4-Dichloro-2-butene | | | U | 1.50 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | | 48.4 | ug/L | | 97 | (70%-130%) | RXY1 | 06/27/17 12:42 |
| **Bromofluorobenzene | 50.0 | | | 53.7 | ug/L | | 107 | (70%-130%) | | |
| **Toluene-d8 | 50.0 | | | 51.3 | ug/L | | 103 | (70%-130%) | | |
| QC1203818384 425725004 PS | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 50.0 | U | 0.00 | 53.5 | ug/L | | 107 | (70%-130%) | | 06/27/17 21:16 |
| 1,1,1-Trichloroethane | 50.0 | U | 0.00 | 49.2 | ug/L | | 98 | (70%-130%) | | |
| 1,1,2,2-Tetrachloroethane | 50.0 | U | 0.00 | 55.4 | ug/L | | 111 | (70%-130%) | | |
| 1,1,2-Trichloroethane | 50.0 | U | 0.00 | 54.3 | ug/L | | 109 | (70%-130%) | | |
| 1,1-Dichloroethane | 50.0 | U | 0.00 | 52.4 | ug/L | | 105 | (70%-130%) | | |
| 1,1-Dichloroethylene | 50.0 | U | 0.00 | 49.4 | ug/L | | 99 | (70%-130%) | | |
| 1,2,3-Trichloropropane | 50.0 | U | 0.00 | 52.1 | ug/L | | 104 | (70%-130%) | | |
| 1,2-Dibromo-3-chloropropane | 50.0 | U | 0.00 | 51.8 | ug/L | | 104 | (70%-130%) | | |
| 1,2-Dibromoethane | 50.0 | U | 0.00 | 52.0 | ug/L | | 104 | (70%-130%) | | |
| 1,2-Dichloroethane | 50.0 | U | 0.00 | 47.7 | ug/L | | 95 | (70%-130%) | | |
| 1,2-Dichloropropane | 50.0 | U | 0.00 | 52.6 | ug/L | | 105 | (70%-130%) | | |
| 1,4-Dichlorobenzene | 50.0 | U | 0.00 | 48.5 | ug/L | | 97 | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| 2-Butanone | 250 | U | 0.00 | | 226 | ug/L | | 91 | (70%-130%) | RXY1 | 06/27/17 21:16 |
| 2-Hexanone | 250 | U | 0.00 | | 225 | ug/L | | 90 | (70%-130%) | | |
| 4-Methyl-2-pentanone | 250 | U | 0.00 | | 260 | ug/L | | 104 | (70%-130%) | | |
| Acetone | 250 | U | 0.00 | | 199 | ug/L | | 80 | (70%-130%) | | |
| Acetonitrile | 1250 | U | 0.00 | | 1310 | ug/L | | 104 | (70%-130%) | | |
| Benzene | 50.0 | U | 0.00 | | 50.9 | ug/L | | 102 | (70%-130%) | | |
| Bromodichloromethane | 50.0 | U | 0.00 | | 52.7 | ug/L | | 105 | (70%-130%) | | |
| Bromoform | 50.0 | U | 0.00 | | 54.2 | ug/L | | 108 | (70%-130%) | | |
| Bromomethane | 50.0 | U | 0.00 | | 50.2 | ug/L | | 100 | (70%-130%) | | |
| Carbon disulfide | 250 | U | 0.00 | | 250 | ug/L | | 100 | (70%-130%) | | |
| Carbon tetrachloride | 50.0 | U | 0.00 | | 50.1 | ug/L | | 100 | (70%-130%) | | |
| Chlorobenzene | 50.0 | U | 0.00 | | 51.2 | ug/L | | 102 | (70%-130%) | | |
| Chloroethane | 50.0 | U | 0.00 | | 49.6 | ug/L | | 99 | (70%-130%) | | |
| Chloroform | 50.0 | U | 0.00 | | 49.5 | ug/L | | 99 | (70%-130%) | | |
| Chloromethane | 50.0 | U | 0.00 | | 50.2 | ug/L | | 100 | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| Dibromochloromethane | 50.0 | U | 0.00 | | 54.7 | ug/L | | 109 | (70%-130%) | RXY1 | 06/27/17 21:16 |
| Dibromomethane | 50.0 | U | 0.00 | | 49.7 | ug/L | | 99 | (70%-130%) | | |
| Dichlorodifluoromethane | 50.0 | U | 0.00 | | 42.1 | ug/L | | 84 | (70%-130%) | | |
| Ethylbenzene | 50.0 | U | 0.00 | | 51.4 | ug/L | | 103 | (70%-130%) | | |
| Iodomethane | 250 | U | 0.00 | | 224 | ug/L | | 90 | (70%-130%) | | |
| Methylene chloride | 50.0 | U | 0.00 | B | 51.1 | ug/L | | 102 | (70%-130%) | | |
| Styrene | 50.0 | U | 0.00 | | 52.9 | ug/L | | 106 | (70%-130%) | | |
| Tetrachloroethylene | 50.0 | U | 0.00 | | 47.9 | ug/L | | 96 | (70%-130%) | | |
| Toluene | 50.0 | U | 0.00 | | 52.1 | ug/L | | 104 | (70%-130%) | | |
| Trichloroethylene | 50.0 | U | 0.00 | | 49.4 | ug/L | | 99 | (70%-130%) | | |
| Trichlorofluoromethane | 50.0 | U | 0.00 | | 45.9 | ug/L | | 92 | (70%-130%) | | |
| Vinyl acetate | 250 | U | 0.00 | | 247 | ug/L | | 99 | (70%-130%) | | |
| Vinyl chloride | 50.0 | U | 0.00 | | 47.7 | ug/L | | 95 | (70%-130%) | | |
| Xylenes (total) | 150 | U | 0.00 | | 159 | ug/L | | 106 | (70%-130%) | | |
| cis-1,2-Dichloroethylene | 50.0 | U | 0.00 | | 51.9 | ug/L | | 104 | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| cis-1,3-Dichloropropylene | 50.0 | U | 0.00 | | 51.1 | ug/L | | 102 | (70%-130%) | RXY1 | 06/27/17 21:16 |
| trans-1,2-Dichloroethylene | 50.0 | U | 0.00 | | 52.0 | ug/L | | 104 | (70%-130%) | | |
| trans-1,3-Dichloropropylene | 50.0 | U | 0.00 | | 54.9 | ug/L | | 110 | (70%-130%) | | |
| **1,2-Dichloroethane-d4 | 50.0 | | 49.7 | | 47.9 | ug/L | | 96 | (70%-130%) | | |
| **Bromofluorobenzene | 50.0 | | 55.8 | | 51.0 | ug/L | | 102 | (70%-130%) | | |
| **Toluene-d8 | 50.0 | | 50.4 | | 51.3 | ug/L | | 103 | (70%-130%) | | |
| QC1203818385 425725004 PSD | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | 50.0 | U | 0.00 | | 55.3 | ug/L | 3 | 111 | (0%-20%) | | 06/27/17 21:45 |
| 1,1,1-Trichloroethane | 50.0 | U | 0.00 | | 52.1 | ug/L | 6 | 104 | (0%-20%) | | |
| 1,1,2,2-Tetrachloroethane | 50.0 | U | 0.00 | | 59.6 | ug/L | 7 | 119 | (0%-20%) | | |
| 1,1,2-Trichloroethane | 50.0 | U | 0.00 | | 56.8 | ug/L | 5 | 114 | (0%-20%) | | |
| 1,1-Dichloroethane | 50.0 | U | 0.00 | | 55.2 | ug/L | 5 | 110 | (0%-20%) | | |
| 1,1-Dichloroethylene | 50.0 | U | 0.00 | | 52.3 | ug/L | 6 | 105 | (0%-20%) | | |
| 1,2,3-Trichloropropane | 50.0 | U | 0.00 | | 55.0 | ug/L | 6 | 110 | (0%-20%) | | |
| 1,2-Dibromo-3-chloropropane | 50.0 | U | 0.00 | | 57.3 | ug/L | 10 | 115 | (0%-20%) | | |
| 1,2-Dibromoethane | 50.0 | U | 0.00 | | 55.5 | ug/L | 6 | 111 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| 1,2-Dichloroethane | 50.0 | U | 0.00 | | 49.8 | ug/L | 4 | 100 | (0%-20%) | RXY1 | 06/27/17 21:45 |
| 1,2-Dichloropropane | 50.0 | U | 0.00 | | 55.7 | ug/L | 6 | 111 | (0%-20%) | | |
| 1,4-Dichlorobenzene | 50.0 | U | 0.00 | | 51.3 | ug/L | 6 | 103 | (0%-20%) | | |
| 2-Butanone | 250 | U | 0.00 | | 249 | ug/L | 9 | 99 | (0%-20%) | | |
| 2-Hexanone | 250 | U | 0.00 | | 239 | ug/L | 6 | 96 | (0%-20%) | | |
| 4-Methyl-2-pentanone | 250 | U | 0.00 | | 274 | ug/L | 5 | 109 | (0%-20%) | | |
| Acetone | 250 | U | 0.00 | | 216 | ug/L | 8 | 86 | (0%-20%) | | |
| Acetonitrile | 1250 | U | 0.00 | | 1410 | ug/L | 8 | 113 | (0%-20%) | | |
| Benzene | 50.0 | U | 0.00 | | 53.5 | ug/L | 5 | 107 | (0%-20%) | | |
| Bromodichloromethane | 50.0 | U | 0.00 | | 55.6 | ug/L | 5 | 111 | (0%-20%) | | |
| Bromoform | 50.0 | U | 0.00 | | 59.6 | ug/L | 10 | 119 | (0%-20%) | | |
| Bromomethane | 50.0 | U | 0.00 | | 54.2 | ug/L | 8 | 108 | (0%-20%) | | |
| Carbon disulfide | 250 | U | 0.00 | | 259 | ug/L | 4 | 104 | (0%-20%) | | |
| Carbon tetrachloride | 50.0 | U | 0.00 | | 52.6 | ug/L | 5 | 105 | (0%-20%) | | |
| Chlorobenzene | 50.0 | U | 0.00 | | 53.5 | ug/L | 4 | 107 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| Chloroethane | 50.0 | U | 0.00 | | 55.7 | ug/L | 12 | 111 | (0%-20%) | RXY1 | 06/27/17 21:45 |
| Chloroform | 50.0 | U | 0.00 | | 51.8 | ug/L | 5 | 104 | (0%-20%) | | |
| Chloromethane | 50.0 | U | 0.00 | | 56.9 | ug/L | 12 | 114 | (0%-20%) | | |
| Dibromochloromethane | 50.0 | U | 0.00 | | 57.8 | ug/L | 5 | 116 | (0%-20%) | | |
| Dibromomethane | 50.0 | U | 0.00 | | 53.2 | ug/L | 7 | 106 | (0%-20%) | | |
| Dichlorodifluoromethane | 50.0 | U | 0.00 | | 46.8 | ug/L | 11 | 94 | (0%-20%) | | |
| Ethylbenzene | 50.0 | U | 0.00 | | 53.2 | ug/L | 3 | 106 | (0%-20%) | | |
| Iodomethane | 250 | U | 0.00 | | 238 | ug/L | 6 | 95 | (0%-20%) | | |
| Methylene chloride | 50.0 | U | 0.00 | B | 54.3 | ug/L | 6 | 109 | (0%-20%) | | |
| Styrene | 50.0 | U | 0.00 | | 55.3 | ug/L | 4 | 111 | (0%-20%) | | |
| Tetrachloroethylene | 50.0 | U | 0.00 | | 48.9 | ug/L | 2 | 98 | (0%-20%) | | |
| Toluene | 50.0 | U | 0.00 | | 53.4 | ug/L | 2 | 107 | (0%-20%) | | |
| Trichloroethylene | 50.0 | U | 0.00 | | 52.5 | ug/L | 6 | 105 | (0%-20%) | | |
| Trichlorofluoromethane | 50.0 | U | 0.00 | | 51.5 | ug/L | 11 | 103 | (0%-20%) | | |
| Vinyl acetate | 250 | U | 0.00 | | 272 | ug/L | 9 | 109 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1676993 | | | | | | | | | | | |
| Vinyl chloride | 50.0 | U | 0.00 | | 55.0 | ug/L | 14 | 110 | (0%-20%) | RXY1 | 06/27/17 21:45 |
| Xylenes (total) | 150 | U | 0.00 | | 165 | ug/L | 4 | 110 | (0%-20%) | | |
| cis-1,2-Dichloroethylene | 50.0 | U | 0.00 | | 54.8 | ug/L | 5 | 110 | (0%-20%) | | |
| cis-1,3-Dichloropropylene | 50.0 | U | 0.00 | | 55.2 | ug/L | 8 | 110 | (0%-20%) | | |
| trans-1,2-Dichloroethylene | 50.0 | U | 0.00 | | 55.2 | ug/L | 6 | 110 | (0%-20%) | | |
| trans-1,3-Dichloropropylene | 50.0 | U | 0.00 | | 57.5 | ug/L | 5 | 115 | (0%-20%) | | |
| **1,2-Dichloroethane-d4 | 50.0 | | 49.7 | | 46.9 | ug/L | | 94 | (70%-130%) | | |
| **Bromofluorobenzene | 50.0 | | 55.8 | | 51.8 | ug/L | | 104 | (70%-130%) | | |
| **Toluene-d8 | 50.0 | | 50.4 | | 50.3 | ug/L | | 101 | (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

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

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 (0rganics only)

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.

**Volatile**

## Surrogate Recovery Report

**SDG Number:** GEL425603

**Matrix Type:** LIQUID

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|---|---|---|---|---|
| 1203818383 | LCS for batch 1676993 | 94 | 103 | 106 |
| 1203818381 | MB for batch 1676993 | 97 | 103 | 107 |
| 425603008 | B39NH2 | 97 | 101 | 107 |
| 425603010 | B39NH3 | 97 | 103 | 107 |
| 425603011 | B39NM5 | 98 | 100 | 107 |
| 1203818384 | B39NN0PS | 96 | 103 | 102 |
| 1203818385 | B39NN0PSD | 94 | 101 | 104 |

| 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

# Semi-Volatile Analysis

# Case Narrative

**GC/MS Semivolatile**
**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

**Product:** **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
**Analytical Method:** SW846 3510C/8270D
**Analytical Procedure:** GL-OA-E-009 REV# 39
**Analytical Batch:** 1675544

**Preparation Method:** SW846 3510C
**Preparation Procedure:** GL-OA-E-013 REV# 31
**Preparation Batch:** 1675543

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603008 | B39NH2 |
| 425603010 | B39NH3 |
| 425603011 | B39NM5 |
| 1203814915 | Method Blank (MB) |
| 1203814916 | Laboratory Control Sample (LCS) |
| 1203814919 | 425603008(NonSDG) Matrix Spike (MS) |
| 1203814920 | 425603008(NonSDG) Matrix Spike Duplicate (MSD) |

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.

**Calibration Information**

**CCV Requirements**
All Calibration Verification Standards (ICV, CCV) did not meet the acceptance criteria as outlined in Method 8270D for samples 425603008 (NonSDG), 425603010 (NonSDG) and 425603011 (NonSDG) and the associated QC. 4-Chlorophenylphenylether, Pentachloronitrobenzene, 4-Nitroquinoline-1-oxide, Kepone, Sulfotepp, and Hexachlorophene exceeded the %Max Drift. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. Since 4-Nitroquinoline-1-oxide was biased low, the samples and associated MB were re-analyzed on an instrument that passed CCV acceptance criteria. The re-analyses confirmed the absence of the target analytes in the sample and MB. The data are therefore reported from the original analyses only for all target analytes.

**Quality Control (QC) Information**

**Surrogate Recoveries**
Samples (See Below) did not meet surrogate recovery acceptance criteria. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

| Sample | Analyte | Value |
|---|---|---|
| 1203814915 (MB) | 2-Fluorophenol | 41* (70%-130%) |
| | Nitrobenzene-d5 | 68* (70%-130%) |
| | Phenol-d5 | 26* (70%-130%) |
| 1203814916 (LCS) | 2-Fluorophenol | 38* (70%-130%) |
| | Nitrobenzene-d5 | 67* (70%-130%) |
| | Phenol-d5 | 24* (70%-130%) |
| | p-Terphenyl-d14 | 68* (70%-130%) |
| 1203814919 (Non SDG 425603008MS) | 2-Fluorophenol | 51* (70%-130%) |
| | Nitrobenzene-d5 | 65* (70%-130%) |
| | Phenol-d5 | 40* (70%-130%) |
| | p-Terphenyl-d14 | 65* (70%-130%) |
| 1203814920 (Non SDG 425603008MSD) | 2-Fluorophenol | 52* (70%-130%) |
| | Nitrobenzene-d5 | 68* (70%-130%) |
| | Phenol-d5 | 40* (70%-130%) |
| 425603008 (NonSDG) | 2-Fluorobiphenyl | 69* (70%-130%) |
| | 2-Fluorophenol | 37* (70%-130%) |
| | Nitrobenzene-d5 | 61* (70%-130%) |
| | Phenol-d5 | 23* (70%-130%) |
| 425603010 (NonSDG) | 2,4,6-Tribromophenol | 68* (70%-130%) |
| | 2-Fluorobiphenyl | 62* (70%-130%) |
| | 2-Fluorophenol | 33* (70%-130%) |
| | Nitrobenzene-d5 | 55* (70%-130%) |
| | Phenol-d5 | 20* (70%-130%) |
| 425603011 (NonSDG) | 2-Fluorobiphenyl | 62* (70%-130%) |
| | 2-Fluorophenol | 31* (70%-130%) |
| | Nitrobenzene-d5 | 54* (70%-130%) |
| | Phenol-d5 | 19* (70%-130%) |
| | p-Terphenyl-d14 | 62* (70%-130%) |

**Laboratory Control Sample (LCS) Recovery**

The LCS and/or LCSD (See Below) did not meet spike recovery acceptance criteria. The failures are known to be poor responding analytes as stated per the Method. This may account for the low recoveries and the data were reported.

| Sample | Analyte | Value |
|---|---|---|
| 1203814916 (LCS) | Several | See applicable report |

The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

| Sample | Analyte | Value |
|---|---|---|
| 1203814916 (LCS) | Several | See applicable report |

**Internal Standard (ISTD) Acceptance**
Sample 425603010 (NonSDG) failed ISTD acceptance criteria. The sample was re-analyzed on a second instrument, passed ISTD acceptance criteria, and confirmed the absence of any target analytes. The data were therefore reported from the original analysis.

**Miscellaneous Information**

**Manual Integrations**
Sample 1203814916 (LCS) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

**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.

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## Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425603 GEL Work Order: 425603

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

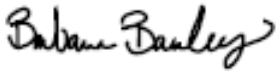
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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: Barbara Bailey**

**Date: 12 JUL 2017** **Title: Data Validator**

# Sample Data Summary

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603008** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH2** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 15:56** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1030 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2218.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 99-35-4 | 1,3,5-Trinitrobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 123-91-1 | 1,4-Dioxane | U | 2.91 | ug/L | 2.91 | 9.71 |
| 130-15-4 | 1,4-Naphthoquinone | U | 2.91 | ug/L | 2.91 | 9.71 |
| 134-32-7 | 1-Naphthylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 120-83-2 | 2,4-Dichlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 105-67-9 | 2,4-Dimethylphenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 51-28-5 | 2,4-Dinitrophenol | U | 4.85 | ug/L | 4.85 | 19.4 |
| 121-14-2 | 2,4-Dinitrotoluene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 87-65-0 | 2,6-Dichlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 53-96-3 | 2-Acetylaminofluorene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 91-58-7 | 2-Chloronaphthalene | U | 0.398 | ug/L | 0.398 | 0.971 |
| 95-57-8 | 2-Chlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 91-57-6 | 2-Methylnaphthalene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 91-59-8 | 2-Naphthylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 88-75-5 | 2-Nitrophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 109-06-8 | 2-Picoline | U | 2.91 | ug/L | 2.91 | 9.71 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 119-93-7 | 3,3'-Dimethylbenzidine | U | 3.20 | ug/L | 3.20 | 9.71 |
| 56-49-5 | 3-Methylcholanthrene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 92-67-1 | 4-Aminobiphenyl | U | 2.91 | ug/L | 2.91 | 9.71 |
| 101-55-3 | 4-Bromophenylphenylether | U | 2.91 | ug/L | 2.91 | 9.71 |
| 59-50-7 | 4-Chloro-3-methylphenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 106-47-8 | 4-Chloroaniline | U | 3.20 | ug/L | 3.20 | 9.71 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 2.91 | ug/L | 2.91 | 9.71 |
| 100-02-7 | 4-Nitrophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 56-57-5 | 4-Nitroquinoline-1-oxide | U | 3.69 | ug/L | 3.69 | 9.71 |
| 99-55-8 | 5-Nitro-o-toluidine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 57-97-6 | 7,12-Dimethylbenz(a)anthracene | U | 2.91 | ug/L | 2.91 | 9.71 |

*7,12Dimethylbenz(a)anthracene*

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603008** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH2** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 15:56** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1030 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2218.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 208-96-8 | Acenaphthylene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 98-86-2 | Acetophenone | U | 2.91 | ug/L | 2.91 | 9.71 |
| 62-53-3 | Aniline | U | 4.08 | ug/L | 4.08 | 9.71 |
| 120-12-7 | Anthracene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 140-57-8 | Aramite | U | 3.59 | ug/L | 3.59 | 9.71 |
| 56-55-3 | Benzo(a)anthracene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 50-32-8 | Benzo(a)pyrene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 205-99-2 | Benzo(b)fluoranthene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 191-24-2 | Benzo(ghi)perylene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 207-08-9 | Benzo(k)fluoranthene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 100-51-6 | Benzyl alcohol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 85-68-7 | Butylbenzylphthalate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 86-74-8 | Carbazole | U | 0.291 | ug/L | 0.291 | 0.971 |
| 510-15-6 | Chlorobenzilate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 218-01-9 | Chrysene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 84-74-2 | Di-n-butylphthalate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 117-84-0 | Di-n-octylphthalate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 2303-16-4 | Diallate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 132-64-9 | Dibenzofuran | U | 2.91 | ug/L | 2.91 | 9.71 |
| 84-66-2 | Diethylphthalate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 60-51-5 | Dimethoate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 131-11-3 | Dimethylphthalate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 88-85-7 | Dinoseb | U | 2.91 | ug/L | 2.91 | 9.71 |
| 298-04-4 | Disulfoton | U | 2.91 | ug/L | 2.91 | 9.71 |
| 62-50-0 | Ethyl Methanesulfonate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 52-85-7 | Famphur | U | 4.85 | ug/L | 4.85 | 9.71 |
| 206-44-0 | Fluoranthene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 86-73-7 | Fluorene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 118-74-1 | Hexachlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 87-68-3 | Hexachlorobutadiene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 67-72-1 | Hexachloroethane | U | 2.91 | ug/L | 2.91 | 9.71 |
| 70-30-4 | Hexachlorophene | U | 162 | ug/L | 162 | 485 |
| 1888-71-7 | Hexachloropropene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 465-73-6 | Isodrin | U | 2.91 | ug/L | 2.91 | 9.71 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603008** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH2** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 15:56** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1030 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2218.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 78-59-1 | Isophorone | U | 3.40 | ug/L | 3.40 | 9.71 |
| 120-58-1 | Isosafrole | U | 2.91 | ug/L | 2.91 | 9.71 |
| 143-50-0 | Kepone | U | 2.91 | ug/L | 2.91 | 9.71 |
| 91-80-5 | Methapyrilene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 66-27-3 | Methyl methanesulfonate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 298-00-0 | Methyl parathion | U | 2.91 | ug/L | 2.91 | 9.71 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 55-18-5 | N-Nitrosodiethylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 621-64-7 | N-Nitrosodipropylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 10595-95-6 | N-Nitrosomethylethylamine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 59-89-2 | N-Nitrosomorpholine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 100-75-4 | N-Nitrosopiperidine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 91-20-3 | Naphthalene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 98-95-3 | Nitrobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 56-38-2 | Parathion | U | 2.91 | ug/L | 2.91 | 9.71 |
| 608-93-5 | Pentachlorobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 76-01-7 | Pentachloroethane | U | 2.91 | ug/L | 2.91 | 9.71 |
| 82-68-8 | Pentachloronitrobenzene | U | 3.30 | ug/L | 3.30 | 9.71 |
| 87-86-5 | Pentachlorophenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 62-44-2 | Phenacetin | U | 2.91 | ug/L | 2.91 | 9.71 |
| 85-01-8 | Phenanthrene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 108-95-2 | Phenol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 298-02-2 | Phorate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 23950-58-5 | Pronamide | U | 2.91 | ug/L | 2.91 | 9.71 |
| 129-00-0 | Pyrene | U | 0.291 | ug/L | 0.291 | 0.971 |
| 110-86-1 | Pyridine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 94-59-7 | Safrole | U | 2.91 | ug/L | 2.91 | 9.71 |
| 3689-24-5 | Sulfotepp | U | 2.91 | ug/L | 2.91 | 9.71 |
| 297-97-2 | Thionazin | U | 2.91 | ug/L | 2.91 | 9.71 |
| 126-73-8 | Tributylphosphate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 126-68-1 | Triethylphosphorothioate | U | 2.91 | ug/L | 2.91 | 9.71 |
| 122-09-8 | a,a-Dimethylphenethylamine | U | 5.24 | ug/L | 5.24 | 9.71 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | U | 2.91 | ug/L | 2.91 | 9.71 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 2.91 | ug/L | 2.91 | 9.71 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 2.91 | ug/L | 2.91 | 9.71 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 2.91 | ug/L | 2.91 | 9.71 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603008** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH2** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 15:56** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1030 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2218.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| DPA+NNDPA | diphenylamine+N-nitrosodiphenylan | U | 2.91 | ug/L | 2.91 | 9.71 |
| 122-39-4 | *Diphenylamine* | | | | | |
| 65794-96-9 | m,p-Cresols | U | 3.59 | ug/L | 3.59 | 9.71 |
| 99-65-0 | m-Dinitrobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 99-09-2 | m-Nitroaniline | U | 2.91 | ug/L | 2.91 | 9.71 |
| 95-48-7 | o-Cresol | U | 2.91 | ug/L | 2.91 | 9.71 |
| 88-74-4 | o-Nitroaniline | U | 2.91 | ug/L | 2.91 | 9.71 |
| 95-53-4 | o-Toluidine | U | 2.91 | ug/L | 2.91 | 9.71 |
| 60-11-7 | p-(Dimethylamino)azobenzene | U | 2.91 | ug/L | 2.91 | 9.71 |
| 100-01-6 | p-Nitroaniline | U | 2.91 | ug/L | 2.91 | 9.71 |
| 106-50-3 | p-Phenylenediamine | U | 97.1 | ug/L | 97.1 | 485 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603010** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH3** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1060 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2221.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 99-35-4 | 1,3,5-Trinitrobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 123-91-1 | 1,4-Dioxane | U | 2.83 | ug/L | 2.83 | 9.43 |
| 130-15-4 | 1,4-Naphthoquinone | U | 2.83 | ug/L | 2.83 | 9.43 |
| 134-32-7 | 1-Naphthylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 120-83-2 | 2,4-Dichlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 105-67-9 | 2,4-Dimethylphenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 51-28-5 | 2,4-Dinitrophenol | U | 4.72 | ug/L | 4.72 | 18.9 |
| 121-14-2 | 2,4-Dinitrotoluene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 87-65-0 | 2,6-Dichlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 53-96-3 | 2-Acetylaminofluorene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 91-58-7 | 2-Chloronaphthalene | U | 0.387 | ug/L | 0.387 | 0.943 |
| 95-57-8 | 2-Chlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 91-57-6 | 2-Methylnaphthalene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 91-59-8 | 2-Naphthylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 88-75-5 | 2-Nitrophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 109-06-8 | 2-Picoline | U | 2.83 | ug/L | 2.83 | 9.43 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 119-93-7 | 3,3'-Dimethylbenzidine | U | 3.11 | ug/L | 3.11 | 9.43 |
| 56-49-5 | 3-Methylcholanthrene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 92-67-1 | 4-Aminobiphenyl | U | 2.83 | ug/L | 2.83 | 9.43 |
| 101-55-3 | 4-Bromophenylphenylether | U | 2.83 | ug/L | 2.83 | 9.43 |
| 59-50-7 | 4-Chloro-3-methylphenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 106-47-8 | 4-Chloroaniline | U | 3.11 | ug/L | 3.11 | 9.43 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 2.83 | ug/L | 2.83 | 9.43 |
| 100-02-7 | 4-Nitrophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 56-57-5 | 4-Nitroquinoline-1-oxide | U | 3.58 | ug/L | 3.58 | 9.43 |
| 99-55-8 | 5-Nitro-o-toluidine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 57-97-6 | 7,12-Dimethylbenz(a)anthracene | U | 2.83 | ug/L | 2.83 | 9.43 |
| | *7,12Dimethylbenz(a)anthracene* | | | | | |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603010** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH3** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1060 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2221.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 208-96-8 | Acenaphthylene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 98-86-2 | Acetophenone | U | 2.83 | ug/L | 2.83 | 9.43 |
| 62-53-3 | Aniline | U | 3.96 | ug/L | 3.96 | 9.43 |
| 120-12-7 | Anthracene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 140-57-8 | Aramite | U | 3.49 | ug/L | 3.49 | 9.43 |
| 56-55-3 | Benzo(a)anthracene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 50-32-8 | Benzo(a)pyrene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 205-99-2 | Benzo(b)fluoranthene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 191-24-2 | Benzo(ghi)perylene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 207-08-9 | Benzo(k)fluoranthene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 100-51-6 | Benzyl alcohol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 85-68-7 | Butylbenzylphthalate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 86-74-8 | Carbazole | U | 0.283 | ug/L | 0.283 | 0.943 |
| 510-15-6 | Chlorobenzilate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 218-01-9 | Chrysene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 84-74-2 | Di-n-butylphthalate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 117-84-0 | Di-n-octylphthalate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 2303-16-4 | Diallate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 132-64-9 | Dibenzofuran | U | 2.83 | ug/L | 2.83 | 9.43 |
| 84-66-2 | Diethylphthalate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 60-51-5 | Dimethoate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 131-11-3 | Dimethylphthalate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 88-85-7 | Dinoseb | U | 2.83 | ug/L | 2.83 | 9.43 |
| 298-04-4 | Disulfoton | U | 2.83 | ug/L | 2.83 | 9.43 |
| 62-50-0 | Ethyl Methanesulfonate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 52-85-7 | Famphur | U | 4.72 | ug/L | 4.72 | 9.43 |
| 206-44-0 | Fluoranthene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 86-73-7 | Fluorene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 118-74-1 | Hexachlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 87-68-3 | Hexachlorobutadiene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 67-72-1 | Hexachloroethane | U | 2.83 | ug/L | 2.83 | 9.43 |
| 70-30-4 | Hexachlorophene | U | 158 | ug/L | 158 | 472 |
| 1888-71-7 | Hexachloropropene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 465-73-6 | Isodrin | U | 2.83 | ug/L | 2.83 | 9.43 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603010** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH3** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1060 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2221.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 78-59-1 | Isophorone | U | 3.30 | ug/L | 3.30 | 9.43 |
| 120-58-1 | Isosafrole | U | 2.83 | ug/L | 2.83 | 9.43 |
| 143-50-0 | Kepone | U | 2.83 | ug/L | 2.83 | 9.43 |
| 91-80-5 | Methapyrilene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 66-27-3 | Methyl methanesulfonate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 298-00-0 | Methyl parathion | U | 2.83 | ug/L | 2.83 | 9.43 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 55-18-5 | N-Nitrosodiethylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 621-64-7 | N-Nitrosodipropylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 10595-95-6 | N-Nitrosomethylethylamine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 59-89-2 | N-Nitrosomorpholine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 100-75-4 | N-Nitrosopiperidine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 91-20-3 | Naphthalene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 98-95-3 | Nitrobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 56-38-2 | Parathion | U | 2.83 | ug/L | 2.83 | 9.43 |
| 608-93-5 | Pentachlorobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 76-01-7 | Pentachloroethane | U | 2.83 | ug/L | 2.83 | 9.43 |
| 82-68-8 | Pentachloronitrobenzene | U | 3.21 | ug/L | 3.21 | 9.43 |
| 87-86-5 | Pentachlorophenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 62-44-2 | Phenacetin | U | 2.83 | ug/L | 2.83 | 9.43 |
| 85-01-8 | Phenanthrene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 108-95-2 | Phenol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 298-02-2 | Phorate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 23950-58-5 | Pronamide | U | 2.83 | ug/L | 2.83 | 9.43 |
| 129-00-0 | Pyrene | U | 0.283 | ug/L | 0.283 | 0.943 |
| 110-86-1 | Pyridine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 94-59-7 | Safrole | U | 2.83 | ug/L | 2.83 | 9.43 |
| 3689-24-5 | Sulfotepp | U | 2.83 | ug/L | 2.83 | 9.43 |
| 297-97-2 | Thionazin | U | 2.83 | ug/L | 2.83 | 9.43 |
| 126-73-8 | Tributylphosphate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 126-68-1 | Triethylphosphorothioate | U | 2.83 | ug/L | 2.83 | 9.43 |
| 122-09-8 | a,a-Dimethylphenethylamine | U | 5.09 | ug/L | 5.09 | 9.43 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | U | 2.83 | ug/L | 2.83 | 9.43 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 2.83 | ug/L | 2.83 | 9.43 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 2.83 | ug/L | 2.83 | 9.43 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 2.83 | ug/L | 2.83 | 9.43 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603010** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NH3** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:17** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1060 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2221.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| DPA+NNDPA | diphenylamine+N-nitrosodiphenylan | U | 2.83 | ug/L | 2.83 | 9.43 |
| 122-39-4 | *Diphenylamine* | | | | | |
| 65794-96-9 | m,p-Cresols | U | 3.49 | ug/L | 3.49 | 9.43 |
| 99-65-0 | m-Dinitrobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 99-09-2 | m-Nitroaniline | U | 2.83 | ug/L | 2.83 | 9.43 |
| 95-48-7 | o-Cresol | U | 2.83 | ug/L | 2.83 | 9.43 |
| 88-74-4 | o-Nitroaniline | U | 2.83 | ug/L | 2.83 | 9.43 |
| 95-53-4 | o-Toluidine | U | 2.83 | ug/L | 2.83 | 9.43 |
| 60-11-7 | p-(Dimethylamino)azobenzene | U | 2.83 | ug/L | 2.83 | 9.43 |
| 100-01-6 | p-Nitroaniline | U | 2.83 | ug/L | 2.83 | 9.43 |
| 106-50-3 | p-Phenylenediamine | U | 94.3 | ug/L | 94.3 | 472 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603011** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NM5** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:44** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1050 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2222.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 99-35-4 | 1,3,5-Trinitrobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 123-91-1 | 1,4-Dioxane | U | 2.86 | ug/L | 2.86 | 9.52 |
| 130-15-4 | 1,4-Naphthoquinone | U | 2.86 | ug/L | 2.86 | 9.52 |
| 134-32-7 | 1-Naphthylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 120-83-2 | 2,4-Dichlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 105-67-9 | 2,4-Dimethylphenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 51-28-5 | 2,4-Dinitrophenol | U | 4.76 | ug/L | 4.76 | 19.0 |
| 121-14-2 | 2,4-Dinitrotoluene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 87-65-0 | 2,6-Dichlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 53-96-3 | 2-Acetylaminofluorene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 91-58-7 | 2-Chloronaphthalene | U | 0.390 | ug/L | 0.390 | 0.952 |
| 95-57-8 | 2-Chlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 91-57-6 | 2-Methylnaphthalene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 91-59-8 | 2-Naphthylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 88-75-5 | 2-Nitrophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 109-06-8 | 2-Picoline | U | 2.86 | ug/L | 2.86 | 9.52 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 119-93-7 | 3,3'-Dimethylbenzidine | U | 3.14 | ug/L | 3.14 | 9.52 |
| 56-49-5 | 3-Methylcholanthrene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 92-67-1 | 4-Aminobiphenyl | U | 2.86 | ug/L | 2.86 | 9.52 |
| 101-55-3 | 4-Bromophenylphenylether | U | 2.86 | ug/L | 2.86 | 9.52 |
| 59-50-7 | 4-Chloro-3-methylphenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 106-47-8 | 4-Chloroaniline | U | 3.14 | ug/L | 3.14 | 9.52 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 2.86 | ug/L | 2.86 | 9.52 |
| 100-02-7 | 4-Nitrophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 56-57-5 | 4-Nitroquinoline-1-oxide | U | 3.62 | ug/L | 3.62 | 9.52 |
| 99-55-8 | 5-Nitro-o-toluidine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 57-97-6 | 7,12-Dimethylbenz(a)anthracene | U | 2.86 | ug/L | 2.86 | 9.52 |
| | *7,12Dimethylbenz(a)anthracene* | | | | | |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603011** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NM5** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:44** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1050 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2222.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 208-96-8 | Acenaphthylene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 98-86-2 | Acetophenone | U | 2.86 | ug/L | 2.86 | 9.52 |
| 62-53-3 | Aniline | U | 4.00 | ug/L | 4.00 | 9.52 |
| 120-12-7 | Anthracene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 140-57-8 | Aramite | U | 3.52 | ug/L | 3.52 | 9.52 |
| 56-55-3 | Benzo(a)anthracene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 50-32-8 | Benzo(a)pyrene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 205-99-2 | Benzo(b)fluoranthene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 191-24-2 | Benzo(ghi)perylene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 207-08-9 | Benzo(k)fluoranthene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 100-51-6 | Benzyl alcohol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 85-68-7 | Butylbenzylphthalate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 86-74-8 | Carbazole | U | 0.286 | ug/L | 0.286 | 0.952 |
| 510-15-6 | Chlorobenzilate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 218-01-9 | Chrysene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 84-74-2 | Di-n-butylphthalate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 117-84-0 | Di-n-octylphthalate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 2303-16-4 | Diallate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 132-64-9 | Dibenzofuran | U | 2.86 | ug/L | 2.86 | 9.52 |
| 84-66-2 | Diethylphthalate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 60-51-5 | Dimethoate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 131-11-3 | Dimethylphthalate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 88-85-7 | Dinoseb | U | 2.86 | ug/L | 2.86 | 9.52 |
| 298-04-4 | Disulfoton | U | 2.86 | ug/L | 2.86 | 9.52 |
| 62-50-0 | Ethyl Methanesulfonate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 52-85-7 | Famphur | U | 4.76 | ug/L | 4.76 | 9.52 |
| 206-44-0 | Fluoranthene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 86-73-7 | Fluorene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 118-74-1 | Hexachlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 87-68-3 | Hexachlorobutadiene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 67-72-1 | Hexachloroethane | U | 2.86 | ug/L | 2.86 | 9.52 |
| 70-30-4 | Hexachlorophene | U | 159 | ug/L | 159 | 476 |
| 1888-71-7 | Hexachloropropene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 465-73-6 | Isodrin | U | 2.86 | ug/L | 2.86 | 9.52 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603011** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NM5** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:44** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1050 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2222.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| 78-59-1 | Isophorone | U | 3.33 | ug/L | 3.33 | 9.52 |
| 120-58-1 | Isosafrole | U | 2.86 | ug/L | 2.86 | 9.52 |
| 143-50-0 | Kepone | U | 2.86 | ug/L | 2.86 | 9.52 |
| 91-80-5 | Methapyrilene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 66-27-3 | Methyl methanesulfonate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 298-00-0 | Methyl parathion | U | 2.86 | ug/L | 2.86 | 9.52 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 55-18-5 | N-Nitrosodiethylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 621-64-7 | N-Nitrosodipropylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 10595-95-6 | N-Nitrosomethylethylamine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 59-89-2 | N-Nitrosomorpholine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 100-75-4 | N-Nitrosopiperidine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 930-55-2 | N-Nitrosopyrrolidine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 91-20-3 | Naphthalene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 98-95-3 | Nitrobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 56-38-2 | Parathion | U | 2.86 | ug/L | 2.86 | 9.52 |
| 608-93-5 | Pentachlorobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 76-01-7 | Pentachloroethane | U | 2.86 | ug/L | 2.86 | 9.52 |
| 82-68-8 | Pentachloronitrobenzene | U | 3.24 | ug/L | 3.24 | 9.52 |
| 87-86-5 | Pentachlorophenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 62-44-2 | Phenacetin | U | 2.86 | ug/L | 2.86 | 9.52 |
| 85-01-8 | Phenanthrene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 108-95-2 | Phenol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 298-02-2 | Phorate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 23950-58-5 | Pronamide | U | 2.86 | ug/L | 2.86 | 9.52 |
| 129-00-0 | Pyrene | U | 0.286 | ug/L | 0.286 | 0.952 |
| 110-86-1 | Pyridine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 94-59-7 | Safrole | U | 2.86 | ug/L | 2.86 | 9.52 |
| 3689-24-5 | Sulfotepp | U | 2.86 | ug/L | 2.86 | 9.52 |
| 297-97-2 | Thionazin | U | 2.86 | ug/L | 2.86 | 9.52 |
| 126-73-8 | Tributylphosphate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 126-68-1 | Triethylphosphorothioate | U | 2.86 | ug/L | 2.86 | 9.52 |
| 122-09-8 | a,a-Dimethylphenethylamine | U | 5.14 | ug/L | 5.14 | 9.52 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | U | 2.86 | ug/L | 2.86 | 9.52 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 2.86 | ug/L | 2.86 | 9.52 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 2.86 | ug/L | 2.86 | 9.52 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 2.86 | ug/L | 2.86 | 9.52 |

**Semi-Volatile**
**Certificate of Analysis**
**Sample Summary**

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603011** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B39NM5** | **Method:** | **SW846 3510C/8270D** | **SOP Ref:** | **GL-OA-E-009** |
| **Batch ID:** | **1675544** | **Inst:** | **MSDA.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 17:44** | **Analyst:** | **JMB3** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 18:28** | **Aliquot:** | **1050 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **062217.s\sAf2222.D** | **Column:** | **DB-5.625** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|---|---|---|---|---|---|---|
| DPA+NNDPA | diphenylamine+N-nitrosodiphenylan | U | 2.86 | ug/L | 2.86 | 9.52 |
| 122-39-4 | *Diphenylamine* | | | | | |
| 65794-96-9 | m,p-Cresols | U | 3.52 | ug/L | 3.52 | 9.52 |
| 99-65-0 | m-Dinitrobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 99-09-2 | m-Nitroaniline | U | 2.86 | ug/L | 2.86 | 9.52 |
| 95-48-7 | o-Cresol | U | 2.86 | ug/L | 2.86 | 9.52 |
| 88-74-4 | o-Nitroaniline | U | 2.86 | ug/L | 2.86 | 9.52 |
| 95-53-4 | o-Toluidine | U | 2.86 | ug/L | 2.86 | 9.52 |
| 60-11-7 | p-(Dimethylamino)azobenzene | U | 2.86 | ug/L | 2.86 | 9.52 |
| 100-01-6 | p-Nitroaniline | U | 2.86 | ug/L | 2.86 | 9.52 |
| 106-50-3 | p-Phenylenediamine | U | 95.2 | ug/L | 95.2 | 476 |

# Quality Control Summary

GEL LABORATORIES LLC
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# QC Summary

Report Date: June 23, 2017



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| QC1203814916 LCS | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 50.0 | | | 33.0 | ug/L | | 66* | (70%-130%) | JMB3 | 06/22/17 | 12:48 |
| 1,2,4-Trichlorobenzene | 50.0 | | | 30.9 | ug/L | | 62* | (70%-130%) | | | |
| 1,2-Dichlorobenzene | 50.0 | | | 30.3 | ug/L | | 61* | (70%-130%) | | | |
| 1,3-Dichlorobenzene | 50.0 | | | 29.5 | ug/L | | 59* | (70%-130%) | | | |
| 1,4-Dichlorobenzene | 50.0 | | | 30.1 | ug/L | | 60* | (70%-130%) | | | |
| 1,4-Dioxane | 50.0 | | | 20.1 | ug/L | | 40* | (70%-130%) | | | |
| 2,3,4,6-Tetrachlorophenol | 50.0 | | | 35.7 | ug/L | | 71 | (70%-130%) | | | |
| 2,4,5-Trichlorophenol | 50.0 | | | 36.1 | ug/L | | 72 | (70%-130%) | | | |
| 2,4,6-Trichlorophenol | 50.0 | | | 38.3 | ug/L | | 77 | (70%-130%) | | | |
| 2,4-Dichlorophenol | 50.0 | | | 35.6 | ug/L | | 71 | (70%-130%) | | | |
| 2,4-Dimethylphenol | 50.0 | | | 31.6 | ug/L | | 63* | (70%-130%) | | | |
| 2,4-Dinitrophenol | 50.0 | | | 32.7 | ug/L | | 65* | (70%-130%) | | | |
| 2,4-Dinitrotoluene | 50.0 | | | 36.9 | ug/L | | 74 | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 2,6-Dichlorophenol | 50.0 | | | 40.4 | ug/L | | 81 | (70%-130%) | JMB3 | 06/22/17 | 12:48 |
| 2,6-Dinitrotoluene | 50.0 | | | 34.8 | ug/L | | 70 | (70%-130%) | | | |
| 2-Chloronaphthalene | 50.0 | | | 32.1 | ug/L | | 64* | (70%-130%) | | | |
| 2-Chlorophenol | 50.0 | | | 32.2 | ug/L | | 64* | (70%-130%) | | | |
| 2-Methyl-4,6-dinitrophenol | 50.0 | | | 33.8 | ug/L | | 68* | (70%-130%) | | | |
| 2-Methylnaphthalene | 50.0 | | | 32.5 | ug/L | | 65* | (70%-130%) | | | |
| 2-Nitrophenol | 50.0 | | | 34.3 | ug/L | | 69* | (70%-130%) | | | |
| 3,3'-Dichlorobenzidine | 50.0 | | | 39.4 | ug/L | | 79 | (70%-130%) | | | |
| 4-Bromophenylphenylether | 50.0 | | | 37.2 | ug/L | | 74 | (70%-130%) | | | |
| 4-Chloro-3-methylphenol | 50.0 | | | 36.1 | ug/L | | 72 | (70%-130%) | | | |
| 4-Chloroaniline | 50.0 | | | 38.1 | ug/L | | 76 | (70%-130%) | | | |
| 4-Chlorophenylphenylether | 50.0 | | | 42.7 | ug/L | | 85 | (70%-130%) | | | |
| 4-Nitrophenol | 50.0 | | | 10.3 | ug/L | | 21* | (70%-130%) | | | |
| Acenaphthene | 50.0 | | | 36.0 | ug/L | | 72 | (70%-130%) | | | |
| Acenaphthylene | 50.0 | | | 34.8 | ug/L | | 70 | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| Acetophenone | 50.0 | | | 35.1 | ug/L | | 70 | (70%-130%) | JMB3 | 06/22/17 12:48 |
| Aniline | 50.0 | | | 32.6 | ug/L | | 65* | (70%-130%) | | |
| Anthracene | 50.0 | | | 35.6 | ug/L | | 71 | (70%-130%) | | |
| Benzo(a)anthracene | 50.0 | | | 35.2 | ug/L | | 70 | (70%-130%) | | |
| Benzo(a)pyrene | 50.0 | | | 35.8 | ug/L | | 72 | (70%-130%) | | |
| Benzo(b)fluoranthene | 50.0 | | | 36.9 | ug/L | | 74 | (70%-130%) | | |
| Benzo(ghi)perylene | 50.0 | | | 38.1 | ug/L | | 76 | (70%-130%) | | |
| Benzo(k)fluoranthene | 50.0 | | | 38.5 | ug/L | | 77 | (70%-130%) | | |
| Benzyl alcohol | 50.0 | | | 29.3 | ug/L | | 59* | (70%-130%) | | |
| Butylbenzylphthalate | 50.0 | | | 33.0 | ug/L | | 66* | (70%-130%) | | |
| Carbazole | 50.0 | | | 33.7 | ug/L | | 67* | (70%-130%) | | |
| Chrysene | 50.0 | | | 38.5 | ug/L | | 77 | (70%-130%) | | |
| Di-n-butylphthalate | 50.0 | | | 36.3 | ug/L | | 73 | (70%-130%) | | |
| Di-n-octylphthalate | 50.0 | | | 32.4 | ug/L | | 65* | (70%-130%) | | |
| Dibenzo(a,h)anthracene | 50.0 | | | 39.6 | ug/L | | 79 | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Dibenzofuran | 50.0 | | | 33.9 | ug/L | | 68* | (70%-130%) | JMB3 | 06/22/17 | 12:48 |
| Diethylphthalate | 50.0 | | | 36.5 | ug/L | | 73 | (70%-130%) | | | |
| Dimethylphthalate | 50.0 | | | 36.2 | ug/L | | 72 | (70%-130%) | | | |
| Fluoranthene | 50.0 | | | 35.0 | ug/L | | 70 | (70%-130%) | | | |
| Fluorene | 50.0 | | | 36.2 | ug/L | | 72 | (70%-130%) | | | |
| Hexachlorobenzene | 50.0 | | | 37.5 | ug/L | | 75 | (70%-130%) | | | |
| Hexachlorobutadiene | 50.0 | | | 32.0 | ug/L | | 64* | (70%-130%) | | | |
| Hexachlorocyclopentadiene | 50.0 | | | 15.6 | ug/L | | 31* | (70%-130%) | | | |
| Hexachloroethane | 50.0 | | | 28.8 | ug/L | | 58* | (70%-130%) | | | |
| Indeno(1,2,3-cd)pyrene | 50.0 | | | 36.4 | ug/L | | 73 | (70%-130%) | | | |
| Isophorone | 50.0 | | | 33.6 | ug/L | | 67* | (70%-130%) | | | |
| N-Methyl-N-nitrosomethylamine | 50.0 | | | 19.8 | ug/L | | 40* | (70%-130%) | | | |
| N-Nitrosodipropylamine | 50.0 | | | 35.8 | ug/L | | 72 | (70%-130%) | | | |
| N-Nitrosopyrrolidine | 50.0 | | | 33.8 | ug/L | | 68* | (70%-130%) | | | |
| Naphthalene | 50.0 | | | 32.4 | ug/L | | 65* | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| Nitrobenzene | 50.0 | | | 33.5 | ug/L | | 67* | (70%-130%) | JMB3 | 06/22/17 12:48 |
| Pentachlorophenol | 50.0 | | | 38.0 | ug/L | | 76 | (70%-130%) | | |
| Phenanthrene | 50.0 | | | 36.2 | ug/L | | 72 | (70%-130%) | | |
| Phenol | 50.0 | | | 12.9 | ug/L | | 26* | (70%-130%) | | |
| Pyrene | 50.0 | | | 34.3 | ug/L | | 69* | (70%-130%) | | |
| Pyridine | 50.0 | | | 20.1 | ug/L | | 40* | (70%-130%) | | |
| Tributylphosphate | 50.0 | | | 36.3 | ug/L | | 73 | (70%-130%) | | |
| bis(2-Chloro-1-methylethyl)ether | 50.0 | | | 31.9 | ug/L | | 64* | (70%-130%) | | |
| bis(2-Chloroethoxy)methane | 50.0 | | | 33.8 | ug/L | | 68* | (70%-130%) | | |
| bis(2-Chloroethyl) ether | 50.0 | | | 33.0 | ug/L | | 66* | (70%-130%) | | |
| bis(2-Ethylhexyl)phthalate | 50.0 | | | 35.7 | ug/L | | 71 | (70%-130%) | | |
| diphenylamine+N-nitrosodiphenylamine | 50.0 | | | 36.5 | ug/L | | 73 | (70%-130%) | | |
| m,p-Cresols | 50.0 | | | 28.8 | ug/L | | 58* | (70%-130%) | | |
| m-Nitroaniline | 50.0 | | | 39.2 | ug/L | | 78 | (70%-130%) | | |
| o-Cresol | 50.0 | | | 28.7 | ug/L | | 57* | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| o-Nitroaniline | 50.0 | | | 32.3 | ug/L | | 65* | (70%-130%) | JMB3 | 06/22/17 12:48 |
| p-Nitroaniline | 50.0 | | | 30.5 | ug/L | | 61* | (70%-130%) | | |
| **2,4,6-Tribromophenol | 100 | | | 78.9 | ug/L | | 79 | (70%-130%) | | |
| **2-Fluorobiphenyl | 50.0 | | | 35.8 | ug/L | | 72 | (70%-130%) | | |
| **2-Fluorophenol | 100 | | | 38.5 | ug/L | | 38* | (70%-130%) | | |
| **Nitrobenzene-d5 | 50.0 | | | 33.5 | ug/L | | 67* | (70%-130%) | | |
| **Phenol-d5 | 100 | | | 24.3 | ug/L | | 24* | (70%-130%) | | |
| **p-Terphenyl-d14 | 50.0 | | | 34.1 | ug/L | | 68* | (70%-130%) | | |
| QC1203814915 MB | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | | | U | 3.00 | ug/L | | | | | 06/22/17 12:15 |
| 1,2,4-Trichlorobenzene | | | U | 3.00 | ug/L | | | | | |
| 1,2-Dichlorobenzene | | | U | 3.00 | ug/L | | | | | |
| 1,3,5-Trinitrobenzene | | | U | 3.00 | ug/L | | | | | |
| 1,3-Dichlorobenzene | | | U | 3.00 | ug/L | | | | | |
| 1,4-Dichlorobenzene | | | U | 3.00 | ug/L | | | | | |
| 1,4-Dioxane | | | U | 3.00 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 1,4-Naphthoquinone | | | U | 3.00 | ug/L | | | | JMB3 | 06/22/17 | 12:15 |
| 1-Naphthylamine | | | U | 3.00 | ug/L | | | | | | |
| 2,3,4,6-Tetrachlorophenol | | | U | 3.00 | ug/L | | | | | | |
| 2,4,5-Trichlorophenol | | | U | 3.00 | ug/L | | | | | | |
| 2,4,6-Trichlorophenol | | | U | 3.00 | ug/L | | | | | | |
| 2,4-Dichlorophenol | | | U | 3.00 | ug/L | | | | | | |
| 2,4-Dimethylphenol | | | U | 3.00 | ug/L | | | | | | |
| 2,4-Dinitrophenol | | | U | 5.00 | ug/L | | | | | | |
| 2,4-Dinitrotoluene | | | U | 3.00 | ug/L | | | | | | |
| 2,6-Dichlorophenol | | | U | 3.00 | ug/L | | | | | | |
| 2,6-Dinitrotoluene | | | U | 3.00 | ug/L | | | | | | |
| 2-Acetylaminofluorene | | | U | 3.00 | ug/L | | | | | | |
| 2-Chloronaphthalene | | | U | 0.410 | ug/L | | | | | | |
| 2-Chlorophenol | | | U | 3.00 | ug/L | | | | | | |
| 2-Methyl-4,6-dinitrophenol | | | U | 3.00 | ug/L | | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 2-Methylnaphthalene | | | U | 0.300 | ug/L | | | | JMB3 | 06/22/17 | 12:15 |
| 2-Naphthylamine | | | U | 3.00 | ug/L | | | | | | |
| 2-Nitrophenol | | | U | 3.00 | ug/L | | | | | | |
| 2-Picoline | | | U | 3.00 | ug/L | | | | | | |
| 3,3'-Dichlorobenzidine | | | U | 3.00 | ug/L | | | | | | |
| 3,3'-Dimethylbenzidine | | | U | 3.30 | ug/L | | | | | | |
| 3-Methylcholanthrene | | | U | 3.00 | ug/L | | | | | | |
| 4-Aminobiphenyl | | | U | 3.00 | ug/L | | | | | | |
| 4-Bromophenylphenylether | | | U | 3.00 | ug/L | | | | | | |
| 4-Chloro-3-methylphenol | | | U | 3.00 | ug/L | | | | | | |
| 4-Chloroaniline | | | U | 3.30 | ug/L | | | | | | |
| 4-Chlorophenylphenylether | | | U | 3.00 | ug/L | | | | | | |
| 4-Nitrophenol | | | U | 3.00 | ug/L | | | | | | |
| 4-Nitroquinoline-1-oxide | | | U | 3.80 | ug/L | | | | | | |
| 5-Nitro-o-toluidine | | | U | 3.00 | ug/L | | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 7,12-Dimethylbenz(a)anthracene | | | U | 3.00 | ug/L | | | | JMB3 | 06/22/17 | 12:15 |
| Acenaphthene | | | U | 0.300 | ug/L | | | | | | |
| Acenaphthylene | | | U | 0.300 | ug/L | | | | | | |
| Acetophenone | | | U | 3.00 | ug/L | | | | | | |
| Aniline | | | U | 4.20 | ug/L | | | | | | |
| Anthracene | | | U | 0.300 | ug/L | | | | | | |
| Aramite | | | U | 3.70 | ug/L | | | | | | |
| Benzo(a)anthracene | | | U | 0.300 | ug/L | | | | | | |
| Benzo(a)pyrene | | | U | 0.300 | ug/L | | | | | | |
| Benzo(b)fluoranthene | | | U | 0.300 | ug/L | | | | | | |
| Benzo(ghi)perylene | | | U | 0.300 | ug/L | | | | | | |
| Benzo(k)fluoranthene | | | U | 0.300 | ug/L | | | | | | |
| Benzyl alcohol | | | U | 3.00 | ug/L | | | | | | |
| Butylbenzylphthalate | | | U | 3.00 | ug/L | | | | | | |
| Carbazole | | | U | 0.300 | ug/L | | | | | | |

**GEL LABORATORIES LLC**
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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Chlorobenzilate | | | U | 3.00 | ug/L | | | | JMB3 | 06/22/17 | 12:15 |
| Chrysene | | | U | 0.300 | ug/L | | | | | | |
| Di-n-butylphthalate | | | U | 3.00 | ug/L | | | | | | |
| Di-n-octylphthalate | | | U | 3.00 | ug/L | | | | | | |
| Diallate | | | U | 3.00 | ug/L | | | | | | |
| Dibenzo(a,h)anthracene | | | U | 0.300 | ug/L | | | | | | |
| Dibenzofuran | | | U | 3.00 | ug/L | | | | | | |
| Diethylphthalate | | | U | 3.00 | ug/L | | | | | | |
| Dimethoate | | | U | 3.00 | ug/L | | | | | | |
| Dimethylphthalate | | | U | 3.00 | ug/L | | | | | | |
| Dinoseb | | | U | 3.00 | ug/L | | | | | | |
| Disulfoton | | | U | 3.00 | ug/L | | | | | | |
| Ethyl Methanesulfonate | | | U | 3.00 | ug/L | | | | | | |
| Famphur | | | U | 5.00 | ug/L | | | | | | |
| Fluoranthene | | | U | 0.300 | ug/L | | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| Fluorene | | | U | 0.300 | ug/L | | | | JMB3 | 06/22/17 12:15 |
| Hexachlorobenzene | | | U | 3.00 | ug/L | | | | | |
| Hexachlorobutadiene | | | U | 3.00 | ug/L | | | | | |
| Hexachlorocyclopentadiene | | | U | 3.00 | ug/L | | | | | |
| Hexachloroethane | | | U | 3.00 | ug/L | | | | | |
| Hexachlorophene | | | U | 167 | ug/L | | | | | |
| Hexachloropropene | | | U | 3.00 | ug/L | | | | | |
| Indeno(1,2,3-cd)pyrene | | | U | 0.300 | ug/L | | | | | |
| Isodrin | | | U | 3.00 | ug/L | | | | | |
| Isophorone | | | U | 3.50 | ug/L | | | | | |
| Isosafrole | | | U | 3.00 | ug/L | | | | | |
| Kepone | | | U | 3.00 | ug/L | | | | | |
| Methapyrilene | | | U | 3.00 | ug/L | | | | | |
| Methyl methanesulfonate | | | U | 3.00 | ug/L | | | | | |
| Methyl parathion | | | U | 3.00 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| N-Methyl-N-nitrosomethylamine | | | U | 3.00 | ug/L | | | | JMB3 | 06/22/17 12:15 |
| N-Nitrosodi-n-butylamine | | | U | 3.00 | ug/L | | | | | |
| N-Nitrosodiethylamine | | | U | 3.00 | ug/L | | | | | |
| N-Nitrosodipropylamine | | | U | 3.00 | ug/L | | | | | |
| N-Nitrosomethylethylamine | | | U | 3.00 | ug/L | | | | | |
| N-Nitrosomorpholine | | | U | 3.00 | ug/L | | | | | |
| N-Nitrosopiperidine | | | U | 3.00 | ug/L | | | | | |
| N-Nitrosopyrrolidine | | | U | 3.00 | ug/L | | | | | |
| Naphthalene | | | U | 0.300 | ug/L | | | | | |
| Nitrobenzene | | | U | 3.00 | ug/L | | | | | |
| Parathion | | | U | 3.00 | ug/L | | | | | |
| Pentachlorobenzene | | | U | 3.00 | ug/L | | | | | |
| Pentachloroethane | | | U | 3.00 | ug/L | | | | | |
| Pentachloronitrobenzene | | | U | 3.40 | ug/L | | | | | |
| Pentachlorophenol | | | U | 3.00 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| Phenacetin | | | U | 3.00 | ug/L | | | | JMB3 | 06/22/17 12:15 |
| Phenanthrene | | | U | 0.300 | ug/L | | | | | |
| Phenol | | | U | 3.00 | ug/L | | | | | |
| Phorate | | | U | 3.00 | ug/L | | | | | |
| Pronamide | | | U | 3.00 | ug/L | | | | | |
| Pyrene | | | U | 0.300 | ug/L | | | | | |
| Pyridine | | | U | 3.00 | ug/L | | | | | |
| Safrole | | | U | 3.00 | ug/L | | | | | |
| Sulfotepp | | | U | 3.00 | ug/L | | | | | |
| Thionazin | | | U | 3.00 | ug/L | | | | | |
| Tributylphosphate | | | U | 3.00 | ug/L | | | | | |
| Triethylphosphorothioate | | | U | 3.00 | ug/L | | | | | |
| a,a-Dimethylphenethylamine | | | U | 5.40 | ug/L | | | | | |
| bis(2-Chloro-1-methylethyl)ether | | | U | 3.00 | ug/L | | | | | |
| bis(2-Chloroethoxy)methane | | | U | 3.00 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | |
| bis(2-Chloroethyl) ether | | | U | 3.00 | ug/L | | | | JMB3 | 06/22/17 12:15 |
| bis(2-Ethylhexyl)phthalate | | | U | 3.00 | ug/L | | | | | |
| diphenylamine+N-nitrosodiphenylamine | | | U | 3.00 | ug/L | | | | | |
| m,p-Cresols | | | U | 3.70 | ug/L | | | | | |
| m-Dinitrobenzene | | | U | 3.00 | ug/L | | | | | |
| m-Nitroaniline | | | U | 3.00 | ug/L | | | | | |
| o-Cresol | | | U | 3.00 | ug/L | | | | | |
| o-Nitroaniline | | | U | 3.00 | ug/L | | | | | |
| o-Toluidine | | | U | 3.00 | ug/L | | | | | |
| p-(Dimethylamino)azobenzene | | | U | 3.00 | ug/L | | | | | |
| p-Nitroaniline | | | U | 3.00 | ug/L | | | | | |
| p-Phenylenediamine | | | U | 100 | ug/L | | | | | |
| **2,4,6-Tribromophenol | 100 | | | 80.1 | ug/L | | 80 | (70%-130%) | | |
| **2-Fluorobiphenyl | 50.0 | | | 35.9 | ug/L | | 72 | (70%-130%) | | |
| **2-Fluorophenol | 100 | | | 40.8 | ug/L | | 41* | (70%-130%) | | |

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# QC Summary

**Workorder:** 425603



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| **Nitrobenzene-d5 | 50.0 | | | | 34.1 | ug/L | | 68* | (70%-130%) | JMB3 | 06/22/17 12:15 |
| **Phenol-d5 | 100 | | | | 25.7 | ug/L | | 26* | (70%-130%) | | |
| **p-Terphenyl-d14 | 50.0 | | | | 37.6 | ug/L | | 75 | (70%-130%) | | |
| QC1203814919 425603008 MS | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 100 | U | 2.91 | | 59.5 | ug/L | | 59 | (26%-100%) | | 06/22/17 16:23 |
| 1,2,4-Trichlorobenzene | 100 | U | 2.91 | | 57.4 | ug/L | | 57 | (28%-93%) | | |
| 1,2-Dichlorobenzene | 100 | U | 2.91 | | 58.4 | ug/L | | 58 | (28%-94%) | | |
| 1,3-Dichlorobenzene | 100 | U | 2.91 | | 56.9 | ug/L | | 57 | (28%-89%) | | |
| 1,4-Dichlorobenzene | 100 | U | 2.91 | | 57.7 | ug/L | | 58 | (25%-95%) | | |
| 1,4-Dioxane | 100 | U | 2.91 | | 53.4 | ug/L | | 53 | (25%-103%) | | |
| 2,3,4,6-Tetrachlorophenol | 100 | U | 2.91 | | 76.3 | ug/L | | 76 | (29%-127%) | | |
| 2,4,5-Trichlorophenol | 100 | U | 2.91 | | 72.8 | ug/L | | 73 | (32%-124%) | | |
| 2,4,6-Trichlorophenol | 100 | U | 2.91 | | 76.5 | ug/L | | 77 | (33%-124%) | | |
| 2,4-Dichlorophenol | 100 | U | 2.91 | | 73.2 | ug/L | | 73 | (31%-121%) | | |
| 2,4-Dimethylphenol | 100 | U | 2.91 | | 64.8 | ug/L | | 65 | (28%-112%) | | |
| 2,4-Dinitrophenol | 100 | U | 4.85 | | 68.6 | ug/L | | 69 | (15%-140%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 2,4-Dinitrotoluene | 100 | U | 2.91 | | 80.4 | ug/L | | 80 | (40%-126%) | JMB3 | 06/22/17 16:23 |
| 2,6-Dichlorophenol | 100 | U | 2.91 | | 83.7 | ug/L | | 84 | (32%-127%) | | |
| 2,6-Dinitrotoluene | 100 | U | 2.91 | | 71.8 | ug/L | | 72 | (41%-122%) | | |
| 2-Chloronaphthalene | 100 | U | 0.398 | | 59.8 | ug/L | | 60 | (31%-103%) | | |
| 2-Chlorophenol | 100 | U | 2.91 | | 66.1 | ug/L | | 66 | (27%-116%) | | |
| 2-Methyl-4,6-dinitrophenol | 100 | U | 2.91 | | 64.0 | ug/L | | 64 | (15%-142%) | | |
| 2-Methylnaphthalene | 100 | U | 0.291 | | 62.4 | ug/L | | 62 | (30%-103%) | | |
| 2-Nitrophenol | 100 | U | 2.91 | | 68.3 | ug/L | | 68 | (35%-121%) | | |
| 3,3'-Dichlorobenzidine | 100 | U | 2.91 | | 77.6 | ug/L | | 78 | (15%-135%) | | |
| 4-Bromophenylphenylether | 100 | U | 2.91 | | 65.7 | ug/L | | 66 | (37%-117%) | | |
| 4-Chloro-3-methylphenol | 100 | U | 2.91 | | 76.3 | ug/L | | 76 | (28%-130%) | | |
| 4-Chloroaniline | 100 | U | 3.20 | | 78.8 | ug/L | | 79 | (23%-158%) | | |
| 4-Chlorophenylphenylether | 100 | U | 2.91 | | 82.4 | ug/L | | 82 | (38%-116%) | | |
| 4-Nitrophenol | 100 | U | 2.91 | | 32.4 | ug/L | | 32 | (15%-88%) | | |
| Acenaphthene | 100 | U | 0.291 | | 68.2 | ug/L | | 68 | (35%-108%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Acenaphthylene | 100 | U | 0.291 | | 65.9 | ug/L | | 66 | (34%-113%) | JMB3 | 06/22/17 16:23 |
| Acetophenone | 100 | U | 2.91 | | 71.7 | ug/L | | 72 | (42%-121%) | | |
| Aniline | 100 | U | 4.08 | | 69.4 | ug/L | | 69 | (25%-123%) | | |
| Anthracene | 100 | U | 0.291 | | 68.4 | ug/L | | 68 | (37%-112%) | | |
| Benzo(a)anthracene | 100 | U | 0.291 | | 66.0 | ug/L | | 66 | (37%-116%) | | |
| Benzo(a)pyrene | 100 | U | 0.291 | | 66.0 | ug/L | | 66 | (35%-117%) | | |
| Benzo(b)fluoranthene | 100 | U | 0.291 | | 67.5 | ug/L | | 67 | (37%-121%) | | |
| Benzo(ghi)perylene | 100 | U | 0.291 | | 72.3 | ug/L | | 72 | (22%-122%) | | |
| Benzo(k)fluoranthene | 100 | U | 0.291 | | 71.5 | ug/L | | 71 | (37%-125%) | | |
| Benzyl alcohol | 100 | U | 2.91 | | 68.2 | ug/L | | 68 | (38%-120%) | | |
| Butylbenzylphthalate | 100 | U | 2.91 | | 54.8 | ug/L | | 55 | (33%-128%) | | |
| Carbazole | 100 | U | 0.291 | | 71.9 | ug/L | | 72 | (36%-120%) | | |
| Chrysene | 100 | U | 0.291 | | 72.8 | ug/L | | 73 | (36%-116%) | | |
| Di-n-butylphthalate | 100 | U | 2.91 | | 67.6 | ug/L | | 68 | (37%-121%) | | |
| Di-n-octylphthalate | 100 | U | 2.91 | | 55.0 | ug/L | | 55 | (32%-128%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Dibenzo(a,h)anthracene | 100 | U | 0.291 | | 75.8 | ug/L | | 76 | (27%-132%) | JMB3 | 06/22/17 16:23 |
| Dibenzofuran | 100 | U | 2.91 | | 65.9 | ug/L | | 66 | (39%-115%) | | |
| Diethylphthalate | 100 | U | 2.91 | | 78.1 | ug/L | | 78 | (39%-124%) | | |
| Dimethylphthalate | 100 | U | 2.91 | | 76.3 | ug/L | | 76 | (42%-124%) | | |
| Fluoranthene | 100 | U | 0.291 | | 71.5 | ug/L | | 72 | (35%-117%) | | |
| Fluorene | 100 | U | 0.291 | | 71.5 | ug/L | | 71 | (36%-113%) | | |
| Hexachlorobenzene | 100 | U | 2.91 | | 67.0 | ug/L | | 67 | (36%-116%) | | |
| Hexachlorobutadiene | 100 | U | 2.91 | | 60.7 | ug/L | | 61 | (22%-97%) | | |
| Hexachlorocyclopentadiene | 100 | U | 2.91 | | 22.0 | ug/L | | 22 | (15%-80%) | | |
| Hexachloroethane | 100 | U | 2.91 | | 55.1 | ug/L | | 55 | (23%-93%) | | |
| Indeno(1,2,3-cd)pyrene | 100 | U | 0.291 | | 69.6 | ug/L | | 70 | (29%-126%) | | |
| Isophorone | 100 | U | 3.40 | | 68.1 | ug/L | | 68 | (42%-115%) | | |
| N-Methyl-N-nitrosomethylamine | 100 | U | 2.91 | | 50.2 | ug/L | | 50 | (28%-102%) | | |
| N-Nitrosodipropylamine | 100 | U | 2.91 | | 73.8 | ug/L | | 74 | (38%-114%) | | |
| N-Nitrosopyrrolidine | 100 | U | 2.91 | | 74.6 | ug/L | | 75 | (41%-125%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Naphthalene | 100 | U | 0.291 | | 61.4 | ug/L | | 61 | (31%-101%) | JMB3 | 06/22/17 16:23 |
| Nitrobenzene | 100 | U | 2.91 | | 65.0 | ug/L | | 65 | (38%-119%) | | |
| Pentachlorophenol | 100 | U | 2.91 | | 72.9 | ug/L | | 73 | (15%-135%) | | |
| Phenanthrene | 100 | U | 0.291 | | 68.6 | ug/L | | 69 | (37%-113%) | | |
| Phenol | 100 | U | 2.91 | | 41.5 | ug/L | | 41 | (15%-80%) | | |
| Pyrene | 100 | U | 0.291 | | 60.6 | ug/L | | 61 | (31%-122%) | | |
| Pyridine | 100 | U | 2.91 | | 51.5 | ug/L | | 52 | (15%-93%) | | |
| Tributylphosphate | 100 | U | 2.91 | | 77.1 | ug/L | | 77 | (44%-121%) | | |
| bis(2-Chloro-1-methylethyl)ether | 100 | U | 2.91 | | 62.7 | ug/L | | 63 | (33%-114%) | | |
| bis(2-Chloroethoxy)methane | 100 | U | 2.91 | | 69.0 | ug/L | | 69 | (44%-117%) | | |
| bis(2-Chloroethyl) ether | 100 | U | 2.91 | | 64.3 | ug/L | | 64 | (39%-113%) | | |
| bis(2-Ethylhexyl)phthalate | 100 | U | 2.91 | | 57.0 | ug/L | | 57 | (33%-128%) | | |
| diphenylamine+N-nitrosodiphenylamine | 100 | U | 2.91 | | 63.6 | ug/L | | 64 | (35%-108%) | | |
| m,p-Cresols | 100 | U | 3.59 | | 71.1 | ug/L | | 71 | (31%-118%) | | |
| m-Nitroaniline | 100 | U | 2.91 | | 89.4 | ug/L | | 89 | (26%-162%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| o-Cresol | 100 | U | 2.91 | | 66.1 | ug/L | | 66 | (32%-108%) | JMB3 | 06/22/17 16:23 |
| o-Nitroaniline | 100 | U | 2.91 | | 68.6 | ug/L | | 69 | (27%-132%) | | |
| p-Nitroaniline | 100 | U | 2.91 | | 77.4 | ug/L | | 77 | (15%-153%) | | |
| **2,4,6-Tribromophenol | 200 | | 78.0 | | 179 | ug/L | | 90 | (70%-130%) | | |
| **2-Fluorobiphenyl | 100 | | 33.4 | | 72.3 | ug/L | | 72 | (70%-130%) | | |
| **2-Fluorophenol | 200 | | 35.5 | | 102 | ug/L | | 51* | (70%-130%) | | |
| **Nitrobenzene-d5 | 100 | | 29.8 | | 65.4 | ug/L | | 65* | (70%-130%) | | |
| **Phenol-d5 | 200 | | 22.2 | | 79.5 | ug/L | | 40* | (70%-130%) | | |
| **p-Terphenyl-d14 | 100 | | 34.8 | | 64.5 | ug/L | | 65* | (70%-130%) | | |
| QC1203814920 425603008 MSD | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 100 | U | 2.91 | | 60.7 | ug/L | 2 | 61 | (0%-20%) | | 06/22/17 16:50 |
| 1,2,4-Trichlorobenzene | 100 | U | 2.91 | | 59.4 | ug/L | 4 | 59 | (0%-20%) | | |
| 1,2-Dichlorobenzene | 100 | U | 2.91 | | 60.3 | ug/L | 3 | 60 | (0%-20%) | | |
| 1,3-Dichlorobenzene | 100 | U | 2.91 | | 57.7 | ug/L | 1 | 58 | (0%-20%) | | |
| 1,4-Dichlorobenzene | 100 | U | 2.91 | | 58.7 | ug/L | 2 | 59 | (0%-20%) | | |
| 1,4-Dioxane | 100 | U | 2.91 | | 54.4 | ug/L | 2 | 54 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 2,3,4,6-Tetrachlorophenol | 100 | U | 2.91 | | 76.2 | ug/L | 0 | 76 | (0%-20%) | JMB3 | 06/22/17 16:50 |
| 2,4,5-Trichlorophenol | 100 | U | 2.91 | | 74.9 | ug/L | 3 | 75 | (0%-20%) | | |
| 2,4,6-Trichlorophenol | 100 | U | 2.91 | | 79.0 | ug/L | 3 | 79 | (0%-20%) | | |
| 2,4-Dichlorophenol | 100 | U | 2.91 | | 74.5 | ug/L | 2 | 75 | (0%-20%) | | |
| 2,4-Dimethylphenol | 100 | U | 2.91 | | 65.0 | ug/L | 0 | 65 | (0%-20%) | | |
| 2,4-Dinitrophenol | 100 | U | 4.85 | | 68.2 | ug/L | 1 | 68 | (0%-20%) | | |
| 2,4-Dinitrotoluene | 100 | U | 2.91 | | 80.0 | ug/L | 1 | 80 | (0%-20%) | | |
| 2,6-Dichlorophenol | 100 | U | 2.91 | | 86.3 | ug/L | 3 | 86 | (0%-20%) | | |
| 2,6-Dinitrotoluene | 100 | U | 2.91 | | 72.6 | ug/L | 1 | 73 | (0%-20%) | | |
| 2-Chloronaphthalene | 100 | U | 0.398 | | 61.5 | ug/L | 3 | 62 | (0%-20%) | | |
| 2-Chlorophenol | 100 | U | 2.91 | | 67.5 | ug/L | 2 | 67 | (0%-20%) | | |
| 2-Methyl-4,6-dinitrophenol | 100 | U | 2.91 | | 64.5 | ug/L | 1 | 64 | (0%-20%) | | |
| 2-Methylnaphthalene | 100 | U | 0.291 | | 63.6 | ug/L | 2 | 64 | (0%-20%) | | |
| 2-Nitrophenol | 100 | U | 2.91 | | 71.3 | ug/L | 4 | 71 | (0%-20%) | | |
| 3,3'-Dichlorobenzidine | 100 | U | 2.91 | | 76.1 | ug/L | 2 | 76 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| 4-Bromophenylphenylether | 100 | U | 2.91 | | 65.9 | ug/L | 0 | 66 | (0%-20%) | JMB3 | 06/22/17 16:50 |
| 4-Chloro-3-methylphenol | 100 | U | 2.91 | | 77.6 | ug/L | 2 | 78 | (0%-20%) | | |
| 4-Chloroaniline | 100 | U | 3.20 | | 79.3 | ug/L | 1 | 79 | (0%-20%) | | |
| 4-Chlorophenylphenylether | 100 | U | 2.91 | | 83.9 | ug/L | 2 | 84 | (0%-20%) | | |
| 4-Nitrophenol | 100 | U | 2.91 | | 31.1 | ug/L | 4 | 31 | (0%-20%) | | |
| Acenaphthene | 100 | U | 0.291 | | 69.6 | ug/L | 2 | 70 | (0%-20%) | | |
| Acenaphthylene | 100 | U | 0.291 | | 67.7 | ug/L | 3 | 68 | (0%-20%) | | |
| Acetophenone | 100 | U | 2.91 | | 72.3 | ug/L | 1 | 72 | (0%-20%) | | |
| Aniline | 100 | U | 4.08 | | 69.4 | ug/L | 0 | 69 | (0%-20%) | | |
| Anthracene | 100 | U | 0.291 | | 68.4 | ug/L | 0 | 68 | (0%-20%) | | |
| Benzo(a)anthracene | 100 | U | 0.291 | | 67.6 | ug/L | 2 | 68 | (0%-20%) | | |
| Benzo(a)pyrene | 100 | U | 0.291 | | 68.9 | ug/L | 4 | 69 | (0%-20%) | | |
| Benzo(b)fluoranthene | 100 | U | 0.291 | | 71.2 | ug/L | 5 | 71 | (0%-20%) | | |
| Benzo(ghi)perylene | 100 | U | 0.291 | | 73.0 | ug/L | 1 | 73 | (0%-20%) | | |
| Benzo(k)fluoranthene | 100 | U | 0.291 | | 74.3 | ug/L | 4 | 74 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Benzyl alcohol | 100 | U | 2.91 | | 68.5 | ug/L | 0 | 68 | (0%-20%) | JMB3 | 06/22/17 16:50 |
| Butylbenzylphthalate | 100 | U | 2.91 | | 57.0 | ug/L | 4 | 57 | (0%-20%) | | |
| Carbazole | 100 | U | 0.291 | | 70.0 | ug/L | 3 | 70 | (0%-20%) | | |
| Chrysene | 100 | U | 0.291 | | 74.6 | ug/L | 2 | 75 | (0%-20%) | | |
| Di-n-butylphthalate | 100 | U | 2.91 | | 65.7 | ug/L | 3 | 66 | (0%-20%) | | |
| Di-n-octylphthalate | 100 | U | 2.91 | | 56.0 | ug/L | 2 | 56 | (0%-20%) | | |
| Dibenzo(a,h)anthracene | 100 | U | 0.291 | | 76.6 | ug/L | 1 | 77 | (0%-20%) | | |
| Dibenzofuran | 100 | U | 2.91 | | 67.3 | ug/L | 2 | 67 | (0%-20%) | | |
| Diethylphthalate | 100 | U | 2.91 | | 78.1 | ug/L | 0 | 78 | (0%-20%) | | |
| Dimethylphthalate | 100 | U | 2.91 | | 76.0 | ug/L | 0 | 76 | (0%-20%) | | |
| Fluoranthene | 100 | U | 0.291 | | 68.0 | ug/L | 5 | 68 | (0%-20%) | | |
| Fluorene | 100 | U | 0.291 | | 72.4 | ug/L | 1 | 72 | (0%-20%) | | |
| Hexachlorobenzene | 100 | U | 2.91 | | 66.3 | ug/L | 1 | 66 | (0%-20%) | | |
| Hexachlorobutadiene | 100 | U | 2.91 | | 62.0 | ug/L | 2 | 62 | (0%-20%) | | |
| Hexachlorocyclopentadiene | 100 | U | 2.91 | | 25.5 | ug/L | 15 | 25 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | |
| Hexachloroethane | 100 | U | 2.91 | | 55.9 | ug/L | 2 | 56 | (0%-20%) | JMB3 | 06/22/17 16:50 |
| Indeno(1,2,3-cd)pyrene | 100 | U | 0.291 | | 71.0 | ug/L | 2 | 71 | (0%-20%) | | |
| Isophorone | 100 | U | 3.40 | | 69.3 | ug/L | 2 | 69 | (0%-20%) | | |
| N-Methyl-N-nitrosomethylamine | 100 | U | 2.91 | | 50.4 | ug/L | 0 | 50 | (0%-20%) | | |
| N-Nitrosodipropylamine | 100 | U | 2.91 | | 73.6 | ug/L | 0 | 74 | (0%-20%) | | |
| N-Nitrosopyrrolidine | 100 | U | 2.91 | | 73.9 | ug/L | 1 | 74 | (0%-20%) | | |
| Naphthalene | 100 | U | 0.291 | | 63.8 | ug/L | 4 | 64 | (0%-20%) | | |
| Nitrobenzene | 100 | U | 2.91 | | 67.0 | ug/L | 3 | 67 | (0%-20%) | | |
| Pentachlorophenol | 100 | U | 2.91 | | 71.8 | ug/L | 2 | 72 | (0%-20%) | | |
| Phenanthrene | 100 | U | 0.291 | | 68.3 | ug/L | 0 | 68 | (0%-20%) | | |
| Phenol | 100 | U | 2.91 | | 42.0 | ug/L | 1 | 42 | (0%-20%) | | |
| Pyrene | 100 | U | 0.291 | | 63.8 | ug/L | 5 | 64 | (0%-20%) | | |
| Pyridine | 100 | U | 2.91 | | 44.7 | ug/L | 14 | 45 | (0%-20%) | | |
| Tributylphosphate | 100 | U | 2.91 | | 75.5 | ug/L | 2 | 76 | (0%-20%) | | |
| bis(2-Chloro-1-methylethyl)ether | 100 | U | 2.91 | | 63.9 | ug/L | 2 | 64 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| Batch 1675544 | | | | | | | | | | | | |
| bis(2-Chloroethoxy)methane | 100 | U | 2.91 | | 70.6 | ug/L | 2 | 71 | (0%-20%) | JMB3 | 06/22/17 | 16:50 |
| bis(2-Chloroethyl) ether | 100 | U | 2.91 | | 65.7 | ug/L | 2 | 66 | (0%-20%) | | | |
| bis(2-Ethylhexyl)phthalate | 100 | U | 2.91 | | 59.7 | ug/L | 5 | 60 | (0%-20%) | | | |
| diphenylamine+N-nitrosodiphenylamine | 100 | U | 2.91 | | 65.3 | ug/L | 3 | 65 | (0%-20%) | | | |
| m,p-Cresols | 100 | U | 3.59 | | 71.9 | ug/L | 1 | 72 | (0%-20%) | | | |
| m-Nitroaniline | 100 | U | 2.91 | | 86.8 | ug/L | 3 | 87 | (0%-20%) | | | |
| o-Cresol | 100 | U | 2.91 | | 66.9 | ug/L | 1 | 67 | (0%-20%) | | | |
| o-Nitroaniline | 100 | U | 2.91 | | 70.0 | ug/L | 2 | 70 | (0%-20%) | | | |
| p-Nitroaniline | 100 | U | 2.91 | | 75.8 | ug/L | 2 | 76 | (0%-20%) | | | |
| **2,4,6-Tribromophenol | 200 | | 78.0 | | 177 | ug/L | | 89 | (70%-130%) | | | |
| **2-Fluorobiphenyl | 100 | | 33.4 | | 73.5 | ug/L | | 74 | (70%-130%) | | | |
| **2-Fluorophenol | 200 | | 35.5 | | 104 | ug/L | | 52* | (70%-130%) | | | |
| **Nitrobenzene-d5 | 100 | | 29.8 | | 67.8 | ug/L | | 68* | (70%-130%) | | | |
| **Phenol-d5 | 200 | | 22.2 | | 80.4 | ug/L | | 40* | (70%-130%) | | | |
| **p-Terphenyl-d14 | 100 | | 34.8 | | 69.6 | ug/L | | 70 | (70%-130%) | | | |

**Notes:**

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

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 (0rganics only)

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.

**Semi-Volatile**

**Surrogate Recovery Report**

**SDG Number: GEL425603**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | PHL %REC | NBZ %REC | FBP %REC | TBP %REC | TPH %REC |
|---|---|---|---|---|---|---|---|
| 1203814915 | MB for batch 1675543 | 41 * | 26 * | 68 * | 72 | 80 | 75 |
| 1203814916 | LCS for batch 1675543 | 38 * | 24 * | 67 * | 72 | 79 | 68 * |
| 425603008 | B39NH2 | 37 * | 23 * | 61 * | 69 * | 80 | 72 |
| 1203814919 | B39NH2MS | 51 * | 40 * | 65 * | 72 | 90 | 65 * |
| 1203814920 | B39NH2MSD | 52 * | 40 * | 68 * | 74 | 89 | 70 |
| 425603010 | B39NH3 | 33 * | 20 * | 55 * | 62 * | 68 * | 74 |
| 425603011 | B39NM5 | 31 * | 19 * | 54 * | 62 * | 70 | 62 * |

| Surrogate | | Acceptance Limits |
|---|---|---|
| 2FP | = 2-Fluorophenol | (70%-130%) |
| PHL | = Phenol-d5 | (70%-130%) |
| NBZ | = Nitrobenzene-d5 | (70%-130%) |
| FBP | = 2-Fluorobiphenyl | (70%-130%) |
| TBP | = 2,4,6-Tribromophenol | (70%-130%) |
| TPH | = p-Terphenyl-d14 | (70%-130%) |

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

# Pesticide Analysis

# Case Narrative

**GC Semivolatile Pesticide**
**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

**Product:** **Organochlorine Pesticides and Chlorinated Hydrocarbons**
**Analytical Method:** SW846 3535A/8081B
**Analytical Procedure:** GL-OA-E-041 REV# 17
**Analytical Batch:** 1675325

**Preparation Method:** SW846 3535A
**Preparation Procedure:** GL-OA-E-070 REV# 9
**Preparation Batch:** 1675324

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603013 | B3B3F8 |
| 425603014 | B3B3F7 |
| 425603015 | B3B3H4 |
| 1203814459 | Method Blank (MB) |
| 1203814460 | Laboratory Control Sample (LCS) |
| 1203814469 | 425725009(NonSDG) Matrix Spike (MS) |
| 1203814470 | 425725009(NonSDG) Matrix Spike Duplicate (MSD) |

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.

**Technical Information**

**Florisil**
Florisil clean-up was not performed on client and quality control samples in this batch.

**Miscellaneous Information**

**Additional Comments**

The Toxaphene and/or Chlordane standards were analyzed for this SDG as a retention time marker and pattern reference. A five-point calibration curve and calibration verification standard forms were not submitted in the data package since Toxaphene and/or Chlordane were not detected in the client samples.

**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.

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## Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425603 GEL Work Order: 425603

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

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

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:** Jimin Cao **Name: Jimin Cao**

**Date: 13 JUL 2017** **Title: Data Validator**

# Sample Data Summary

**Pesticide**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603013** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3F8** | **Method:** | **SW846 3535A/8081B** | **SOP Ref:** | **GL-OA-E-041** |
| **Batch ID:** | **1675325** | **Inst:** | **ECD7A.I** | **Dilution:** | **1** |
| **Run Date:** | **06/20/2017 23:13** | **Analyst:** | **LOF** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/20/2017 05:42** | **Aliquot:** | **1000 mL** | **Final Volume:** | **5 mL** |
| **Data File:** | **062017.B\e7F2034.D** | **Column:** | **1 CLPesticides** | | |
| | **062017.B\e7F2034.D** | | **2 CLPesticides2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL | Column |
|---|---|---|---|---|---|---|---|---|
| 309-00-2 | Aldrin | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 60-57-1 | Dieldrin | U | 0.010 | ug/L | 0.010 | 0.040 | 0.050 | 1 |
| 959-98-8 | Endosulfan I | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 76-44-8 | Heptachlor | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 1024-57-3 | Heptachlor epoxide | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-84-6 | alpha-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-85-7 | beta-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 5103-71-9 | cis-Chlordane | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-86-8 | delta-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 58-89-9 | gamma-BHC (Lindane) | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 72-54-8 | 4,4'-DDD | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-55-9 | 4,4'-DDE | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 50-29-3 | 4,4'-DDT | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 33213-65-9 | Endosulfan II | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 1031-07-8 | Endosulfan sulfate | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-20-8 | Endrin | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 7421-93-4 | Endrin aldehyde | U | 0.00665 | ug/L | 0.00665 | 0.040 | 0.100 | 1 |
| 53494-70-5 | Endrin ketone | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-43-5 | Methoxychlor | U | 0.050 | ug/L | 0.050 | 0.200 | 0.500 | 1 |
| 5103-74-2 | trans-Chlordane | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.500 | 1 |
| 8001-35-2 | Toxaphene | U | 0.150 | ug/L | 0.150 | 0.500 | 2.00 | 1 |

**Pesticide**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603014** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3F7** | **Method:** | **SW846 3535A/8081B** | **SOP Ref:** | **GL-OA-E-041** |
| **Batch ID:** | **1675325** | **Inst:** | **ECD7A.I** | **Dilution:** | **1** |
| **Run Date:** | **06/20/2017 23:29** | **Analyst:** | **LOF** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/20/2017 05:42** | **Aliquot:** | **1000 mL** | **Final Volume:** | **5 mL** |
| **Data File:** | **062017.B\e7F2035.D** | **Column:** | **1 CLPesticides** | | |
| | **062017.B\e7F2035.D** | | **2 CLPesticides2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL | Column |
|---|---|---|---|---|---|---|---|---|
| 309-00-2 | Aldrin | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 60-57-1 | Dieldrin | U | 0.010 | ug/L | 0.010 | 0.040 | 0.050 | 1 |
| 959-98-8 | Endosulfan I | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 76-44-8 | Heptachlor | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 1024-57-3 | Heptachlor epoxide | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-84-6 | alpha-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-85-7 | beta-BHC | J | 0.0167 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 5103-71-9 | cis-Chlordane | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-86-8 | delta-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 58-89-9 | gamma-BHC (Lindane) | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 72-54-8 | 4,4'-DDD | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-55-9 | 4,4'-DDE | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 50-29-3 | 4,4'-DDT | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 33213-65-9 | Endosulfan II | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 1031-07-8 | Endosulfan sulfate | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-20-8 | Endrin | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 7421-93-4 | Endrin aldehyde | U | 0.00665 | ug/L | 0.00665 | 0.040 | 0.100 | 1 |
| 53494-70-5 | Endrin ketone | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-43-5 | Methoxychlor | U | 0.050 | ug/L | 0.050 | 0.200 | 0.500 | 1 |
| 5103-74-2 | trans-Chlordane | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.500 | 1 |
| 8001-35-2 | Toxaphene | U | 0.150 | ug/L | 0.150 | 0.500 | 2.00 | 1 |

**Pesticide**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603015** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3H4** | **Method:** | **SW846 3535A/8081B** | **SOP Ref:** | **GL-OA-E-041** |
| **Batch ID:** | **1675325** | **Inst:** | **ECD7A.I** | **Dilution:** | **1** |
| **Run Date:** | **06/20/2017 23:45** | **Analyst:** | **LOF** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/20/2017 05:42** | **Aliquot:** | **1000 mL** | **Final Volume:** | **5 mL** |
| **Data File:** | **062017.B\e7F2036.D** | **Column:** | **1 CLPesticides** | | |
| | **062017.B\e7F2036.D** | | **2 CLPesticides2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | RDL | Column |
|---|---|---|---|---|---|---|---|---|
| 309-00-2 | Aldrin | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 60-57-1 | Dieldrin | U | 0.010 | ug/L | 0.010 | 0.040 | 0.050 | 1 |
| 959-98-8 | Endosulfan I | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 76-44-8 | Heptachlor | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 1024-57-3 | Heptachlor epoxide | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-84-6 | alpha-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-85-7 | beta-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 5103-71-9 | cis-Chlordane | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 319-86-8 | delta-BHC | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 58-89-9 | gamma-BHC (Lindane) | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.050 | 1 |
| 72-54-8 | 4,4'-DDD | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-55-9 | 4,4'-DDE | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 50-29-3 | 4,4'-DDT | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 33213-65-9 | Endosulfan II | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 1031-07-8 | Endosulfan sulfate | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-20-8 | Endrin | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 7421-93-4 | Endrin aldehyde | U | 0.00665 | ug/L | 0.00665 | 0.040 | 0.100 | 1 |
| 53494-70-5 | Endrin ketone | U | 0.010 | ug/L | 0.010 | 0.040 | 0.100 | 1 |
| 72-43-5 | Methoxychlor | U | 0.050 | ug/L | 0.050 | 0.200 | 0.500 | 1 |
| 5103-74-2 | trans-Chlordane | U | 0.00665 | ug/L | 0.00665 | 0.020 | 0.500 | 1 |
| 8001-35-2 | Toxaphene | U | 0.150 | ug/L | 0.150 | 0.500 | 2.00 | 1 |

# Quality Control Summary

## Surrogate Recovery Report

**SDG Number: GEL425603**

**Matrix Type: LIQUID**

| Sample ID | Client ID | 4CMX 1 %REC # | 4CMX 2 %REC # | DCB 1 %REC # | DCB 2 %REC # |
|---|---|---|---|---|---|
| 1203814459 | MB for batch 1675324 | 77 | 77 | 88 | 90 |
| 1203814460 | LCS for batch 1675324 | 84 | 84 | 101 | 105 |
| 425603013 | B3B3F8 | 90 | 88 | 97 | 103 |
| 425603014 | B3B3F7 | 86 | 87 | 91 | 98 |
| 425603015 | B3B3H4 | 88 | 82 | 95 | 104 |
| 1203814469 | B3B3H5MS | 82 | 84 | 93 | 98 |
| 1203814470 | B3B3H5MSD | 76 | 79 | 85 | 91 |

| Surrogate | | Acceptance Limits |
|---|---|---|
| 4CMX | = 4cmx | (70%-130%) |
| DCB | = Decachlorobiphenyl | (70%-130%) |

* Recovery outside Acceptance Limits

# Column to be used to flag recovery values

D Sample Diluted

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# QC Summary

**Report Date: June 23, 2017**



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | |
| QC1203814460 LCS | | | | | | | | | | |
| 4,4'-DDD | 1.25 | | | 1.09 | ug/L | | 87 | (70%-130%) | LOF | 06/20/17 22:57 |
| 4,4'-DDE | 1.25 | | | 1.01 | ug/L | | 81 | (70%-130%) | | |
| 4,4'-DDT | 1.25 | | | 1.02 | ug/L | | 82 | (70%-130%) | | |
| Aldrin | 0.500 | | | 0.398 | ug/L | | 80 | (70%-130%) | | |
| Dieldrin | 1.25 | | | 1.11 | ug/L | | 89 | (70%-130%) | | |
| Endosulfan I | 0.500 | | | 0.413 | ug/L | | 83 | (70%-130%) | | |
| Endosulfan II | 1.25 | | | 0.991 | ug/L | | 79 | (70%-130%) | | |
| Endosulfan sulfate | 1.25 | | | 1.24 | ug/L | | 99 | (70%-130%) | | |
| Endrin | 1.25 | | | 1.17 | ug/L | | 93 | (70%-130%) | | |
| Endrin aldehyde | 1.25 | | | 1.11 | ug/L | | 89 | (70%-130%) | | |
| Endrin ketone | 1.25 | | | 1.10 | ug/L | | 88 | (70%-130%) | | |
| Heptachlor | 0.500 | | | 0.400 | ug/L | | 80 | (70%-130%) | | |
| Heptachlor epoxide | 0.500 | | | 0.422 | ug/L | | 84 | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | |
| Methoxychlor | 5.00 | | | 4.11 | ug/L | | 82 | (70%-130%) | LOF | 06/20/17 22:57 |
| alpha-BHC | 0.500 | | | 0.432 | ug/L | | 86 | (70%-130%) | | |
| beta-BHC | 0.500 | | | 0.395 | ug/L | | 79 | (70%-130%) | | |
| cis-Chlordane | 0.500 | | | 0.452 | ug/L | | 90 | (70%-130%) | | |
| delta-BHC | 0.500 | | | 0.452 | ug/L | | 90 | (70%-130%) | | |
| gamma-BHC (Lindane) | 0.500 | | | 0.429 | ug/L | | 86 | (70%-130%) | | |
| trans-Chlordane | 0.500 | | J | 0.402 | ug/L | | 80 | (70%-130%) | | |
| **4cmx | 1.00 | | | 0.839 | ug/L | | 84 | (70%-130%) | | |
| **Decachlorobiphenyl | 1.00 | | | 1.01 | ug/L | | 101 | (70%-130%) | | |
| QC1203814459 MB | | | | | | | | | | |
| 4,4'-DDD | | | U | 0.010 | ug/L | | | | | 06/20/17 22:41 |
| 4,4'-DDE | | | U | 0.010 | ug/L | | | | | |
| 4,4'-DDT | | | U | 0.010 | ug/L | | | | | |
| Aldrin | | | U | 0.00665 | ug/L | | | | | |
| Dieldrin | | | U | 0.010 | ug/L | | | | | |
| Endosulfan I | | | U | 0.00665 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | |
| Endosulfan II | | | U | 0.010 | ug/L | | | | LOF | 06/20/17 22:41 |
| Endosulfan sulfate | | | U | 0.010 | ug/L | | | | | |
| Endrin | | | U | 0.010 | ug/L | | | | | |
| Endrin aldehyde | | | U | 0.00665 | ug/L | | | | | |
| Endrin ketone | | | U | 0.010 | ug/L | | | | | |
| Heptachlor | | | U | 0.00665 | ug/L | | | | | |
| Heptachlor epoxide | | | U | 0.00665 | ug/L | | | | | |
| Methoxychlor | | | U | 0.050 | ug/L | | | | | |
| Toxaphene | | | U | 0.150 | ug/L | | | | | |
| alpha-BHC | | | U | 0.00665 | ug/L | | | | | |
| beta-BHC | | | U | 0.00665 | ug/L | | | | | |
| cis-Chlordane | | | U | 0.00665 | ug/L | | | | | |
| delta-BHC | | | U | 0.00665 | ug/L | | | | | |
| gamma-BHC (Lindane) | | | U | 0.00665 | ug/L | | | | | |
| trans-Chlordane | | | U | 0.00665 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | | |
| **4cmx | 1.00 | | | | 0.772 | ug/L | | 77 | (70%-130%) | LOF | 06/20/17 22:41 |
| **Decachlorobiphenyl | 1.00 | | | | 0.880 | ug/L | | 88 | (70%-130%) | | |
| QC1203814469 425725009 MS | | | | | | | | | | | |
| 4,4'-DDD | 1.25 | U | 0.010 | | 1.09 | ug/L | | 87 | (25%-151%) | | 06/21/17 00:34 |
| 4,4'-DDE | 1.25 | U | 0.010 | | 1.01 | ug/L | | 81 | (32%-126%) | | |
| 4,4'-DDT | 1.25 | U | 0.010 | | 1.05 | ug/L | | 84 | (24%-139%) | | |
| Aldrin | 0.500 | U | 0.00665 | | 0.404 | ug/L | | 81 | (15%-128%) | | |
| Dieldrin | 1.25 | U | 0.010 | | 1.10 | ug/L | | 88 | (40%-134%) | | |
| Endosulfan I | 0.500 | U | 0.00665 | | 0.411 | ug/L | | 82 | (26%-133%) | | |
| Endosulfan II | 1.25 | U | 0.010 | | 0.992 | ug/L | | 79 | (29%-133%) | | |
| Endosulfan sulfate | 1.25 | U | 0.010 | | 1.23 | ug/L | | 98 | (32%-151%) | | |
| Endrin | 1.25 | U | 0.010 | | 1.17 | ug/L | | 94 | (15%-151%) | | |
| Endrin aldehyde | 1.25 | U | 0.00665 | | 1.03 | ug/L | | 82 | (15%-132%) | | |
| Endrin ketone | 1.25 | U | 0.010 | | 1.09 | ug/L | | 87 | (38%-148%) | | |
| Heptachlor | 0.500 | U | 0.00665 | | 0.410 | ug/L | | 82 | (27%-131%) | | |
| Heptachlor epoxide | 0.500 | U | 0.00665 | | 0.430 | ug/L | | 86 | (33%-134%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | | |
| Methoxychlor | 5.00 | U | 0.050 | | 4.12 | ug/L | | 82 | (31%-148%) | LOF | 06/21/17 00:34 |
| alpha-BHC | 0.500 | U | 0.00665 | | 0.447 | ug/L | | 89 | (30%-133%) | | |
| beta-BHC | 0.500 | U | 0.00665 | | 0.414 | ug/L | | 83 | (29%-138%) | | |
| cis-Chlordane | 0.500 | U | 0.00665 | | 0.450 | ug/L | | 90 | (34%-128%) | | |
| delta-BHC | 0.500 | U | 0.00665 | | 0.495 | ug/L | | 99 | (33%-141%) | | |
| gamma-BHC (Lindane) | 0.500 | U | 0.00665 | | 0.439 | ug/L | | 88 | (35%-131%) | | |
| trans-Chlordane | 0.500 | U | 0.00665 | J | 0.407 | ug/L | | 81 | (33%-138%) | | |
| **4cmx | 1.00 | | 0.851 | | 0.841 | ug/L | | 84 | (70%-130%) | | |
| **Decachlorobiphenyl | 1.00 | | 0.934 | | 0.934 | ug/L | | 93 | (70%-130%) | | |
| QC1203814470 425725009 MSD | | | | | | | | | | | |
| 4,4'-DDD | 1.25 | U | 0.010 | | 1.03 | ug/L | 6 | 83 | (0%-20%) | | 06/21/17 00:50 |
| 4,4'-DDE | 1.25 | U | 0.010 | | 0.965 | ug/L | 5 | 77 | (0%-20%) | | |
| 4,4'-DDT | 1.25 | U | 0.010 | | 0.988 | ug/L | 6 | 79 | (0%-20%) | | |
| Aldrin | 0.500 | U | 0.00665 | | 0.373 | ug/L | 8 | 75 | (0%-20%) | | |
| Dieldrin | 1.25 | U | 0.010 | | 1.04 | ug/L | 6 | 84 | (0%-20%) | | |
| Endosulfan I | 0.500 | U | 0.00665 | | 0.390 | ug/L | 5 | 78 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | | |
| Endosulfan II | 1.25 | U | 0.010 | | 0.926 | ug/L | 7 | 74 | (0%-20%) | LOF | 06/21/17 00:50 |
| Endosulfan sulfate | 1.25 | U | 0.010 | | 1.15 | ug/L | 6 | 92 | (0%-20%) | | |
| Endrin | 1.25 | U | 0.010 | | 1.06 | ug/L | 10 | 85 | (0%-20%) | | |
| Endrin aldehyde | 1.25 | U | 0.00665 | | 0.951 | ug/L | 8 | 76 | (0%-20%) | | |
| Endrin ketone | 1.25 | U | 0.010 | | 1.05 | ug/L | 4 | 84 | (0%-20%) | | |
| Heptachlor | 0.500 | U | 0.00665 | | 0.376 | ug/L | 9 | 75 | (0%-20%) | | |
| Heptachlor epoxide | 0.500 | U | 0.00665 | | 0.400 | ug/L | 7 | 80 | (0%-20%) | | |
| Methoxychlor | 5.00 | U | 0.050 | | 3.95 | ug/L | 4 | 79 | (0%-20%) | | |
| alpha-BHC | 0.500 | U | 0.00665 | | 0.398 | ug/L | 12 | 80 | (0%-20%) | | |
| beta-BHC | 0.500 | U | 0.00665 | | 0.364 | ug/L | 13 | 73 | (0%-20%) | | |
| cis-Chlordane | 0.500 | U | 0.00665 | | 0.424 | ug/L | 6 | 85 | (0%-20%) | | |
| delta-BHC | 0.500 | U | 0.00665 | | 0.459 | ug/L | 8 | 92 | (0%-20%) | | |
| gamma-BHC (Lindane) | 0.500 | U | 0.00665 | | 0.390 | ug/L | 12 | 78 | (0%-20%) | | |
| trans-Chlordane | 0.500 | U | 0.00665 | J | 0.383 | ug/L | 6 | 77 | (0%-20%) | | |
| **4cmx | 1.00 | | 0.851 | | 0.787 | ug/L | | 79 | (70%-130%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-Pesticide** | | | | | | | | | | |
| Batch 1675325 | | | | | | | | | | |
| **Decachlorobiphenyl | 1.00 | 0.934 | | 0.852 | ug/L | | 85 | (70%-130%) | LOF | 06/21/17 00:50 |

**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 (0rganics only)

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.

# PCB Analysis

# Case Narrative

**GC Semivolatile PCB**
**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

**Product:** **Analysis of Polychlorinated Biphenyls by ECD**
**Analytical Method:** 8082_PCB_GC
**Analytical Procedure:** GL-OA-E-040 REV# 24
**Analytical Batch:** 1680992

**Preparation Method:** SW846 3535A
**Preparation Procedure:** GL-OA-E-037 REV# 7
**Preparation Batch:** 1680990

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603013 | B3B3F8 |
| 425603014 | B3B3F7 |
| 425603015 | B3B3H4 |
| 1203827653 | Method Blank (MB) |
| 1203827654 | Laboratory Control Sample (LCS) |
| 1203827659 | 425603014(NonSDG) Matrix Spike (MS) |
| 1203827660 | 425603014(NonSDG) Matrix Spike Duplicate (MSD) |

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**

**Surrogate Recoveries**
Samples (See Below) did not meet the client require surrogate recovery acceptance criteria, but met the laboratory acceptance criteria.

| Sample | Analyte | Value |
|---|---|---|
| 1203827653 (MB) | 4cmx | 68* (70%-130%) |
| 1203827654 (LCS) | 4cmx | 64* (70%-130%) |
| | 4cmx | 65* (70%-130%) |
| 1203827659 (Non SDG 425603014MS) | 4cmx | 69* (70%-130%) |
| 1203827660 (Non SDG 425603014MSD) | 4cmx | 67* (70%-130%) |
| | 4cmx | 68* (70%-130%) |

**Technical Information**

**Preparation/Analytical Method Verification**
All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

**Miscellaneous Information**

**Manual integrations**
Samples 1203827654 (LCS), 1203827659 (Non SDG 425603014MS) and 1203827660 (Non SDG 425603014MSD) required manual integration to correctly position the baseline as set in the calibration standard injections and to properly identify one or more peaks.

**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.

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# Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425603 GEL Work Order: 425603

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

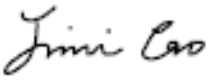
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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: Jimin Cao**

**Date: 12 JUL 2017** **Title: Data Validator**

# Sample Data Summary

# Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603013** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3F8** | **Method:** | **8082_PCB_GC** | **SOP Ref:** | **GL-OA-E-040** |
| **Batch ID:** | **1680992** | **Inst:** | **ECD9A.I** | **Dilution:** | **1** |
| **Run Date:** | **07/11/2017 13:17** | **Analyst:** | **YS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **07/11/2017 04:38** | **Aliquot:** | **1030 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **071117.S\E9g1145.D** | **Column:** | **1 RTX-CLPEST 1** | | |
| | **071117.S\E9g1145.D** | | **2 RTX-CLPEST 2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | Column |
|---|---|---|---|---|---|---|---|
| 12674-11-2 | Aroclor-1016 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |
| 11104-28-2 | Aroclor-1221 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |
| 11141-16-5 | Aroclor-1232 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |
| 53469-21-9 | Aroclor-1242 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |
| 12672-29-6 | Aroclor-1248 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |
| 11097-69-1 | Aroclor-1254 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |
| 11096-82-5 | Aroclor-1260 | U | 0.0323 | ug/L | 0.0323 | 0.0971 | 1 |

# Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603014** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3F7** | **Method:** | **8082_PCB_GC** | **SOP Ref:** | **GL-OA-E-040** |
| **Batch ID:** | **1680992** | **Inst:** | **ECD9A.I** | **Dilution:** | **1** |
| **Run Date:** | **07/11/2017 13:29** | **Analyst:** | **YS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **07/11/2017 04:38** | **Aliquot:** | **1000 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **071117.S\E9g1146.D** | **Column:** | **1 RTX-CLPEST 1** | | |
| | **071117.S\E9g1146.D** | | **2 RTX-CLPEST 2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | Column |
|---|---|---|---|---|---|---|---|
| 12674-11-2 | Aroclor-1016 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |
| 11104-28-2 | Aroclor-1221 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |
| 11141-16-5 | Aroclor-1232 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |
| 53469-21-9 | Aroclor-1242 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |
| 12672-29-6 | Aroclor-1248 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |
| 11097-69-1 | Aroclor-1254 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |
| 11096-82-5 | Aroclor-1260 | U | 0.0333 | ug/L | 0.0333 | 0.100 | 1 |

# Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603015** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3H4** | **Method:** | **8082_PCB_GC** | **SOP Ref:** | **GL-OA-E-040** |
| **Batch ID:** | **1680992** | **Inst:** | **ECD9A.I** | **Dilution:** | **1** |
| **Run Date:** | **07/11/2017 14:31** | **Analyst:** | **YS1** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **07/11/2017 04:38** | **Aliquot:** | **1020 mL** | **Final Volume:** | **1 mL** |
| **Data File:** | **071117.S\E9g1151.D** | **Column:** | **1 RTX-CLPEST 1** | | |
| | **071117.S\E9g1151.D** | | **2 RTX-CLPEST 2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | Column |
|---|---|---|---|---|---|---|---|
| 12674-11-2 | Aroclor-1016 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |
| 11104-28-2 | Aroclor-1221 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |
| 11141-16-5 | Aroclor-1232 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |
| 53469-21-9 | Aroclor-1242 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |
| 12672-29-6 | Aroclor-1248 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |
| 11097-69-1 | Aroclor-1254 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |
| 11096-82-5 | Aroclor-1260 | U | 0.0326 | ug/L | 0.0326 | 0.098 | 1 |

# Quality Control Summary

**Surrogate Recovery Report**

**SDG Number:** **GEL425603**

**Matrix Type:** **LIQUID**

| Sample ID | Client ID | 4CMX 1 %REC # | 4CMX 2 %REC # | DCB 1 %REC # | DCB 2 %REC # |
|---|---|---|---|---|---|
| 1203827654 | LCS for batch 1680990 | 65 * | 64 * | 96 | 89 |
| 1203827653 | MB for batch 1680990 | 71 | 68 * | 98 | 91 |
| 425603013 | B3B3F8 | 74 | 74 | 103 | 97 |
| 425603014 | B3B3F7 | 78 | 76 | 118 | 109 |
| 1203827659 | B3B3F7MS | 72 | 69 * | 106 | 99 |
| 1203827660 | B3B3F7MSD | 68 * | 67 * | 99 | 93 |
| 425603015 | B3B3H4 | 71 | 71 | 102 | 95 |

| Surrogate | | Acceptance Limits |
|---|---|---|
| 4CMX | = 4cmx | (70%-130%) |
| DCB | = Decachlorobiphenyl | (70%-130%) |

* Recovery outside Acceptance Limits

# Column to be used to flag recovery values

D Sample Diluted

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# QC Summary

**Report Date: July 12, 2017**



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-PCB** | | | | | | | | | | | |
| Batch 1680992 | | | | | | | | | | | |
| QC1203827654 LCS | | | | | | | | | | | |
| Aroclor-1016 | 1.00 | | | 0.743 | ug/L | | 74 | (70%-130%) | YS1 | 07/11/17 | 12:42 |
| Aroclor-1260 | 1.00 | | | 0.835 | ug/L | | 83 | (70%-130%) | | | |
| **4cmx | 0.200 | | | 0.128 | ug/L | | 64* | (70%-130%) | | | |
| **Decachlorobiphenyl | 0.200 | | | 0.179 | ug/L | | 89 | (70%-130%) | | | |
| QC1203827653 MB | | | | | | | | | | | |
| Aroclor-1016 | | | U | 0.0333 | ug/L | | | | | 07/11/17 | 12:54 |
| Aroclor-1221 | | | U | 0.0333 | ug/L | | | | | | |
| Aroclor-1232 | | | U | 0.0333 | ug/L | | | | | | |
| Aroclor-1242 | | | U | 0.0333 | ug/L | | | | | | |
| Aroclor-1248 | | | U | 0.0333 | ug/L | | | | | | |
| Aroclor-1254 | | | U | 0.0333 | ug/L | | | | | | |
| Aroclor-1260 | | | U | 0.0333 | ug/L | | | | | | |
| **4cmx | 0.200 | | | 0.137 | ug/L | | 68* | (70%-130%) | | | |
| **Decachlorobiphenyl | 0.200 | | | 0.182 | ug/L | | 91 | (70%-130%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-PCB** | | | | | | | | | | | |
| Batch 1680992 | | | | | | | | | | | |
| QC1203827659 425603014 MS | | | | | | | | | | | |
| Aroclor-1016 | 1.00 | U | 0.0333 | | 0.717 | ug/L | | 72 | (26%-110%) | YS1 | 07/11/17 13:41 |
| Aroclor-1260 | 1.00 | U | 0.0333 | | 0.857 | ug/L | | 86 | (30%-127%) | | |
| **4cmx | 0.200 | | 0.152 | | 0.138 | ug/L | | 69* | (70%-130%) | | |
| **Decachlorobiphenyl | 0.200 | | 0.217 | | 0.197 | ug/L | | 99 | (70%-130%) | | |
| QC1203827660 425603014 MSD | | | | | | | | | | | |
| Aroclor-1016 | 1.00 | U | 0.0333 | | 0.699 | ug/L | 3 | 70 | (0%-15%) | | 07/11/17 13:53 |
| Aroclor-1260 | 1.00 | U | 0.0333 | | 0.831 | ug/L | 3 | 83 | (0%-15%) | | |
| **4cmx | 0.200 | | 0.152 | | 0.133 | ug/L | | 67* | (70%-130%) | | |
| **Decachlorobiphenyl | 0.200 | | 0.217 | | 0.186 | ug/L | | 93 | (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

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|

Z Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

o Analyte failed to recover within LCS limits (0rganics only)

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.

# Herbicide Analysis

# Case Narrative

**GC Semivolatile Herbicide**
**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

**Product:** **Analysis of Chlorophenoxy Acid Herbicides by ECD**
**Analytical Method:** SW846 8151A
**Analytical Procedure:** GL-OA-E-011 REV# 24
**Analytical Batches:** 1675348 and 1675935

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603013 | B3B3F8 |
| 425603014 | B3B3F7 |
| 425603015 | B3B3H4 |
| 1203815811 | Method Blank (MB) |
| 1203815812 | Laboratory Control Sample (LCS) |
| 1203815815 | 425603013(NonSDG) Matrix Spike (MS) |
| 1203815816 | 425603013(NonSDG) Matrix Spike Duplicate (MSD) |

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.

**Calibration Information**

**Continuing Calibration Verification (CCV) Requirements**
The calibration verification standards (CCV) did not meet acceptance criteria. One or more target analytes failed acceptance criteria with a positive bias on one or both analytical columns in the standards bracketing samples and associated QC. The positive bias for the analytical data is a result of instrument response increasing after the initial calibration. As there were no target analytes detected in the associated samples, the data were reported. All analytes were within the established retention time windows for this method. The calibration verification standards (CCV) did not meet acceptance criteria. One or more target analytes failed acceptance criteria with a negative bias on one analytical column in the standards bracketing samples and associated QC. The negative bias for the analytical data is a result of instrument response decreasing after the initial calibration. The instrument response never decreased to a point where the target analytes would not be detected. All analytes were within the established retention time windows for this method.

**Quality Control (QC) Information**

**Surrogate Recoveries**
The MS and MSD (See Below) did not meet surrogate recovery acceptance criteria. Since there were no target analytes detected in the associated parent sample above the reporting limits, the biased high surrogate recoveries had no adverse impact on the reported data.

| Sample | Analyte | Value |
|---|---|---|

| | | |
|---|---|---|
| 1203815815 (Non SDG 425603013MS) | 2,4-Dichlorophenylacetic acid | 135* (70%-130%) |
| 1203815816 (Non SDG 425603013MSD) | 2,4-Dichlorophenylacetic acid | 135* (70%-130%) |

**Laboratory Control Sample (LCS) Recovery**
The LCS and/or LCSD (See Below) spike recoveries were not within the acceptance limits. The client established the limits of 70%-130%. Failures are expected. The data were reported per client request.

| Sample | Analyte | Value |
|---|---|---|
| 1203815812 (LCS) | Dinoseb | 68* (70%-130%) |
| | MCPP | 62* (70%-130%) |

**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.

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## Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425603 GEL Work Order: 425603

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

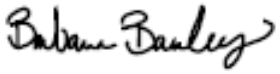
U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

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: Barbara Bailey**

**Date: 12 JUL 2017** **Title: Data Validator**

# Sample Data Summary

**Herbicide**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 08:45** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603013** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3F8** | **Method:** | **SW846 8151A** | **SOP Ref:** | **GL-OA-E-011** |
| **Batch ID:** | **1675348** | **Inst:** | **ECD3A.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 06:34** | **Analyst:** | **LOF** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 05:20** | **Aliquot:** | **1040 mL** | **Final Volume:** | **10 mL** |
| **Data File:** | **062117\E3F2139.D** | **Column:** | **1 RTX-CLPEST 1** | | |
| | **062117\E3F2139.D** | | **2 RTX-CLPEST 2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | Column |
|---|---|---|---|---|---|---|---|
| 93-76-5 | 2,4,5-T | U | 0.0801 | ug/L | 0.0801 | 0.240 | 1 |
| 93-72-1 | 2,4,5-TP | U | 0.0801 | ug/L | 0.0801 | 0.240 | 1 |
| 94-75-7 | 2,4-D | U | 0.0801 | ug/L | 0.0801 | 0.240 | 1 |
| 94-82-6 | 2,4-DB | U | 0.0887 | ug/L | 0.0887 | 0.240 | 1 |
| 75-99-0 | Dalapon | U | 1.60 | ug/L | 1.60 | 4.81 | 1 |
| 1918-00-9 | Dicamba | U | 0.0801 | ug/L | 0.0801 | 0.240 | 1 |
| 120-36-5 | Dichlorprop | U | 0.0801 | ug/L | 0.0801 | 0.240 | 1 |
| 88-85-7 | Dinoseb | U | 0.0801 | ug/L | 0.0801 | 0.240 | 1 |
| 94-74-6 | MCPA | U | 16.0 | ug/L | 16.0 | 48.1 | 1 |
| 93-65-2 | MCPP | U | 16.0 | ug/L | 16.0 | 48.1 | 1 |

**Herbicide**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 11:03** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603014** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3F7** | **Method:** | **SW846 8151A** | **SOP Ref:** | **GL-OA-E-011** |
| **Batch ID:** | **1675348** | **Inst:** | **ECD3A.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 08:14** | **Analyst:** | **LOF** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 05:20** | **Aliquot:** | **1050 mL** | **Final Volume:** | **10 mL** |
| **Data File:** | **062117\E3F2142.D** | **Column:** | **1 RTX-CLPEST 1** | | |
| | **062117\E3F2142.D** | | **2 RTX-CLPEST 2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | Column |
|---|---|---|---|---|---|---|---|
| 93-76-5 | 2,4,5-T | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 93-72-1 | 2,4,5-TP | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 94-75-7 | 2,4-D | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 94-82-6 | 2,4-DB | U | 0.0879 | ug/L | 0.0879 | 0.238 | 1 |
| 75-99-0 | Dalapon | U | 1.59 | ug/L | 1.59 | 4.76 | 1 |
| 1918-00-9 | Dicamba | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 120-36-5 | Dichlorprop | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 88-85-7 | Dinoseb | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 94-74-6 | MCPA | U | 15.9 | ug/L | 15.9 | 47.6 | 1 |
| 93-65-2 | MCPP | U | 15.9 | ug/L | 15.9 | 47.6 | 1 |

**Herbicide**

## Certificate of Analysis
## Sample Summary

| | | | | | |
|---|---|---|---|---|---|
| **SDG Number:** | **GEL425603** | **Date Collected:** | **06/15/2017 13:00** | **Matrix:** | **WATER** |
| **Lab Sample ID:** | **425603015** | **Date Received:** | **06/16/2017 09:15** | | |
| | | **Client:** | **CPRC001** | **Project:** | **CPRC0W17006** |
| **Client ID:** | **B3B3H4** | **Method:** | **SW846 8151A** | **SOP Ref:** | **GL-OA-E-011** |
| **Batch ID:** | **1675348** | **Inst:** | **ECD3A.I** | **Dilution:** | **1** |
| **Run Date:** | **06/22/2017 08:48** | **Analyst:** | **LOF** | **Inj. Vol:** | **1 uL** |
| **Prep Date:** | **06/21/2017 05:20** | **Aliquot:** | **1050 mL** | **Final Volume:** | **10 mL** |
| **Data File:** | **062117\E3F2143.D** | **Column:** | **1 RTX-CLPEST 1** | | |
| | **062117\E3F2143.D** | | **2 RTX-CLPEST 2** | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ | Column |
|---|---|---|---|---|---|---|---|
| 93-76-5 | 2,4,5-T | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 93-72-1 | 2,4,5-TP | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 94-75-7 | 2,4-D | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 94-82-6 | 2,4-DB | U | 0.0879 | ug/L | 0.0879 | 0.238 | 1 |
| 75-99-0 | Dalapon | U | 1.59 | ug/L | 1.59 | 4.76 | 1 |
| 1918-00-9 | Dicamba | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 120-36-5 | Dichlorprop | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 88-85-7 | Dinoseb | U | 0.0794 | ug/L | 0.0794 | 0.238 | 1 |
| 94-74-6 | MCPA | U | 15.9 | ug/L | 15.9 | 47.6 | 1 |
| 93-65-2 | MCPP | U | 15.9 | ug/L | 15.9 | 47.6 | 1 |

# Quality Control Summary

**Surrogate Recovery Report**

**SDG Number:** **GEL425603**

**Matrix Type:** **LIQUID**

| Sample ID | Client ID | DCAA 1 %REC # | DCAA 2 %REC # |
|---|---|---|---|
| 1203815811 | MB for batch 1675935 | 84 | 96 |
| 1203815812 | LCS for batch 1675935 | 96 | 113 |
| 425603013 | B3B3F8 | 104 | 101 |
| 1203815815 | B3B3F8MS | 101 | 135 * |
| 1203815816 | B3B3F8MSD | 92 | 135 * |
| 425603014 | B3B3F7 | 90 | 88 |
| 425603015 | B3B3H4 | 82 | 80 |

| Surrogate | Acceptance Limits |
|---|---|
| DCAA = 2,4-Dichlorophenylacetic acid | (70%-130%) |

* Recovery outside Acceptance Limits

\# Column to be used to flag recovery values

D Sample Diluted

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# QC Summary

**Report Date: July 12, 2017**



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-HERB** | | | | | | | | | | | |
| Batch 1675348 | | | | | | | | | | | |
| QC1203815812 LCS | | | | | | | | | | | |
| 2,4,5-T | 2.00 | | | 1.67 | ug/L | | 84 | (70%-130%) | LOF | 06/22/17 | 01:02 |
| 2,4,5-TP | 2.00 | | | 1.98 | ug/L | | 99 | (70%-130%) | | | |
| 2,4-D | 2.00 | | | 1.93 | ug/L | | 96 | (70%-130%) | | | |
| 2,4-DB | 2.00 | | | 2.02 | ug/L | | 101 | (70%-130%) | | | |
| Dalapon | 20.0 | | | 14.6 | ug/L | | 73 | (70%-130%) | | | |
| Dicamba | 2.00 | | | 1.78 | ug/L | | 89 | (70%-130%) | | | |
| Dichlorprop | 2.00 | | | 1.68 | ug/L | | 84 | (70%-130%) | | | |
| Dinoseb | 2.00 | | | 1.37 | ug/L | | 68* | (70%-130%) | | | |
| MCPA | 200 | | | 151 | ug/L | | 75 | (70%-130%) | | | |
| MCPP | 200 | | | 124 | ug/L | | 62* | (70%-130%) | | | |
| **2,4-Dichlorophenylacetic acid | 5.00 | | | 4.79 | ug/L | | 96 | (70%-130%) | | | |
| QC1203815811 MB | | | | | | | | | | | |
| 2,4,5-T | | | U | 0.0833 | ug/L | | | | | 06/22/17 | 00:38 |
| 2,4,5-TP | | | U | 0.0833 | ug/L | | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-HERB** | | | | | | | | | | | |
| Batch 1675348 | | | | | | | | | | | |
| 2,4-D | | | | U | 0.0833 | ug/L | | | | LOF | 06/22/17 00:38 |
| 2,4-DB | | | | U | 0.0923 | ug/L | | | | | |
| Dalapon | | | | U | 1.67 | ug/L | | | | | |
| Dicamba | | | | U | 0.0833 | ug/L | | | | | |
| Dichlorprop | | | | U | 0.0833 | ug/L | | | | | |
| Dinoseb | | | | U | 0.0833 | ug/L | | | | | |
| MCPA | | | | U | 16.7 | ug/L | | | | | |
| MCPP | | | | U | 16.7 | ug/L | | | | | |
| **2,4-Dichlorophenylacetic acid | 5.00 | | | | 4.19 | ug/L | | 84 | (70%-130%) | | |
| QC1203815815 425603013 MS | | | | | | | | | | | |
| 2,4,5-T | 1.92 | U | 0.0801 | | 1.76 | ug/L | | 91 | (25%-143%) | | 06/22/17 07:07 |
| 2,4,5-TP | 1.92 | U | 0.0801 | | 2.07 | ug/L | | 108 | (34%-141%) | | |
| 2,4-D | 1.92 | U | 0.0801 | | 2.14 | ug/L | | 111 | (43%-138%) | | |
| 2,4-DB | 1.92 | U | 0.0887 | | 2.56 | ug/L | | 133 | (29%-154%) | | |
| Dalapon | 19.2 | U | 1.60 | | 17.7 | ug/L | | 92 | (26%-129%) | | |
| Dicamba | 1.92 | U | 0.0801 | | 1.63 | ug/L | | 85 | (35%-138%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-HERB** | | | | | | | | | | | |
| Batch 1675348 | | | | | | | | | | | |
| Dichlorprop | 1.92 | U | 0.0801 | | 1.97 | ug/L | | 102 | (37%-144%) | LOF | 06/22/17 07:07 |
| Dinoseb | 1.92 | U | 0.0801 | | 1.52 | ug/L | | 79 | (19%-107%) | | |
| MCPA | 192 | U | 16.0 | | 192 | ug/L | | 100 | (25%-140%) | | |
| MCPP | 192 | U | 16.0 | | 194 | ug/L | | 101 | (23%-143%) | | |
| **2,4-Dichlorophenylacetic acid | 4.81 | | 4.84 | | 6.47 | ug/L | | 135* | (70%-130%) | | |
| QC1203815816 425603013 MSD | | | | | | | | | | | |
| 2,4,5-T | 1.92 | U | 0.0801 | | 1.61 | ug/L | 9 | 84 | (0%-20%) | | 06/22/17 07:41 |
| 2,4,5-TP | 1.92 | U | 0.0801 | | 2.01 | ug/L | 3 | 105 | (0%-20%) | | |
| 2,4-D | 1.92 | U | 0.0801 | | 2.37 | ug/L | 10 | 123 | (0%-20%) | | |
| 2,4-DB | 1.92 | U | 0.0887 | | 2.29 | ug/L | 11 | 119 | (0%-20%) | | |
| Dalapon | 19.2 | U | 1.60 | | 14.4 | ug/L | 20 | 75 | (0%-20%) | | |
| Dicamba | 1.92 | U | 0.0801 | | 1.50 | ug/L | 8 | 78 | (0%-20%) | | |
| Dichlorprop | 1.92 | U | 0.0801 | | 1.79 | ug/L | 10 | 93 | (0%-20%) | | |
| Dinoseb | 1.92 | U | 0.0801 | | 1.42 | ug/L | 7 | 74 | (0%-20%) | | |
| MCPA | 192 | U | 16.0 | | 162 | ug/L | 17 | 84 | (0%-20%) | | |
| MCPP | 192 | U | 16.0 | | 196 | ug/L | 1 | 102 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatiles-HERB** | | | | | | | | | | |
| Batch 1675348 | | | | | | | | | | |
| **2,4-Dichlorophenylacetic acid | 4.81 | 4.84 | | 6.49 | ug/L | | 135* | (70%-130%) | LOF | 06/22/17 07:41 |

**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 (0rganics only)

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.

# Metals Analysis

# Case Narrative

**Metals**
**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

**Product:** **Determination of Metals by ICP**
**Analytical Method:** SW846 3005A/6010D
**Analytical Procedure:** GL-MA-E-013 REV# 28
**Analytical Batch:** 1674989

**Product:** **Determination of Metals by ICP-MS**
**Analytical Method:** SW846 3005A/6020B
**Analytical Procedure:** GL-MA-E-014 REV# 30
**Analytical Batches:** 1674912 and 1681501

**Product:** **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
**Analytical Method:** 7470_HG_CVAA
**Analytical Procedure:** GL-MA-E-010 REV# 34
**Analytical Batch:** 1676404

**Preparation Method:** SW846 3005A
**Preparation Procedure:** GL-MA-E-006 REV# 13
**Preparation Batches:** 1674911, 1674988 and 1681500

**Preparation Method:** SW846 7470A Prep
**Preparation Procedure:** GL-MA-E-010 REV# 34
**Preparation Batch:** 1676403

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603007 | B39NH8 |
| 425603008 | B39NH2 |
| 425603009 | B39NH9 |
| 425603010 | B39NH3 |
| 425603011 | B39NM5 |
| 425603012 | B39NM8 |
| 1203813659 | Method Blank (MB)**ICP** |
| 1203813660 | Laboratory Control Sample (LCS) |
| 1203813663 | 425603007(NonSDGL) Serial Dilution (SD) |
| 1203813661 | 425603007(NonSDGS) Matrix Spike (MS) |
| 1203813662 | 425603007(NonSDGSD) Matrix Spike Duplicate (MSD) |
| 1203813426 | Method Blank (MB)**ICP-MS** |
| 1203828895 | Method Blank (MB)**ICP-MS** |
| 1203813427 | Laboratory Control Sample (LCS) |
| 1203828896 | Laboratory Control Sample (LCS) |
| 1203813430 | 425603007(NonSDGL) Serial Dilution (SD) |
| 1203828899 | 425603007(NonSDGL) Serial Dilution (SD) |
| 1203813428 | 425603007(NonSDGS) Matrix Spike (MS) |
| 1203828897 | 425603007(NonSDGS) Matrix Spike (MS) |
| 1203813429 | 425603007(NonSDGSD) Matrix Spike Duplicate (MSD) |

| | |
|---|---|
| 1203828898 | 425603007(NonSDGSD) Matrix Spike Duplicate (MSD) |
| 1203816910 | Method Blank (MB)**CVAA** |
| 1203816911 | Laboratory Control Sample (LCS) |
| 1203816920 | 425603007(NonSDGL) Serial Dilution (SD) |
| 1203816918 | 425603007(NonSDGD) Sample Duplicate (DUP) |
| 1203816919 | 425603007(NonSDGS) Matrix Spike (MS) |

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.

**Calibration Information**

**ICSA/ICSAB Statement**
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

**Quality Control (QC) Information**

**Method Blank (MB) Statement**
The method blanks (MB) analyzed with this SDG met the acceptance criteria. However, where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

| Sample | Analyte | Value |
|---|---|---|
| 1203813659 (MB) | Potassium | 51.5 betw (50 - 75) |
| | Sodium | 114 betw (100 - 150) |

**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

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## Qualifier Definition Report
for

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL425603 GEL Work Order: 425603

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

* Duplicate analysis not within control limits

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).

D Results are reported from a diluted aliquot of sample.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

**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: Nik-Cole Elmore**

**Date: 13 JUL 2017** **Title: Data Validator**

# Sample Data Summary

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425603 **CONTRACT:** CPRC0W17006 **METHOD TYPE:** SW846

**SAMPLE ID:** 425603007 **BASIS:** As Received **DATE COLLECTED** 15−JUN−17

**CLIENT ID:** B39NH8 **LEVEL:** Low **DATE RECEIVED** 16−JUN−17

**MATRIX:** WATER **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 19.3 | ug/L | U | 19.3 | 50 | 50 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−36−0 | Antimony | 1 | ug/L | U | 1 | 3 | 3 | 1 | MS | BAJ | 07/10/17 14:23 | 170710−4 | 1674912 |
| 7440−38−2 | Arsenic | 2 | ug/L | U | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−39−3 | Barium | 0.670 | ug/L | U | 0.67 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−41−7 | Beryllium | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | SKJ | 07/12/17 08:10 | 170711−5 | 1681501 |
| 7440−42−8 | Boron | 15 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/28/17 17:09 | 062817−1 | 1674989 |
| 7440−43−9 | Cadmium | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−70−2 | Calcium | 53.7 | ug/L | B | 50 | 200 | 200 | 1 | P | HSC | 06/28/17 17:09 | 062817−1 | 1674989 |
| 7440−47−3 | Chromium | 3 | ug/L | U | 3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−48−4 | Cobalt | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−50−8 | Copper | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7439−89−6 | Iron | 30 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/28/17 17:09 | 062817−1 | 1674989 |
| 7439−92−1 | Lead | 0.50 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7439−95−4 | Magnesium | 110 | ug/L | U | 110 | 300 | 300 | 1 | P | HSC | 06/28/17 17:09 | 062817−1 | 1674989 |
| 7439−96−5 | Manganese | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7439−97−6 | Mercury | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | MTM1 | 06/23/17 11:51 | 062317W1−7 | 1676404 |
| 7439−98−7 | Molybdenum | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−02−0 | Nickel | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−09−7 | Potassium | 50 | ug/L | U | 50 | 150 | 150 | 1 | P | HSC | 06/28/17 17:09 | 062817−1 | 1674989 |
| 7782−49−2 | Selenium | 2 | ug/L | U | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−22−4 | Silver | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−23−5 | Sodium | 100 | ug/L | U | 100 | 300 | 300 | 1 | P | HSC | 06/29/17 12:28 | 062917−2 | 1674989 |
| 7440−24−6 | Strontium | 2 | ug/L | U | 2 | 10 | 10 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−28−0 | Thallium | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−29−1 | Thorium | 0.70 | ug/L | U | 0.7 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−31−5 | Tin | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−61−1 | Uranium | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |
| 7440−62−2 | Vanadium | 1 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/28/17 17:09 | 062817−1 | 1674989 |
| 7440−66−6 | Zinc | 3.3 | ug/L | U | 3.3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 19:35 | 170707−3 | 1674912 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1674912 | 1674911 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |
| 1674989 | 1674988 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1676404 | 1676403 | SW846 7470A Prep | 20 | mL | 20 | mL | 06/22/17 | AXS5 |
| 1681501 | 1681500 | SW846 3005A | 25 | mL | 25 | mL | 07/11/17 | CXW4 |

***Analytical Methods:**

| | |
|---|---|
| **P** | **SW846 3005A/6010D** |
| **MS** | **SW846 3005A/6020B** |
| **AV** | **SW846 7470A** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425603 **CONTRACT:** CPRC0W17006 **METHOD TYPE:** SW846

**SAMPLE ID:** 425603008 **BASIS:** As Received **DATE COLLECTED** 15−JUN−17

**CLIENT ID:** B39NH2 **LEVEL:** Low **DATE RECEIVED** 16−JUN−17

**MATRIX:** WATER **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 19.3 | ug/L | U | 19.3 | 50 | 50 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−36−0 | Antimony | 1 | ug/L | U | 1 | 3 | 3 | 1 | MS | BAJ | 07/10/17 14:33 | 170710−4 | 1674912 |
| 7440−38−2 | Arsenic | 2 | ug/L | U | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−39−3 | Barium | 0.670 | ug/L | U | 0.67 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−41−7 | Beryllium | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | SKJ | 07/12/17 09:08 | 170711−6 | 1681501 |
| 7440−42−8 | Boron | 15 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/28/17 17:28 | 062817−1 | 1674989 |
| 7440−43−9 | Cadmium | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−70−2 | Calcium | 50 | ug/L | U | 50 | 200 | 200 | 1 | P | HSC | 06/28/17 17:28 | 062817−1 | 1674989 |
| 7440−47−3 | Chromium | 3 | ug/L | U | 3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−48−4 | Cobalt | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−50−8 | Copper | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7439−89−6 | Iron | 30 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/28/17 17:28 | 062817−1 | 1674989 |
| 7439−92−1 | Lead | 0.50 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7439−95−4 | Magnesium | 110 | ug/L | U | 110 | 300 | 300 | 1 | P | HSC | 06/28/17 17:28 | 062817−1 | 1674989 |
| 7439−96−5 | Manganese | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7439−97−6 | Mercury | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | MTM1 | 06/23/17 12:03 | 062317W1−7 | 1676404 |
| 7439−98−7 | Molybdenum | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−02−0 | Nickel | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−09−7 | Potassium | 50 | ug/L | U | 50 | 150 | 150 | 1 | P | HSC | 06/28/17 17:28 | 062817−1 | 1674989 |
| 7782−49−2 | Selenium | 2 | ug/L | U | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−22−4 | Silver | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−23−5 | Sodium | 100 | ug/L | U | 100 | 300 | 300 | 1 | P | HSC | 06/29/17 12:48 | 062917−2 | 1674989 |
| 7440−24−6 | Strontium | 2 | ug/L | U | 2 | 10 | 10 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−28−0 | Thallium | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−29−1 | Thorium | 0.70 | ug/L | U | 0.7 | 2 | 2 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−31−5 | Tin | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−61−1 | Uranium | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |
| 7440−62−2 | Vanadium | 1 | ug/L | U | 1 | 5 | 5 | 1 | P | HSC | 06/28/17 17:28 | 062817−1 | 1674989 |
| 7440−66−6 | Zinc | 3.3 | ug/L | U | 3.3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 19:58 | 170707−3 | 1674912 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1674912 | 1674911 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |
| 1674989 | 1674988 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1676404 | 1676403 | SW846 7470A Prep | 20 | mL | 20 | mL | 06/22/17 | AXS5 |
| 1681501 | 1681500 | SW846 3005A | 25 | mL | 25 | mL | 07/11/17 | CXW4 |

***Analytical Methods:**

| | |
|---|---|
| **P** | **SW846 3005A/6010D** |
| **MS** | **SW846 3005A/6020B** |
| **AV** | **SW846 7470A** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425603 **CONTRACT:** CPRC0W17006 **METHOD TYPE:** SW846

**SAMPLE ID:** 425603009 **BASIS:** As Received **DATE COLLECTED** 15−JUN−17

**CLIENT ID:** B39NH9 **LEVEL:** Low **DATE RECEIVED** 16−JUN−17

**MATRIX:** WATER **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 19.3 | ug/L | U | 19.3 | 50 | 50 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−36−0 | Antimony | 1 | ug/L | U | 1 | 3 | 3 | 1 | MS | BAJ | 07/10/17 14:34 | 170710−4 | 1674912 |
| 7440−38−2 | Arsenic | 8.23 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−39−3 | Barium | 43.7 | ug/L | | 0.67 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−41−7 | Beryllium | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | SKJ | 07/12/17 09:09 | 170711−6 | 1681501 |
| 7440−42−8 | Boron | 15.2 | ug/L | B | 15 | 50 | 50 | 1 | P | HSC | 06/28/17 17:31 | 062817−1 | 1674989 |
| 7440−43−9 | Cadmium | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−70−2 | Calcium | 55700 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/28/17 17:31 | 062817−1 | 1674989 |
| 7440−47−3 | Chromium | 4.05 | ug/L | B | 3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−48−4 | Cobalt | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−50−8 | Copper | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7439−89−6 | Iron | 30 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/28/17 17:31 | 062817−1 | 1674989 |
| 7439−92−1 | Lead | 0.50 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7439−95−4 | Magnesium | 15900 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/28/17 17:31 | 062817−1 | 1674989 |
| 7439−96−5 | Manganese | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7439−97−6 | Mercury | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | MTM1 | 06/23/17 12:05 | 062317W1−7 | 1676404 |
| 7439−98−7 | Molybdenum | 2.34 | ug/L | | 0.2 | 0.5 | 0.5 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−02−0 | Nickel | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−09−7 | Potassium | 7170 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/28/17 17:31 | 062817−1 | 1674989 |
| 7782−49−2 | Selenium | 9.85 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−22−4 | Silver | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−23−5 | Sodium | 26400 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/29/17 12:51 | 062917−2 | 1674989 |
| 7440−24−6 | Strontium | 327 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−28−0 | Thallium | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−29−1 | Thorium | 0.70 | ug/L | U | 0.7 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−31−5 | Tin | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−61−1 | Uranium | 3.48 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |
| 7440−62−2 | Vanadium | 18.5 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/28/17 17:31 | 062817−1 | 1674989 |
| 7440−66−6 | Zinc | 3.3 | ug/L | U | 3.3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:01 | 170707−3 | 1674912 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1674912 | 1674911 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |
| 1674989 | 1674988 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1676404 | 1676403 | SW846 7470A Prep | 20 | mL | 20 | mL | 06/22/17 | AXS5 |
| 1681501 | 1681500 | SW846 3005A | 25 | mL | 25 | mL | 07/11/17 | CXW4 |

***Analytical Methods:**

| | |
|---|---|
| **P** | **SW846 3005A/6010D** |
| **MS** | **SW846 3005A/6020B** |
| **AV** | **SW846 7470A** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425603 **CONTRACT:** CPRC0W17006 **METHOD TYPE:** SW846

**SAMPLE ID:** 425603010 **BASIS:** As Received **DATE COLLECTED** 15−JUN−17

**CLIENT ID:** B39NH3 **LEVEL:** Low **DATE RECEIVED** 16−JUN−17

**MATRIX:** WATER **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 19.3 | ug/L | U | 19.3 | 50 | 50 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−36−0 | Antimony | 1 | ug/L | U | 1 | 3 | 3 | 1 | MS | BAJ | 07/10/17 14:36 | 170710−4 | 1674912 |
| 7440−38−2 | Arsenic | 8.27 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−39−3 | Barium | 43.8 | ug/L | | 0.67 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−41−7 | Beryllium | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | SKJ | 07/12/17 09:13 | 170711−6 | 1681501 |
| 7440−42−8 | Boron | 15.4 | ug/L | B | 15 | 50 | 50 | 1 | P | HSC | 06/28/17 17:34 | 062817−1 | 1674989 |
| 7440−43−9 | Cadmium | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−70−2 | Calcium | 55000 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/28/17 17:34 | 062817−1 | 1674989 |
| 7440−47−3 | Chromium | 3.85 | ug/L | B | 3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−48−4 | Cobalt | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−50−8 | Copper | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7439−89−6 | Iron | 30 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/28/17 17:34 | 062817−1 | 1674989 |
| 7439−92−1 | Lead | 0.50 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7439−95−4 | Magnesium | 15900 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/28/17 17:34 | 062817−1 | 1674989 |
| 7439−96−5 | Manganese | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7439−97−6 | Mercury | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | MTM1 | 06/23/17 12:07 | 062317W1−7 | 1676404 |
| 7439−98−7 | Molybdenum | 2.34 | ug/L | | 0.2 | 0.5 | 0.5 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−02−0 | Nickel | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−09−7 | Potassium | 7150 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/28/17 17:34 | 062817−1 | 1674989 |
| 7782−49−2 | Selenium | 8.95 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−22−4 | Silver | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−23−5 | Sodium | 27800 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/29/17 12:54 | 062917−2 | 1674989 |
| 7440−24−6 | Strontium | 317 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−28−0 | Thallium | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−29−1 | Thorium | 0.70 | ug/L | U | 0.7 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−31−5 | Tin | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−61−1 | Uranium | 3.45 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |
| 7440−62−2 | Vanadium | 18 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/28/17 17:34 | 062817−1 | 1674989 |
| 7440−66−6 | Zinc | 3.3 | ug/L | U | 3.3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:04 | 170707−3 | 1674912 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1674912 | 1674911 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |
| 1674989 | 1674988 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1676404 | 1676403 | SW846 7470A Prep | 20 | mL | 20 | mL | 06/22/17 | AXS5 |
| 1681501 | 1681500 | SW846 3005A | 25 | mL | 25 | mL | 07/11/17 | CXW4 |

***Analytical Methods:**

| | |
|---|---|
| **P** | **SW846 3005A/6010D** |
| **MS** | **SW846 3005A/6020B** |
| **AV** | **SW846 7470A** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425603 **CONTRACT:** CPRC0W17006 **METHOD TYPE:** SW846

**SAMPLE ID:** 425603011 **BASIS:** As Received **DATE COLLECTED** 15−JUN−17

**CLIENT ID:** B39NM5 **LEVEL:** Low **DATE RECEIVED** 16−JUN−17

**MATRIX:** WATER **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 19.3 | ug/L | U | 19.3 | 50 | 50 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−36−0 | Antimony | 1 | ug/L | U | 1 | 3 | 3 | 1 | MS | BAJ | 07/10/17 14:37 | 170710−4 | 1674912 |
| 7440−38−2 | Arsenic | 7.58 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−39−3 | Barium | 69 | ug/L | | 0.67 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−41−7 | Beryllium | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | SKJ | 07/12/17 09:15 | 170711−6 | 1681501 |
| 7440−42−8 | Boron | 15 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/28/17 17:37 | 062817−1 | 1674989 |
| 7440−43−9 | Cadmium | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−70−2 | Calcium | 80200 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/28/17 17:37 | 062817−1 | 1674989 |
| 7440−47−3 | Chromium | 3 | ug/L | U | 3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−48−4 | Cobalt | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−50−8 | Copper | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7439−89−6 | Iron | 30 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/28/17 17:37 | 062817−1 | 1674989 |
| 7439−92−1 | Lead | 0.50 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7439−95−4 | Magnesium | 23100 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/28/17 17:37 | 062817−1 | 1674989 |
| 7439−96−5 | Manganese | 1.05 | ug/L | B | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7439−97−6 | Mercury | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | MTM1 | 06/23/17 12:08 | 062317W1−7 | 1676404 |
| 7439−98−7 | Molybdenum | 2.54 | ug/L | | 0.2 | 0.5 | 0.5 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−02−0 | Nickel | 0.606 | ug/L | B | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−09−7 | Potassium | 7960 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/28/17 17:37 | 062817−1 | 1674989 |
| 7782−49−2 | Selenium | 7.75 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−22−4 | Silver | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−23−5 | Sodium | 23800 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/29/17 12:57 | 062917−2 | 1674989 |
| 7440−24−6 | Strontium | 455 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−28−0 | Thallium | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−29−1 | Thorium | 0.70 | ug/L | U | 0.7 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−31−5 | Tin | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−61−1 | Uranium | 2.77 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |
| 7440−62−2 | Vanadium | 20.9 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/28/17 17:37 | 062817−1 | 1674989 |
| 7440−66−6 | Zinc | 3.3 | ug/L | U | 3.3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:07 | 170707−3 | 1674912 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1674912 | 1674911 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |
| 1674989 | 1674988 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1676404 | 1676403 | SW846 7470A Prep | 20 | mL | 20 | mL | 06/22/17 | AXS5 |
| 1681501 | 1681500 | SW846 3005A | 25 | mL | 25 | mL | 07/11/17 | CXW4 |

***Analytical Methods:**

| | |
|---|---|
| **P** | **SW846 3005A/6010D** |
| **MS** | **SW846 3005A/6020B** |
| **AV** | **SW846 7470A** |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

**SDG No:** GEL425603 **CONTRACT:** CPRC0W17006 **METHOD TYPE:** SW846

**SAMPLE ID:** 425603012 **BASIS:** As Received **DATE COLLECTED** 15−JUN−17

**CLIENT ID:** B39NM8 **LEVEL:** Low **DATE RECEIVED** 16−JUN−17

**MATRIX:** WATER **%SOLIDS:** 0

| CAS No. | Analyte | Result | Units | Qual | MDL | PQL | CRDL | DF | M* | Analyst | Run Date | Analytical Run | Analytical Batch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7429−90−5 | Aluminum | 19.3 | ug/L | U | 19.3 | 50 | 50 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−36−0 | Antimony | 1 | ug/L | U | 1 | 3 | 3 | 1 | MS | BAJ | 07/10/17 14:39 | 170710−4 | 1674912 |
| 7440−38−2 | Arsenic | 7.74 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−39−3 | Barium | 69.3 | ug/L | | 0.67 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−41−7 | Beryllium | 0.20 | ug/L | U | 0.2 | 0.5 | 0.5 | 1 | MS | SKJ | 07/12/17 09:16 | 170711−6 | 1681501 |
| 7440−42−8 | Boron | 15 | ug/L | U | 15 | 50 | 50 | 1 | P | HSC | 06/28/17 17:40 | 062817−1 | 1674989 |
| 7440−43−9 | Cadmium | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−70−2 | Calcium | 80600 | ug/L | | 50 | 200 | 200 | 1 | P | HSC | 06/28/17 17:40 | 062817−1 | 1674989 |
| 7440−47−3 | Chromium | 3 | ug/L | U | 3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−48−4 | Cobalt | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−50−8 | Copper | 0.318 | ug/L | B | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7439−89−6 | Iron | 30 | ug/L | U | 30 | 100 | 100 | 1 | P | HSC | 06/28/17 17:40 | 062817−1 | 1674989 |
| 7439−92−1 | Lead | 0.50 | ug/L | U | 0.5 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7439−95−4 | Magnesium | 23200 | ug/L | | 110 | 300 | 300 | 1 | P | HSC | 06/28/17 17:40 | 062817−1 | 1674989 |
| 7439−96−5 | Manganese | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7439−97−6 | Mercury | 0.067 | ug/L | U | 0.067 | 0.2 | 0.2 | 1 | AV | MTM1 | 06/23/17 12:10 | 062317W1−7 | 1676404 |
| 7439−98−7 | Molybdenum | 2.61 | ug/L | | 0.2 | 0.5 | 0.5 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−02−0 | Nickel | 0.623 | ug/L | B | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−09−7 | Potassium | 8010 | ug/L | | 50 | 150 | 150 | 1 | P | HSC | 06/28/17 17:40 | 062817−1 | 1674989 |
| 7782−49−2 | Selenium | 7.73 | ug/L | | 2 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−22−4 | Silver | 0.30 | ug/L | U | 0.3 | 1 | 1 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−23−5 | Sodium | 24100 | ug/L | | 100 | 300 | 300 | 1 | P | HSC | 06/29/17 13:00 | 062917−2 | 1674989 |
| 7440−24−6 | Strontium | 464 | ug/L | | 2 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−28−0 | Thallium | 0.60 | ug/L | U | 0.6 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−29−1 | Thorium | 0.70 | ug/L | U | 0.7 | 2 | 2 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−31−5 | Tin | 1 | ug/L | U | 1 | 5 | 5 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−61−1 | Uranium | 2.84 | ug/L | | 0.067 | 0.2 | 0.2 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |
| 7440−62−2 | Vanadium | 21.2 | ug/L | | 1 | 5 | 5 | 1 | P | HSC | 06/28/17 17:40 | 062817−1 | 1674989 |
| 7440−66−6 | Zinc | 3.3 | ug/L | U | 3.3 | 10 | 10 | 1 | MS | BAJ | 07/07/17 20:11 | 170707−3 | 1674912 |

**Prep Information:**

| Analytical Batch | Prep Batch | Prep Method | Initial wt./vol. | Units | Final wt./vol. | Units | Date | Analyst |
|---|---|---|---|---|---|---|---|---|
| 1674912 | 1674911 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |
| 1674989 | 1674988 | SW846 3005A | 50 | mL | 50 | mL | 06/17/17 | SXW1 |

**METALS**
**−1−**
**INORGANICS ANALYSIS DATA PACKAGE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1676404 | 1676403 | SW846 7470A Prep | 20 | mL | 20 | mL | 06/22/17 | AXS5 |
| 1681501 | 1681500 | SW846 3005A | 25 | mL | 25 | mL | 07/11/17 | CXW4 |

***Analytical Methods:**

| | |
|---|---|
| **P** | **SW846 3005A/6010D** |
| **MS** | **SW846 3005A/6020B** |
| **AV** | **SW846 7470A** |

# Quality Control Summary

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

# QC Summary

**Report Date: July 13, 2017**



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | | |
| QC1203813427 LCS | | | | | | | | | | | |
| Aluminum | 2000 | | | 2170 | ug/L | | 109 | (80%-120%) | BAJ | 07/07/17 | 19:32 |
| Antimony | 50.0 | | | 56.1 | ug/L | | 112 | (80%-120%) | | 07/10/17 | 14:21 |
| Arsenic | 50.0 | | | 52.5 | ug/L | | 105 | (80%-120%) | | 07/07/17 | 19:32 |
| Barium | 50.0 | | | 51.5 | ug/L | | 103 | (80%-120%) | | | |
| Cadmium | 50.0 | | | 51.8 | ug/L | | 104 | (80%-120%) | | | |
| Chromium | 50.0 | | | 48.9 | ug/L | | 97.8 | (80%-120%) | | | |
| Cobalt | 50.0 | | | 51.3 | ug/L | | 103 | (80%-120%) | | | |
| Copper | 50.0 | | | 53.6 | ug/L | | 107 | (80%-120%) | | | |
| Lead | 50.0 | | | 49.2 | ug/L | | 98.5 | (80%-120%) | | | |
| Manganese | 50.0 | | | 49.4 | ug/L | | 98.7 | (80%-120%) | | | |
| Molybdenum | 50.0 | | | 49.5 | ug/L | | 98.9 | (80%-120%) | | | |
| Nickel | 50.0 | | | 51.9 | ug/L | | 104 | (80%-120%) | | | |
| Selenium | 50.0 | | | 52.0 | ug/L | | 104 | (80%-120%) | | | |

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

# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | |
| Silver | 50.0 | | | 50.2 | ug/L | | 100 | (80%-120%) | BAJ | 07/07/17 19:32 |
| Strontium | 50.0 | | | 50.0 | ug/L | | 100 | (80%-120%) | | |
| Thallium | 50.0 | | | 47.4 | ug/L | | 94.8 | (80%-120%) | | |
| Thorium | 50.0 | | | 48.6 | ug/L | | 97.2 | (80%-120%) | | |
| Tin | 50.0 | | | 51.0 | ug/L | | 102 | (80%-120%) | | |
| Uranium | 50.0 | | | 48.5 | ug/L | | 96.9 | (80%-120%) | | |
| Zinc | 50.0 | | | 51.6 | ug/L | | 103 | (80%-120%) | | |
| QC1203813426 MB | | | | | | | | | | |
| Aluminum | | | U | 19.3 | ug/L | | | | | 07/07/17 19:28 |
| Antimony | | | U | 1.00 | ug/L | | | | | 07/10/17 14:20 |
| Arsenic | | | U | 2.00 | ug/L | | | | | 07/07/17 19:28 |
| Barium | | | U | 0.670 | ug/L | | | | | |
| Cadmium | | | U | 0.300 | ug/L | | | | | |
| Chromium | | | U | 3.00 | ug/L | | | | | |
| Cobalt | | | U | 0.300 | ug/L | | | | | |
| Copper | | | U | 0.300 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | |
| Lead | | | U | 0.500 | ug/L | | | | BAJ | 07/07/17 19:28 |
| Manganese | | | U | 1.00 | ug/L | | | | | |
| Molybdenum | | | U | 0.200 | ug/L | | | | | |
| Nickel | | | U | 0.600 | ug/L | | | | | |
| Selenium | | | U | 2.00 | ug/L | | | | | |
| Silver | | | U | 0.300 | ug/L | | | | | |
| Strontium | | | U | 2.00 | ug/L | | | | | |
| Thallium | | | U | 0.600 | ug/L | | | | | |
| Thorium | | | U | 0.700 | ug/L | | | | | |
| Tin | | | U | 1.00 | ug/L | | | | | |
| Uranium | | | U | 0.067 | ug/L | | | | | |
| Zinc | | | U | 3.30 | ug/L | | | | | |
| QC1203813428 425603007 MS | | | | | | | | | | |
| Aluminum | 2000 | U | 19.3 | 2370 | ug/L | | 118 | (75%-125%) | | 07/07/17 19:38 |
| Antimony | 50.0 | U | 1.00 | 53.5 | ug/L | | 107 | (75%-125%) | | 07/10/17 14:25 |
| Arsenic | 50.0 | U | 2.00 | 54.7 | ug/L | | 107 | (75%-125%) | | 07/07/17 19:38 |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | | | |
| Barium | 50.0 | U | 0.670 | | 51.5 | ug/L | | 103 | (75%-125%) | BAJ | 07/07/17 | 19:38 |
| Cadmium | 50.0 | U | 0.300 | | 52.7 | ug/L | | 105 | (75%-125%) | | | |
| Chromium | 50.0 | U | 3.00 | | 52.0 | ug/L | | 103 | (75%-125%) | | | |
| Cobalt | 50.0 | U | 0.300 | | 54.7 | ug/L | | 109 | (75%-125%) | | | |
| Copper | 50.0 | U | 0.300 | | 54.6 | ug/L | | 109 | (75%-125%) | | | |
| Lead | 50.0 | U | 0.500 | | 49.5 | ug/L | | 99 | (75%-125%) | | | |
| Manganese | 50.0 | U | 1.00 | | 51.8 | ug/L | | 102 | (75%-125%) | | | |
| Molybdenum | 50.0 | U | 0.200 | | 50.4 | ug/L | | 101 | (75%-125%) | | | |
| Nickel | 50.0 | U | 0.600 | | 54.1 | ug/L | | 108 | (75%-125%) | | | |
| Selenium | 50.0 | U | 2.00 | | 52.9 | ug/L | | 106 | (75%-125%) | | | |
| Silver | 50.0 | U | 0.300 | | 51.9 | ug/L | | 104 | (75%-125%) | | | |
| Strontium | 50.0 | U | 2.00 | | 50.3 | ug/L | | 100 | (75%-125%) | | | |
| Thallium | 50.0 | U | 0.600 | | 47.3 | ug/L | | 94.3 | (75%-125%) | | | |
| Thorium | 50.0 | U | 0.700 | | 47.6 | ug/L | | 94.4 | (75%-125%) | | | |
| Tin | 50.0 | U | 1.00 | | 51.7 | ug/L | | 103 | (75%-125%) | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | | |
| Uranium | 50.0 | U | 0.067 | | 48.6 | ug/L | | 97.1 | (75%-125%) | BAJ | 07/07/17 19:38 |
| Zinc | 50.0 | U | 3.30 | | 52.5 | ug/L | | 101 | (75%-125%) | | |
| QC1203813429 425603007 MSD | | | | | | | | | | | |
| Aluminum | 2000 | U | 19.3 | | 2330 | ug/L | 1.89 | 116 | (0%-20%) | | 07/07/17 19:41 |
| Antimony | 50.0 | U | 1.00 | | 51.0 | ug/L | 4.95 | 102 | (0%-20%) | | 07/10/17 14:26 |
| Arsenic | 50.0 | U | 2.00 | | 52.4 | ug/L | 4.17 | 102 | (0%-20%) | | 07/07/17 19:41 |
| Barium | 50.0 | U | 0.670 | | 52.0 | ug/L | 0.951 | 104 | (0%-20%) | | |
| Cadmium | 50.0 | U | 0.300 | | 52.3 | ug/L | 0.771 | 105 | (0%-20%) | | |
| Chromium | 50.0 | U | 3.00 | | 52.3 | ug/L | 0.474 | 104 | (0%-20%) | | |
| Cobalt | 50.0 | U | 0.300 | | 52.6 | ug/L | 3.84 | 105 | (0%-20%) | | |
| Copper | 50.0 | U | 0.300 | | 52.7 | ug/L | 3.6 | 105 | (0%-20%) | | |
| Lead | 50.0 | U | 0.500 | | 50.4 | ug/L | 1.76 | 101 | (0%-20%) | | |
| Manganese | 50.0 | U | 1.00 | | 51.1 | ug/L | 1.27 | 101 | (0%-20%) | | |
| Molybdenum | 50.0 | U | 0.200 | | 50.8 | ug/L | 0.772 | 102 | (0%-20%) | | |
| Nickel | 50.0 | U | 0.600 | | 53.5 | ug/L | 1.11 | 107 | (0%-20%) | | |
| Selenium | 50.0 | U | 2.00 | | 52.1 | ug/L | 1.45 | 104 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | | |
| Silver | 50.0 | U | 0.300 | | 51.5 | ug/L | 0.87 | 103 | (0%-20%) | BAJ | 07/07/17 19:41 |
| Strontium | 50.0 | U | 2.00 | | 49.5 | ug/L | 1.62 | 98.5 | (0%-20%) | | |
| Thallium | 50.0 | U | 0.600 | | 47.3 | ug/L | 0.036 | 94.3 | (0%-20%) | | |
| Thorium | 50.0 | U | 0.700 | | 48.3 | ug/L | 1.34 | 95.7 | (0%-20%) | | |
| Tin | 50.0 | U | 1.00 | | 51.3 | ug/L | 0.78 | 102 | (0%-20%) | | |
| Uranium | 50.0 | U | 0.067 | | 48.4 | ug/L | 0.388 | 96.7 | (0%-20%) | | |
| Zinc | 50.0 | U | 3.30 | | 53.7 | ug/L | 2.32 | 103 | (0%-20%) | | |
| QC1203813430 425603007 SDILT | | | | | | | | | | | |
| Aluminum | | U | 7.01 | DU | 96.5 | ug/L | N/A | | (0%-20%) | | 07/07/17 19:48 |
| Antimony | | U | 0.127 | DU | 5.00 | ug/L | N/A | | (0%-20%) | | 07/10/17 14:28 |
| Arsenic | | U | 1.35 | DU | 10.0 | ug/L | N/A | | (0%-20%) | | 07/07/17 19:48 |
| Barium | | U | 0.117 | DU | 3.35 | ug/L | N/A | | (0%-20%) | | |
| Cadmium | | U | 0.007 | DU | 1.50 | ug/L | N/A | | (0%-20%) | | |
| Chromium | | U | 0.349 | DU | 15.0 | ug/L | N/A | | (0%-20%) | | |
| Cobalt | | U | 0.005 | DU | 1.50 | ug/L | N/A | | (0%-20%) | | |
| Copper | | U | 0.057 | DU | 1.50 | ug/L | N/A | | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | |
| Batch 1674912 | | | | | | | | | | |
| Lead | U | 0.014 | DU | 2.50 | ug/L | N/A | | (0%-20%) | BAJ | 07/07/17 19:48 |
| Manganese | U | 0.533 | DU | 5.00 | ug/L | N/A | | (0%-20%) | | |
| Molybdenum | U | 0.026 | DU | 1.00 | ug/L | N/A | | (0%-20%) | | |
| Nickel | U | 0.054 | DU | 3.00 | ug/L | N/A | | (0%-20%) | | |
| Selenium | U | -0.066 | DU | 10.0 | ug/L | N/A | | (0%-20%) | | |
| Silver | U | 0.003 | DU | 1.50 | ug/L | N/A | | (0%-20%) | | |
| Strontium | U | 0.286 | DU | 10.0 | ug/L | N/A | | (0%-20%) | | |
| Thallium | U | 0.123 | DU | 3.00 | ug/L | N/A | | (0%-20%) | | |
| Thorium | U | 0.433 | DU | 3.50 | ug/L | N/A | | (0%-20%) | | |
| Tin | U | 0.248 | DU | 5.00 | ug/L | N/A | | (0%-20%) | | |
| Uranium | U | 0.005 | DU | 0.335 | ug/L | N/A | | (0%-20%) | | |
| Zinc | U | 2.14 | DU | 16.5 | ug/L | N/A | | (0%-20%) | | |
| Batch 1681501 | | | | | | | | | | |
| QC1203828896 LCS | | | | | | | | | | |
| Beryllium | 50.0 | | | 55.9 | ug/L | | 112 | (80%-120%) | SKJ | 07/12/17 08:08 |
| QC1203828895 MB | | | | | | | | | | |
| Beryllium | | | U | 0.200 | ug/L | | | | | 07/12/17 08:07 |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis - ICPMS** | | | | | | | | | | |
| Batch 1681501 | | | | | | | | | | |
| QC1203828897 425603007 MS | | | | | | | | | | |
| Beryllium | 50.0 U | 0.200 | | 54.2 | ug/L | | 108 | (75%-125%) | SKJ | 07/12/17 08:11 |
| QC1203828898 425603007 MSD | | | | | | | | | | |
| Beryllium | 50.0 U | 0.200 | | 56.6 | ug/L | 4.29 | 113 | (0%-20%) | | 07/12/17 08:12 |
| QC1203828899 425603007 SDILT | | | | | | | | | | |
| Beryllium | U | -0.007 | DU | 1.00 | ug/L | N/A | | (0%-20%) | | 07/12/17 08:15 |
| **Metals Analysis-ICP** | | | | | | | | | | |
| Batch 1674989 | | | | | | | | | | |
| QC1203813660 LCS | | | | | | | | | | |
| Boron | 500 | | | 476 | ug/L | | 95.1 | (80%-120%) | HSC | 06/28/17 17:05 |
| Calcium | 5000 | | | 4620 | ug/L | | 92.5 | (80%-120%) | | |
| Iron | 5000 | | | 4550 | ug/L | | 91.1 | (80%-120%) | | |
| Magnesium | 5000 | | | 4680 | ug/L | | 93.5 | (80%-120%) | | |
| Potassium | 5000 | | | 4820 | ug/L | | 96.5 | (80%-120%) | | |
| Sodium | 5000 | | | 4880 | ug/L | | 97.7 | (80%-120%) | | 06/29/17 12:25 |
| Vanadium | 500 | | | 469 | ug/L | | 93.7 | (80%-120%) | | 06/28/17 17:05 |
| QC1203813659 MB | | | | | | | | | | |
| Boron | | | U | 15.0 | ug/L | | | | | 06/28/17 17:02 |
| Calcium | | | U | 50.0 | ug/L | | | | | |
| Iron | | | U | 30.0 | ug/L | | | | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis-ICP** | | | | | | | | | | | |
| Batch 1674989 | | | | | | | | | | | |
| Magnesium | | | | U | 110 | ug/L | | | | HSC | 06/28/17 17:02 |
| Potassium | | | | B | 51.5 | ug/L | | | | | |
| Sodium | | | | B | 114 | ug/L | | | | | 06/29/17 12:22 |
| Vanadium | | | | U | 1.00 | ug/L | | | | | 06/28/17 17:02 |
| QC1203813661 425603007 MS | | | | | | | | | | | |
| Boron | 500 | U | 15.0 | | 472 | ug/L | | 93.9 | (75%-125%) | | 06/28/17 17:12 |
| Calcium | 5000 | B | 53.7 | | 4690 | ug/L | | 92.8 | (75%-125%) | | |
| Iron | 5000 | U | 30.0 | | 4610 | ug/L | | 92.1 | (75%-125%) | | |
| Magnesium | 5000 | U | 110 | | 4760 | ug/L | | 95 | (75%-125%) | | |
| Potassium | 5000 | U | 50.0 | | 4900 | ug/L | | 97 | (75%-125%) | | |
| Sodium | 5000 | U | 100 | | 5140 | ug/L | | 101 | (75%-125%) | | 06/29/17 12:32 |
| Vanadium | 500 | U | 1.00 | | 465 | ug/L | | 93 | (75%-125%) | | 06/28/17 17:12 |
| QC1203813662 425603007 MSD | | | | | | | | | | | |
| Boron | 500 | U | 15.0 | | 473 | ug/L | 0.237 | 94.2 | (0%-20%) | | 06/28/17 17:15 |
| Calcium | 5000 | B | 53.7 | | 4640 | ug/L | 1.11 | 91.8 | (0%-20%) | | |
| Iron | 5000 | U | 30.0 | | 4550 | ug/L | 1.18 | 91 | (0%-20%) | | |
| Magnesium | 5000 | U | 110 | | 4720 | ug/L | 0.776 | 94.2 | (0%-20%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis-ICP** | | | | | | | | | | | |
| Batch 1674989 | | | | | | | | | | | |
| Potassium | 5000 | U | 50.0 | | 4910 | ug/L | 0.347 | 97.4 | (0%-20%) | HSC | 06/28/17 17:15 |
| Sodium | 5000 | U | 100 | | 5240 | ug/L | 2.06 | 104 | (0%-20%) | | 06/29/17 12:35 |
| Vanadium | 500 | U | 1.00 | | 465 | ug/L | 0.118 | 92.9 | (0%-20%) | | 06/28/17 17:15 |
| QC1203813663 425603007 SDILT | | | | | | | | | | | |
| Boron | | U | 2.08 | DU | 75.0 | ug/L | N/A | | (0%-20%) | | 06/28/17 17:18 |
| Calcium | | B | 53.7 | DU | 250 | ug/L | N/A | | (0%-20%) | | |
| Iron | | U | 4.21 | DU | 150 | ug/L | N/A | | (0%-20%) | | |
| Magnesium | | U | 10.8 | DU | 550 | ug/L | N/A | | (0%-20%) | | |
| Potassium | | U | 44.8 | DU | 250 | ug/L | N/A | | (0%-20%) | | |
| Sodium | | U | 64.4 | DU | 500 | ug/L | N/A | | (0%-20%) | | 06/29/17 12:38 |
| Vanadium | | U | 0.161 | DU | 5.00 | ug/L | N/A | | (0%-20%) | | 06/28/17 17:18 |
| **Metals Analysis-Mercury** | | | | | | | | | | | |
| Batch 1676404 | | | | | | | | | | | |
| QC1203816918 425603007 DUP | | | | | | | | | | | |
| Mercury | | U | 0.067 | U | 0.067 | ug/L | N/A | | | MTM1 | 06/23/17 11:53 |
| QC1203816911 LCS | | | | | | | | | | | |
| Mercury | 2.00 | | | | 1.99 | ug/L | | 99.6 | (80%-120%) | | 06/23/17 11:50 |
| QC1203816910 MB | | | | | | | | | | | |
| Mercury | | | | U | 0.067 | ug/L | | | | | 06/23/17 11:46 |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals Analysis-Mercury** | | | | | | | | | | | |
| Batch 1676404 | | | | | | | | | | | |
| QC1203816919 425603007 MS | | | | | | | | | | | |
| Mercury | 2.00 | U | 0.067 | | 2.01 | ug/L | | 100 | (75%-125%) | MTM1 | 06/23/17 11:55 |
| QC1203816920 425603007 SDILT | | | | | | | | | | | |
| Mercury | | U | -0.007 | DU | 0.335 | ug/L | N/A | | (0%-10%) | | 06/23/17 11:56 |

**Notes:**

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| * | Duplicate analysis not within control limits |
| + | Correlation coefficient for Method of Standard Additions (MSA) is < 0.995 |
| 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). |
| C | Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples. |
| D | Results are reported from a diluted aliquot of sample. |
| E | Reported value is estimated due to interferences. See comment in narrative. |
| M | Duplicate precision not met. |
| N | Spike Sample recovery is outside control limits. |
| S | Reported value determined by the Method of Standard Additions (MSA) |
| U | Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error. |
| W | Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency. |
| 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 |

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.

# General Chem Analysis

# Case Narrative

**General Chemistry**
**Technical Case Narrative**
**CH2MHill Plateau Remediation Company (CPRC)**
**SDG #: GEL425603**
**Work Order #: 425603**

**Product:** **Cyanide, Total**
**Analytical Method:** 9012_CYANIDE
**Analytical Procedure:** GL-GC-E-095 REV# 19
**Analytical Batches:** 1675172 and 1675171

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603008 | B39NH2 |
| 425603010 | B39NH3 |
| 425603011 | B39NM5 |
| 1203814050 | Method Blank (MB) |
| 1203814051 | Laboratory Control Sample (LCS) |
| 1203814053 | 425603008(B39NH2) Sample Duplicate (DUP) |
| 1203814055 | 425603008(B39NH2) Matrix Spike (MS) |

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.

**Technical Information**

**Sample Re-analysis**
Sample1203814051 (LCS) was re-analyzed due to instrument failure. The results from the reanalysis are reported.

**Product:** **Ion Chromatography**
**Analytical Method:** 9056_ANIONS_IC
**Analytical Procedure:** GL-GC-E-086 REV# 25
**Analytical Batch:** 1674759

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603001 | B39NF9 |
| 425603002 | B39NH6 |
| 425603003 | B39NH7 |
| 425603004 | B39NJ7 |
| 425603005 | B39NJ8 |
| 425603006 | B39NM7 |
| 1203813077 | Method Blank (MB) |
| 1203813078 | Laboratory Control Sample (LCS) |
| 1203813079 | 425603006(B39NM7) Sample Duplicate (DUP) |
| 1203813080 | 425603006(B39NM7) Post Spike (PS) |

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.

**Technical Information**

**Sample Dilutions**
The following samples 1203813079 (B39NM7DUP), 1203813080 (B39NM7PS), 425603001 (B39NF9), 425603003 (B39NH7), 425603005 (B39NJ8) and 425603006 (B39NM7) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

| Analyte | 425603 | | | |
|---|---|---|---|---|
| | 001 | 003 | 005 | 006 |
| Several | 10X 1X | 10X 1X | 10X 1X | 20X 10X 1X |

**Miscellaneous Information**

**Manual Integrations**
Samples 1203813079 (B39NM7DUP), 1203813080 (B39NM7PS), 425603001 (B39NF9), 425603002 (B39NH6), 425603003 (B39NH7), 425603004 (B39NJ7), 425603005 (B39NJ8) and 425603006 (B39NM7) were manually integrated to correctly position the baseline as set in the calibration standards.

**Product:** **Sulfide, Total**
**Analytical Method:** 4500D_SULFIDE
**Analytical Procedure:** GL-GC-E-052 REV# 9
**Analytical Batch:** 1675221

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 425603008 | B39NH2 |
| 425603010 | B39NH3 |
| 425603011 | B39NM5 |
| 1203814210 | Method Blank (MB) |
| 1203814211 | Laboratory Control Sample (LCS) |
| 1203814212 | 425603008(B39NH2) Sample Duplicate (DUP) |
| 1203814213 | 425603008(B39NH2) Post Spike (PS) |

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

**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. 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.

**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: GEL425603 GEL Work Order: 425603

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

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).

D Results are reported from a diluted aliquot of sample.

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.

**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: Aubrey Kingsbury**

**Date: 30 JUN 2017** **Title: Analyst I**

# Sample Data Summary

**GEL LABORATORIES LLC**
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# Certificate of Analysis

Report Date: June 30, 2017

| | |
|---|---|
| Company : | CH2MHill Plateau Remediation Company |
| Address : | MSIN R3-50 CHPRC<br>PO Box 1600<br>Richland, Washington 99352 |
| Contact: | Mr. Scot Fitzgerald |
| Project: | CHPRC SAF W17-006 |

| | | | |
|---|---|---|---|
| Client Sample ID: | B39NF9 | Project: | CPRC0W17006 |
| Sample ID: | 425603001 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 15-JUN-17 12:12 | | |
| Receive Date: | 16-JUN-17 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Fluoride | B | 230 | 33.0 | 500 | ug/L | | 1 | MXL2 | 06/16/17 | 1057 | 1674759 | 1 |
| Nitrite-N | U | 33.0 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Chloride | D | 17000 | 670 | 2000 | ug/L | | 10 | MXL2 | 06/16/17 | 1649 | 1674759 | 2 |
| Nitrate-N | D | 9780 | 330 | 1000 | ug/L | | 10 | | | | | |
| Sulfate | D | 102000 | 1330 | 4000 | ug/L | | 10 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9056_ANIONS_IC | |
| 2 | 9056_ANIONS_IC | |

**Notes:**

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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# Certificate of Analysis

Report Date: June 30, 2017

| | |
|---|---|
| Company : | CH2MHill Plateau Remediation Company |
| Address : | MSIN R3-50 CHPRC<br>PO Box 1600<br>Richland, Washington 99352 |
| Contact: | Mr. Scot Fitzgerald |
| Project: | CHPRC SAF W17-006 |

| | | | |
|---|---|---|---|
| Client Sample ID: | B39NH6 | Project: | CPRC0W17006 |
| Sample ID: | 425603002 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 15-JUN-17 08:45 | | |
| Receive Date: | 16-JUN-17 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Chloride | B | 106 | 67.0 | 200 | ug/L | | 1 | MXL2 | 06/16/17 | 1126 | 1674759 | 1 |
| Fluoride | U | 33.0 | 33.0 | 500 | ug/L | | 1 | | | | | |
| Nitrate-N | B | 38.5 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Nitrite-N | U | 33.0 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Sulfate | U | 133 | 133 | 500 | ug/L | | 1 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9056_ANIONS_IC | |

**Notes:**

Column headers are defined as follows:

| | |
|---|---|
| DF: Dilution Factor | Lc/LC: Critical Level |
| DL: Detection Limit | PF: Prep Factor |
| MDA: Minimum Detectable Activity | RL: Reporting Limit |
| MDC: Minimum Detectable Concentration | SQL: Sample Quantitation Limit |

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# Certificate of Analysis

Report Date: June 30, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W17-006

Client Sample ID: B39NH7
Sample ID: 425603003
Matrix: WATER
Collect Date: 15-JUN-17 11:03
Receive Date: 16-JUN-17
Collector: Client

Project: CPRC0W17006
Client ID: CPRC001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Fluoride | B | 212 | 33.0 | 500 | ug/L | | 1 | MXL2 | 06/16/17 | 1155 | 1674759 | 1 |
| Nitrite-N | U | 33.0 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Chloride | D | 19300 | 670 | 2000 | ug/L | | 10 | MXL2 | 06/16/17 | 1718 | 1674759 | 2 |
| Nitrate-N | D | 7090 | 330 | 1000 | ug/L | | 10 | | | | | |
| Sulfate | D | 133000 | 1330 | 4000 | ug/L | | 10 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9056_ANIONS_IC | |
| 2 | 9056_ANIONS_IC | |

**Notes:**

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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# Certificate of Analysis

Report Date: June 30, 2017

| | |
|---|---|
| Company : | CH2MHill Plateau Remediation Company |
| Address : | MSIN R3-50 CHPRC<br>PO Box 1600<br>Richland, Washington 99352 |
| Contact: | Mr. Scot Fitzgerald |
| Project: | CHPRC SAF W17-006 |

| | | | |
|---|---|---|---|
| Client Sample ID: | B39NJ7 | Project: | CPRC0W17006 |
| Sample ID: | 425603004 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 15-JUN-17 08:00 | | |
| Receive Date: | 16-JUN-17 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Chloride | B | 100 | 67.0 | 200 | ug/L | | 1 | MXL2 | 06/16/17 | 1224 | 1674759 | 1 |
| Fluoride | U | 33.0 | 33.0 | 500 | ug/L | | 1 | | | | | |
| Nitrate-N | B | 45.1 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Nitrite-N | U | 33.0 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Sulfate | U | 133 | 133 | 500 | ug/L | | 1 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9056_ANIONS_IC | |

**Notes:**

Column headers are defined as follows:

| | |
|---|---|
| DF: Dilution Factor | Lc/LC: Critical Level |
| DL: Detection Limit | PF: Prep Factor |
| MDA: Minimum Detectable Activity | RL: Reporting Limit |
| MDC: Minimum Detectable Concentration | SQL: Sample Quantitation Limit |

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# Certificate of Analysis

Report Date: June 30, 2017

| | |
|---|---|
| Company : | CH2MHill Plateau Remediation Company |
| Address : | MSIN R3-50 CHPRC<br>PO Box 1600<br>Richland, Washington 99352 |
| Contact: | Mr. Scot Fitzgerald |
| Project: | CHPRC SAF W17-006 |

| | | | |
|---|---|---|---|
| Client Sample ID: | B39NJ8 | Project: | CPRC0W17006 |
| Sample ID: | 425603005 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 15-JUN-17 09:48 | | |
| Receive Date: | 16-JUN-17 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Fluoride | B | 191 | 33.0 | 500 | ug/L | | 1 | MXL2 | 06/16/17 | 1253 | 1674759 | 1 |
| Nitrite-N | U | 33.0 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Chloride | D | 22300 | 670 | 2000 | ug/L | | 10 | MXL2 | 06/16/17 | 1747 | 1674759 | 2 |
| Nitrate-N | D | 8680 | 330 | 1000 | ug/L | | 10 | | | | | |
| Sulfate | D | 196000 | 1330 | 4000 | ug/L | | 10 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9056_ANIONS_IC | |
| 2 | 9056_ANIONS_IC | |

**Notes:**

Column headers are defined as follows:

| | |
|---|---|
| DF: Dilution Factor | Lc/LC: Critical Level |
| DL: Detection Limit | PF: Prep Factor |
| MDA: Minimum Detectable Activity | RL: Reporting Limit |
| MDC: Minimum Detectable Concentration | SQL: Sample Quantitation Limit |

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# Certificate of Analysis

Report Date: June 30, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W17-006

Client Sample ID: B39NM7
Sample ID: 425603006
Matrix: WATER
Collect Date: 15-JUN-17 13:00
Receive Date: 16-JUN-17
Collector: Client

Project: CPRC0W17006
Client ID: CPRC001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Fluoride | B | 173 | 33.0 | 500 | ug/L | | 1 | MXL2 | 06/16/17 | 1323 | 1674759 | 1 |
| Nitrite-N | U | 33.0 | 33.0 | 250 | ug/L | | 1 | | | | | |
| Chloride | D | 30400 | 670 | 2000 | ug/L | | 10 | MXL2 | 06/16/17 | 1817 | 1674759 | 2 |
| Nitrate-N | D | 12100 | 330 | 1000 | ug/L | | 10 | | | | | |
| Sulfate | D | 197000 | 2660 | 8000 | ug/L | | 20 | MXL2 | 06/19/17 | 1301 | 1674759 | 3 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9056_ANIONS_IC | |
| 2 | 9056_ANIONS_IC | |
| 3 | 9056_ANIONS_IC | |

**Notes:**

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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# Certificate of Analysis

Report Date: June 30, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W17-006

Client Sample ID: B39NH2
Sample ID: 425603008
Matrix: WATER
Collect Date: 15-JUN-17 08:45
Receive Date: 16-JUN-17
Collector: Client

Project: CPRC0W17006
Client ID: CPRC001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Injection Analysis | | | | | | | | | | | | |
| 9012_CYANIDE (TOTAL): COMMON "As Received" | | | | | | | | | | | | |
| Cyanide, Total | U | 1.67 | 1.67 | 5.00 | ug/L | 1.00 | 1 | AXH3 | 06/22/17 | 0833 | 1675172 | 1 |
| Spectrometric Analysis | | | | | | | | | | | | |
| 4500_Sulfide: COMMON "As Received" | | | | | | | | | | | | |
| Total Sulfide | U | 33.0 | 33.0 | 500 | ug/L | | 1 | VH1 | 06/19/17 | 1005 | 1675221 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 9010C Distillation | SW846 9010C Prep | AXH3 | 06/22/17 | 0808 | 1675171 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9012_CYANIDE | |
| 2 | 4500D_SULFIDE | |

**Notes:**

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

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# Certificate of Analysis

Report Date: June 30, 2017

| | |
|---|---|
| Company : | CH2MHill Plateau Remediation Company |
| Address : | MSIN R3-50 CHPRC<br>PO Box 1600<br>Richland, Washington 99352 |
| Contact: | Mr. Scot Fitzgerald |
| Project: | CHPRC SAF W17-006 |

| | | | |
|---|---|---|---|
| Client Sample ID: | B39NH3 | Project: | CPRC0W17006 |
| Sample ID: | 425603010 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 15-JUN-17 11:03 | | |
| Receive Date: | 16-JUN-17 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Injection Analysis | | | | | | | | | | | | |
| 9012_CYANIDE (TOTAL): COMMON "As Received" | | | | | | | | | | | | |
| Cyanide, Total | B | 2.88 | 1.67 | 5.00 | ug/L | 1.00 | 1 | AXH3 | 06/22/17 | 0841 | 1675172 | 1 |
| Spectrometric Analysis | | | | | | | | | | | | |
| 4500_Sulfide: COMMON "As Received" | | | | | | | | | | | | |
| Total Sulfide | U | 33.0 | 33.0 | 500 | ug/L | | 1 | VH1 | 06/19/17 | 1006 | 1675221 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 9010C Distillation | SW846 9010C Prep | AXH3 | 06/22/17 | 0808 | 1675171 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9012_CYANIDE | |
| 2 | 4500D_SULFIDE | |

**Notes:**

Column headers are defined as follows:

| | |
|---|---|
| DF: Dilution Factor | Lc/LC: Critical Level |
| DL: Detection Limit | PF: Prep Factor |
| MDA: Minimum Detectable Activity | RL: Reporting Limit |
| MDC: Minimum Detectable Concentration | SQL: Sample Quantitation Limit |

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# Certificate of Analysis

Report Date: June 30, 2017

Company : CH2MHill Plateau Remediation Company
Address : MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Project: CHPRC SAF W17-006

Client Sample ID: B39NM5
Sample ID: 425603011
Matrix: WATER
Collect Date: 15-JUN-17 13:00
Receive Date: 16-JUN-17
Collector: Client

Project: CPRC0W17006
Client ID: CPRC001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Injection Analysis | | | | | | | | | | | | |
| 9012_CYANIDE (TOTAL): COMMON "As Received" | | | | | | | | | | | | |
| Cyanide, Total | U | 1.67 | 1.67 | 5.00 | ug/L | 1.00 | 1 | AXH3 | 06/22/17 | 0842 | 1675172 | 1 |
| Spectrometric Analysis | | | | | | | | | | | | |
| 4500_Sulfide: COMMON "As Received" | | | | | | | | | | | | |
| Total Sulfide | U | 33.0 | 33.0 | 500 | ug/L | | 1 | VH1 | 06/19/17 | 1006 | 1675221 | 2 |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 9010C Distillation | SW846 9010C Prep | AXH3 | 06/22/17 | 0808 | 1675171 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | 9012_CYANIDE | |
| 2 | 4500D_SULFIDE | |

**Notes:**

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

# Quality Control Summary

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

# QC Summary

**Report Date: June 30, 2017**



**CH2MHill Plateau Remediation Company**
**MSIN R3-50 CHPRC**
**PO Box 1600**
**Richland, Washington**

**Contact:** **Mr. Scot Fitzgerald**

**Workorder:** **425603**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Flow Injection Analysis** | | | | | | | | | | |
| Batch 1675172 | | | | | | | | | | |
| QC1203814053 425603008 DUP | | | | | | | | | | |
| Cyanide, Total | U | 1.67 | U | 1.67 | ug/L | N/A | | | AXH3 | 06/22/17 08:34 |
| QC1203814051 LCS | | | | | | | | | | |
| Cyanide, Total | 50.0 | | | 52.8 | ug/L | | 106 | (80%-120%) | | 06/22/17 08:40 |
| QC1203814050 MB | | | | | | | | | | |
| Cyanide, Total | | | U | 1.67 | ug/L | | | | | 06/22/17 08:31 |
| QC1203814055 425603008 MS | | | | | | | | | | |
| Cyanide, Total | 100 U | 1.67 | | 106 | ug/L | | 106 | (75%-125%) | | 06/22/17 08:35 |
| **Ion Chromatography** | | | | | | | | | | |
| Batch 1674759 | | | | | | | | | | |
| QC1203813079 425603006 DUP | | | | | | | | | | |
| Chloride | D | 30400 | D | 30300 | ug/L | 0.191 | | (0%-20%) | MXL2 | 06/16/17 18:46 |
| Fluoride | B | 173 | B | 169 | ug/L | 2.1 ^ | | (+/-500) | | 06/16/17 13:52 |
| Nitrate-N | D | 12100 | D | 12100 | ug/L | 0 | | (0%-20%) | | 06/16/17 18:46 |
| Nitrite-N | U | 33.0 | U | 33.0 | ug/L | N/A | | | | 06/16/17 13:52 |
| Sulfate | D | 197000 | D | 197000 | ug/L | 0.151 | | (0%-20%) | | 06/19/17 13:30 |
| QC1203813078 LCS | | | | | | | | | | |
| Chloride | 5000 | | | 4740 | ug/L | | 94.8 | (80%-120%) | | 06/16/17 15:20 |
| Fluoride | 2500 | | | 2420 | ug/L | | 96.8 | (80%-120%) | | |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ion Chromatography** | | | | | | | | | | | |
| Batch 1674759 | | | | | | | | | | | |
| Nitrate-N | 2500 | | | | 2420 | ug/L | | 96.7 | (80%-120%) | MXL2 | 06/16/17 15:20 |
| Nitrite-N | 2500 | | | | 2440 | ug/L | | 97.8 | (80%-120%) | | |
| Sulfate | 10000 | | | | 9800 | ug/L | | 98 | (80%-120%) | | |
| QC1203813077 MB | | | | | | | | | | | |
| Chloride | | | | U | 67.0 | ug/L | | | | | 06/16/17 14:51 |
| Fluoride | | | | U | 33.0 | ug/L | | | | | |
| Nitrate-N | | | | U | 33.0 | ug/L | | | | | |
| Nitrite-N | | | | U | 33.0 | ug/L | | | | | |
| Sulfate | | | | U | 133 | ug/L | | | | | |
| QC1203813080 425603006 PS | | | | | | | | | | | |
| Chloride | 5.00 | D | 3.04 | D | 7.98 | mg/L | | 98.9 | (75%-125%) | | 06/16/17 19:16 |
| Fluoride | 2.50 | B | 0.173 | | 2.47 | mg/L | | 91.8 | (75%-125%) | | 06/16/17 14:22 |
| Nitrate-N | 2.50 | D | 1.21 | D | 3.65 | mg/L | | 97.5 | (75%-125%) | | 06/16/17 19:16 |
| Nitrite-N | 2.50 | U | 0.00 | | 2.36 | mg/L | | 94.2 | (75%-125%) | | 06/16/17 14:22 |
| Sulfate | 10.0 | D | 9.87 | D | 20.2 | mg/L | | 104 | (75%-125%) | | 06/19/17 14:00 |
| **Spectrometric Analysis** | | | | | | | | | | | |
| Batch 1675221 | | | | | | | | | | | |
| QC1203814212 425603008 DUP | | | | | | | | | | | |
| Total Sulfide | | U | 33.0 | U | 33.0 | ug/L | N/A | | | VH1 | 06/19/17 10:05 |

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# QC Summary

**Workorder:** **425603**



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Spectrometric Analysis** | | | | | | | | | | | | |
| Batch 1675221 | | | | | | | | | | | | |
| QC1203814211 LCS | | | | | | | | | | | | |
| Total Sulfide | 400 | | | B | 386 | ug/L | | 96.5 | (80%-120%) | VH1 | 06/19/17 | 10:05 |
| QC1203814210 MB | | | | | | | | | | | | |
| Total Sulfide | | | | U | 33.0 | ug/L | | | | | 06/19/17 | 10:05 |
| QC1203814213 425603008 PS | | | | | | | | | | | | |
| Total Sulfide | 0.400 | U | -0.00333 | B | 0.345 | mg/L | | 86.3 | (75%-125%) | | 06/19/17 | 10:06 |

**Notes:**

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| < | Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide |
| > | Result greater than quantifiable range or greater than upper limit of the analysis range |
| 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). |
| C | Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples. |
| D | Results are reported from a diluted aliquot of sample. |
| N | Spike 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 |

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.