



February 16, 2015

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

Re: CHPRC SAF S15-012
Work Order: 363482
SDG: GEL363482

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on December 19, 2014. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. Per client P&D, the metals case narrative was revised.

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,

Heather Shaffer
Project Manager

Purchase Order: 300071JDBA - 7H

Chain of Custody: S15-012-298, S15-012-299, S15-012-300, S15-012-301, S15-012-324, S15-012-325,
S15-012-326, S15-012-327, S15-012-668 and S15-012-677

Enclosures



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Problem and Discrepancy Report

Problem and Discrepancy Report

GEL

SDG GEL363482

02/02/15

1. The data package has the following issues:

- The DER for the metals narrative states that the method blank for boron was above the reporting limit. The case narrative says (and the QC summary shows) that tin is above the RL and boron is only above the MDL. Please address this discrepancy.

Resolution: *Provide correction.*

Lab Response:

The lab will correct the Metals case narrative and submit a revised data package.

Case Narrative

Per client P&D, the metals case narrative was revised.

**General Narrative
for
CH2MHill Plateau Remediation Company
CHPRC SAF S15-012
SDG: GEL363482**

February 16, 2015

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 December 19, 2014, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification

The laboratory received the following samples:

| Laboratory Identification | Sample Description |
|----------------------------------|---------------------------|
| 363482001 | B2YLW2 |
| 363482002 | B2YLW3 |
| 363482003 | B2YM39 |
| 363482004 | B2YM40 |
| 363482005 | B2YM37 |
| 363482006 | B2YM38 |
| 363482007 | B2YK49 |
| 363482008 | B303W2 |
| 363482009 | B303V0 |
| 363482010 | B2YLW0 |
| 363482011 | B2YLW1 |

Case Narrative

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

Data Package

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

This package, to the best of my knowledge, 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 Manger (or designee) and the laboratory's client services representative as verified by their signatures on this report.



Heather Shaffer
Project Manager

Chain of Custody and Supporting Documentation

| | | | |
|--|-----------------------|-----------------------------|---|
| CH2M Hill Plateau Remediation Company | | C.O.C.# S15-012-301 | |
| 303482 | | Page 1 of 1 | |
| Collector | R.J. Crow/CHPRC | Telephone No. | 509-376-4650 |
| SAF No. | S15-012 | Purchase Order/Charge Code | 300071JDBA |
| Project Title | SURV, DECEMBER 2014 | Ice Chest No. | 605-535 |
| Shipped To (Lab) | GEL Laboratories, LLC | Bill of Lading/Air Bill No. | 772309012003 |
| Protocol | SURV | Offsite Property No. | 5290 |
| 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 | | Hold Time | Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Sample No. | Filter | Date | Time |
| B2Y/LW3 | N | 12-18-14 | 1103 |
| No./Type Container | 1x250-mL G/P | 9056_ANIONS_IC: COMMON | Sample Analysis |
| Holding Time | 28 Days/48 Hours | Preservative | Cool <=6C |

| | | | | | | | |
|-----------------|-----------------|-------|-------------|------|-------------|-----------|------|
| Relinquished By | R.J. Crow/CHPRC | Print | R. Crow | Sign | DEC 18 2014 | Date/Time | 1205 |
| Relinquished By | L.D. Wall/CHPRC | Print | L.D. Wall | Sign | DEC 18 2014 | Date/Time | 1400 |
| Relinquished By | FEDEX | Print | FEDEX | Sign | DEC 18 2014 | Date/Time | 1400 |
| Relinquished By | Shanta Mack | Print | Shanta Mack | Sign | 12/19/14 | Date/Time | 9:45 |
| Relinquished By | CHPRC | Print | CHPRC | Sign | DEC 18 2014 | Date/Time | 1400 |

| | | | | | | | |
|-------------|-----------------|-------|-------------|------|-------------|-----------|------|
| Received By | L.D. Wall/CHPRC | Print | L.D. Wall | Sign | DEC 18 2014 | Date/Time | 1205 |
| Received By | FEDEX | Print | FEDEX | Sign | DEC 18 2014 | Date/Time | 1400 |
| Received By | Shanta Mack | Print | Shanta Mack | Sign | 12/19/14 | Date/Time | 9:45 |
| Received By | CHPRC | Print | CHPRC | Sign | DEC 18 2014 | Date/Time | 1400 |

| | | | | |
|----------|----|----------|----|--------------|
| 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 O 10/23/2014 | | | |

| | | | |
|---|--|---|---------------------|
| CH2MHill Plateau Remediation Company | | C.O.C. # S15-012-325 | |
| 303482 | | Page 1 of 1 | |
| Collector | D. Brothertons chpcc | Contact/Requester | Karen Waters-Husted |
| SAF No. | S15-012 | Telephone No. | 509-376-4650 |
| Project Title | SURV, DECEMBER 2014 | Purchase Order/Charge Code | 300071JDBA |
| Shipped To (Lab) | GEL Laboratories, LLC | Ice Chest No. | 6WS-535 |
| Protocol | SURV | Bill of Lading/Air Bill No. | 7723 09012063 |
| Priority: | 30 Days | Offsite Property No. | 5210 |
| PRIORITY SPECIAL INSTRUCTIONS Hold Time | | Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 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 | | | |
| Sample No. | B2YM39 | No/Type Container | 1x250-mL G/P |
| Filter | N | Time | DEC 18 2014 0716 |
| Sample Analysis | 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: GW 01 | Holding Time | 28 Days/48 Hours |
| Preservative | | Cool | Cool <=6C |

| | | | | | | | |
|-----------------|-------|------|---------------|-------------|-------|------|----------------|
| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
| D Brothertons | chpcc | DW | 12-18-14 1910 | RA SHEPARD | AS | AS | 12-18-14 210 |
| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
| RA SHEPARD | AS | AS | 12-18-14 1400 | FEDER | | | |
| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
| Fed Ex | | | | Shanta meek | | | 12/19/14 12:14 |
| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
| | | | | | | | 9:45 |

| | | | | | |
|----|---|----------|----|---|--------------|
| 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 |
| | | | |

| | | | |
|--|-----------------------|--|---|
| CH2M Hill Plateau Remediation Company | | C.O.C. # S15-012-327 | |
| D.W. Brotherton/CHPRC | | Page 1 of 1 | |
| Collector | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | S15-012 | Purchase Order/Charge Code | 300071JDBA |
| Project Title | SURV, DECEMBER 2014 | Ice Chest No. | 6WS-535 |
| Shipped To (Lab) | GEL Laboratories, LLC | Bill of Lading/Air Bill No. | 97230901 2003 |
| Protocol | SURV | Offsite Property No. | 5390 |
| 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Sample No. | B2YM40 | Filter * | N |
| Date | DEC 18 2014 | Time | 1003 |
| No/Type Container | 1x250-ml G/P | Sample Analysis | 9056_ANIONS_IC: COMMON; 9056_ANIONS_IC: GW 01 |
| Holding Time | 28 Days/48 Hours | Preservative | Cool <=6C |

| | | | | | | | | | |
|-----------------|-----------|-------|------|-------------|-------------|-------|------|-----------|-------------------|
| Relinquished By | DWB | Print | Sign | Received By | RASHEPARD | Print | Sign | Date/Time | DEC 18 2014 12:10 |
| Relinquished By | RASHEPARD | Print | Sign | Received By | FEDER | Print | Sign | Date/Time | DEC 18 2014 12:10 |
| Relinquished By | RASHEPARD | Print | Sign | Received By | Mls macle | Print | Sign | Date/Time | 12/19/14 9:45 |
| Relinquished By | RASHEPARD | Print | Sign | Received By | Shanta mack | Print | Sign | Date/Time | 12/19/14 9:45 |

| | | | | | |
|----|---|----------|----|---|--------------|
| 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 10/23/2014 | | | |

A-6004-842 (REV 2)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: **D Brotherton** check
 Contact/Requester: Karen Waters-Husted
 Telephone No. 509-376-4650
 SAF No. S15-012
 Sampling Origin: Hanford Site
 Purchase Order/Charge Code: 300071JDBA
 Project Title: SURV, DECEMBER 2014
 Logbook No. HNF-N-506 6970
 Ice Chest No. 6WS-535
 Shipped To (Lab): **GEL Laboratories, LLC**
 Method of Shipment: Commercial Carrier
 Bill of Lading/Air Bill No. 7723 09012063
 Protocol: SURV
 Priority: 30 Days
 SPECIAL INSTRUCTIONS: **PRIORITY**
 Offsite Property No. 5290
 Hold Time
 Total Activity Exemption: Yes No

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

| Sample No. | Filter | * Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|------------|--------|---------------|------|-------------------|------------------------------|--------------|---------------|
| B2YM37 | N | W DEC 18 2014 | 0716 | 1x500-mL G/P | KPA_UTOT: COMMON | 6 Months | HNO3 to pH <2 |
| B2YM37 | N | W DEC 18 2014 | 0716 | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON | 6 Months | HNO3 to pH <2 |

February 19, 2015

Rev. 1

| | | | |
|--------------------------------------|----------------------------|---------------------------|------------------------------|
| Relinquished By: D Brotherton | Print: D Brotherton | Sign: D Brotherton | Date/Time: DEC 18 2014 12:10 |
| Received By: RA SHERRO | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 2:10 |
| Relinquished By: 14 | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 14:40 |
| Received By: 14 | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 14:40 |
| Relinquished By: 11 | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 14:40 |
| Received By: 11 | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 14:40 |
| Relinquished By: 10 | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 14:40 |
| Received By: 10 | Print: RA SHERRO | Sign: RA SHERRO | Date/Time: DEC 18 2014 14:40 |

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: **Shanta macle** 12/19/14 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

CH2M Hill Plateau Remediation Company
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 C.O.C. # **S15-012-326**
 Page 1 of 1

Collector: D.W. Brotherton/CHPRC
Contact/Requester: Karen Waters-Husted
Telephone No.: 509-376-4650
SAF No.: S15-012
Purchase Order/Charge Code: 300071JDBA
Project Title: SURV, DECEMBER 2014
Sampling Origin: Hanford Site
Shipped To (Lab): GEL Laboratories, LLC
Logbook No.: HNF-N-506 68/20
Ice Chest No.: 605-535
Method of Shipment: Commercial Carrier
Bill of Lading/Air Bill No.: 772309012003
Offsite Property No.: 5290

Protocol: SURV
Priority: 30 Days
PRIORITY
SPECIAL INSTRUCTIONS:
 Hold Time
 Total Activity Exemption: Yes No

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

| Sample No. | Filter | * Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|------------|--------|-------------|------|-------------------|------------------------------|--------------|---------------|
| B2YM38 | N | DEC 18 2014 | 1003 | 1x500-mL G/P | KPA_UTOT: COMMON | 6 Months | HNO3 to pH <2 |
| B2YM38 | N | DEC 18 2014 | 1002 | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON | 6 Months | HNO3 to pH <2 |

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time | Matrix * |
|-----------------------|-------|-------------|-------------------|-------------|-------------|-------------|-------------------|--|
| D.W. Brotherton/CHPRC | Dw B | [Signature] | DEC 18 2014 12:10 | RA Shepley | [Signature] | [Signature] | DEC 18 2014 12:10 | S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solids, DL = Drum Liquids, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other |
| Relinquished By | | | Date/Time | Received By | | | Date/Time | |
| 15 | | [Signature] | 12/18/14 1400 | FEDER | | | | |
| Relinquished By | | | Date/Time | Received By | | | Date/Time | |
| 6 of 11 | | [Signature] | 12/19/14 9:45 | Shante Mack | | | | |
| Relinquished By | | | Date/Time | Received By | | | Date/Time | |
| 6 of 11 | | [Signature] | 12/19/14 9:45 | Shante Mack | | | | |

| | | | |
|--|-----------------------|--|---------------------|
| CH2MHHI Plateau Remediation Company | | C.O.C. # S15-012-677 | |
| 3063482 | | Page 1 of 1 | |
| Collector | D.J. Weehle/CHPRC | Contact/Requester | Karen Waters-Husted |
| SAF No. | S15-012 | Telephone No. | 509-376-4650 |
| Project Title | SURV, DECEMBER 2014 | Purchase Order/Charge Code | 300071JDBA |
| Shipped To (Lab) | GEL Laboratories, LLC | Ice Chest No. | 6WS-535 |
| Protocol | SURV | Bill of Lading/Air Bill No. | 772309012063 |
| Priority: | 30 Days | Offsite Property No. | 5290 |
| 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> | |

| Sample No. | Filter | * Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|------------|--------|----------|------|-------------------|---|--------------|---------------|
| B2YK49 | N | 12-17-14 | 1346 | 1x500-mL G/P | 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 6 Months | HNO3 to pH <2 |
| B303W2 | Y | 12-17-14 | 1346 | 1x500-mL G/P | 6010_METALS_ICP: GW 04; 6020_METALS_ICPMS: GW 01 | 6 Months | HNO3 to pH <2 |

| | | | | | | | | | |
|-----------------|-------------------|-------|-----------------|-------------|-----------------|------|-------------|-----------|------|
| Relinquished By | D.J. Weehle/CHPRC | Print | SSU-1 | Received By | SSU-1 | Sign | DEC 17 2014 | Date/Time | 1430 |
| Relinquished By | F.M. HARR/CHPRC | Print | F.M. HARR/CHPRC | Received By | F.M. HARR/CHPRC | Sign | DEC 18 2014 | Date/Time | 1530 |
| Relinquished By | F.M. HARR/CHPRC | Print | | Received By | | Sign | DEC 18 2014 | Date/Time | |
| Relinquished By | Fed Ex | Print | | Received By | | Sign | 12/19/14 | Date/Time | 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 |

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By: Shanta made 12/19/14 9:45

FINAL SAMPLE DISPOSITION

PRINTED ON 12/9/2014

A-6004-842 (REV 2)

| | | | | | |
|--|--|---|--|---|------------------------------|
| CH2M Hill Plateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | C.O.C. # S15-012-668 Page 1 of 1 | |
| Collector D.W. Brotherton/CHPRC | Contact/Requester Karen Waters-Husted | Telephone No. 509-376-4650 | Purchase Order/Charge Code 300071JDBA | | |
| SAF No. S15-012 | Sampling Origin Hanford Site | Logbook No. HNF-N-506 64/20 | Ice Chest No. 6WS-535 | Bill of Lading/Air Bill No. 7723 0901 2003 | |
| Project Title SURV, DECEMBER 2014 | Method of Shipment Commercial Carrier | Priority: 30 Days | Offsite Property No. 5290 | Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| 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 | | Preservative | |
| Sample No. B303VO | Filter N | Date DEC 18 2014 1153 | No/Type Container 1x500-mL G/P | Sample Analysis 6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03 | Holding Time 6 Months |

| | | | | | | | | |
|---|--------------------------|-------------------------|----------------------------------|--------------------------------|--------------------------|-------------------------|-----------------------------------|---|
| Requisitioned By D.W. Brotherton/CHPRC | Print [Signature] | Sign [Signature] | Date/Time DEC 18 2014 810 | Received By BA Shorne | Print [Signature] | Sign [Signature] | Date/Time DEC 18 2014 1210 | Matrix * |
| Requisitioned By [Signature] | Print [Signature] | Sign [Signature] | Date/Time 12/18/14 400 | Received By FEDER | Print [Signature] | Sign [Signature] | Date/Time 12/19/14 9:45 | S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air |
| Requisitioned By [Signature] | Print [Signature] | Sign [Signature] | Date/Time [Signature] | Received By [Signature] | Print [Signature] | Sign [Signature] | Date/Time [Signature] | DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other |
| Requisitioned By [Signature] | Print [Signature] | Sign [Signature] | Date/Time [Signature] | Received By [Signature] | Print [Signature] | Sign [Signature] | Date/Time [Signature] | |

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S15-012-298**

Page 1 of 1

Collector **R.J. Crow/CHPRC** Contact/Requester **Karen Waters-Husted** Telephone No. **509-376-4650**

SAF No. **S15-012** Sampling Origin **Hanford Site** Purchase Order/Charge Code **300071JDBA**

Project Title **SURV, DECEMBER 2014** Logbook No. **HNF-N-506 74112** Ice Chest No. **6005-5335**

Shipped To (Lab) **GEL Laboratories, LLC** Method of Shipment **Commercial Carrier** Bill of Lading/Air Bill No. **772309012063**

Protocol **SURV** Priority: **30 Days** Offsite Property No. **5290**

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

| Sample No. | Filter | * | Date | Time | No./Type Container | Sample Analysis | Holding Time | Preservative |
|------------|--------|---|----------|------|--------------------|--|--------------|---------------------------------|
| B2YLW0 | N | W | 12-18-14 | 0700 | 1x250-mL G/P | 2320_ALKALINITY: GW 01 | 14 Days | Cool <=6C |
| B2YLW0 | N | W | / | / | 1x500-mL G/P | 6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03 | 6 Months | HNO3 to pH <2 |
| B2YLW0 | N | W | / | / | 4x40-mL aGs* | 8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01 | 14 Days | HCl or H2SO4 to pH <2/Cool <=6C |
| B2YLW0 | N | W | / | / | 1x2-LP | 9310_ALPHABETA_GPC: COMMON | 6 Months | HNO3 to pH <2 |
| B2YLW0 | N | W | 12-18-14 | 0700 | 1x500-mL G/P | KPA_UTOT: COMMON | 6 Months | HNO3 to pH <2 |

Reinquisitioned By Print **R. Crow** Sign **R. Crow** Date/Time **DEC 18 2014 1205**

Reinquisitioned By Print **L.D. Wall** Sign **L.D. Wall** Date/Time **DEC 18 2014 1400**

Reinquisitioned By Print **Fed Ex** Sign **Shanta Mack** Date/Time **12/19/14 9:45**

Reinquisitioned By Print **CHPRC** Sign **CHPRC** Date/Time **DEC 18 2014 1400**

Received By Print **L.D. Wall** Sign **L.D. Wall** Date/Time **DEC 18 2014 1205**

Received By Print **FEDEX** Sign **FEDEX** Date/Time **DEC 18 2014 1400**

Received By Print **CHPRC** Sign **CHPRC** Date/Time **DEC 18 2014 1400**

Received By Print **CHPRC** Sign **CHPRC** Date/Time **DEC 18 2014 1400**

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 O 10/23/2014 A-6004-842 (REV 2)

CH2M Hill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **S15-012-300**

Page 1 of 1

Collector: **R.J. Crowl/CHPRC** Contact/Requester: **Karen Waters-Husted** Telephone No.: **509-376-4650**

SAF No.: **S15-012** Sampling Origin: **Hanford Site** Purchase Order/Charge Code: **300071JDDBA**

Project Title: **SURV, DECEMBER 2014** Logbook No.: **HNF-N-506 74/12** Ice Chest No.: **6WS-535**

Shipped To (Lab): **GEL Laboratories, LLC** Method of Shipment: **Commercial Carrier** Bill of Lading/Air Bill No.: **7723 09012063**

Protocol: **SURV** Priority: **30 Days** Priority: **PRIORITY** Offsite Property No.: **5290**

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

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|------------|--------|---|----------|------|-------------------|--|--------------|---------------------------------|
| B2YLW1 | N | W | 12-18-14 | 1103 | 1x250-mL G/P | 2320_ALKALINITY: GW 01 | 14 Days | Cool <=6C |
| B2YLW1 | N | W | | | 1x500-mL G/P | 6010_METALS_ICP: COMMON; 6010_METALS_ICP: GW 03 | 6 Months | HNO3 to pH <2 |
| B2YLW1 | N | W | | | 4x40-mL aGs* | 8260_VOA_GCMS: COMMON; 8260_VOA_GCMS: GW 01 | 14 Days | HCl or H2SO4 to pH <2/Cool <=6C |
| B2YLW1 | N | W | | | 1x2-L P | 9310_ALPHABETA_GPC: COMMON | 6 Months | HNO3 to pH <2 |
| B2YLW1 | N | W | 12-18-14 | 1103 | 1x500-mL G/P | KPA_UTOT: COMMON | 6 Months | HNO3 to pH <2 |

Relinquished By: **R.J. Crowl/CHPRC** Print Sign Date/Time: **DEC 18 2014 1205**

Relinquished By: **L.D. Wall** Print Sign Date/Time: **DEC 18 2014 1400**

Relinquished By: **CHPRC** Print Sign Date/Time: **DEC 18 2014 1400**

Relinquished By: **Fed Ex** Print Sign Date/Time: **DEC 18 2014 1400**

Received By: **L.D. Wall** Print Sign Date/Time: **DEC 18 2014 1205**

Received By: **CHPRC** Print Sign Date/Time: **DEC 18 2014 1205**

Received By: **Shanta made** Print Sign Date/Time: **12/19/14 9:45**

Received By: **CHPRC** Print Sign Date/Time: **12/19/14 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) Date/Time

PRINTED O 10/23/2014 A-6004-842 (REV 2)



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

| | | |
|--|---|--|
| Client: <u>CPRC</u> | | SDG/AR/COC/Work Order: <u>363482</u> |
| Received By: <u>SHANTA MACK</u> | | Date Received: <u>12/19/14 @ 9:45</u> |
| Suspected Hazard Information | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. |
| COC/Samples marked as radioactive? | <input type="checkbox"/> | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>6 cpm</u> |
| Classified Radioactive II or III by RSO? | <input checked="" type="checkbox"/> | If yes, Were swipes taken of sample containers < action levels? |
| COC/Samples marked containing PCBs? | <input checked="" type="checkbox"/> | |
| Package, COC, and/or Samples marked as beryllium or asbestos containing? | <input checked="" type="checkbox"/> | If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group. |
| Shipped as a DOT Hazardous? | <input checked="" type="checkbox"/> | Hazard Class Shipped: UN#: |
| Samples identified as Foreign Soil? | <input checked="" type="checkbox"/> | |

| Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|-------------------------------------|----|-------------------------------------|--|
| 1 Shipping containers received intact and sealed? | <input checked="" type="checkbox"/> | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | <input checked="" type="checkbox"/> | | | Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) <u>2C</u> *all temperatures are recorded in Celsius |
| 2a Daily check performed and passed on IR temperature gun? | <input checked="" type="checkbox"/> | | | Temperature Device Serial #: <u>130462962</u> Secondary Temperature Device Serial # (If Applicable): |
| 3 Chain of custody documents included with shipment? | <input checked="" type="checkbox"/> | | | |
| 4 Sample containers intact and sealed? | <input checked="" type="checkbox"/> | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 5 Samples requiring chemical preservation at proper pH? | <input checked="" type="checkbox"/> | | | Sample ID's, containers affected and observed pH: If Preservation added, Lot#: |
| 6 VOA vials free of headspace (defined as < 6mm bubble)? | <input checked="" type="checkbox"/> | | | Sample ID's and containers affected: |
| 7 Are Encore containers present? | | | <input checked="" type="checkbox"/> | (If yes, immediately deliver to Volatiles laboratory) |
| 8 Samples received within holding time? | <input checked="" type="checkbox"/> | | | ID's and tests affected: |
| 9 Sample ID's on COC match ID's on bottles? | <input checked="" type="checkbox"/> | | | Sample ID's and containers affected: |
| 10 Date & time on COC match date & time on bottles? | <input checked="" type="checkbox"/> | | | Sample ID's affected: |
| 11 Number of containers received match number indicated on COC? | <input checked="" type="checkbox"/> | | | Sample ID's affected: |
| 12 Are sample containers identifiable as GEL provided? | | | <input checked="" type="checkbox"/> | |
| 13 COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> | | | |
| 14 Carrier and tracking number. | | | | Circle Applicable: <u>FedEx Air</u> FedEx Ground UPS Field Services Courier Other <u>77230901 2063</u> |

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HS Date 12/19/14 Page ___ of ___

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: CPRC

| Code | Status | Qualifier Definition | CofA | Department | Fraction | Additional Comments |
|------|------------|---|------|-------------------|---------------|--|
| U | Programmed | Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error. | Y | | | Includes MDA, TPU, count uncert. |
| J | Programmed | 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 | Y | Organics | | Organics only |
| P | Programmed | Aroclor target analyte with greater than 25% difference between column analyses. | Y | Organics | | PCB only |
| C | Manual | Analyte has been confirmed by GC/MS analysis | Y | Organics | Pesticide | IF GC/MS confirmation was attempted but unsuccessful do not qualify with C |
| B | Programmed | The analyte was detected in both the associated QC blank and in the sample. | Y | Organics | | |
| E | Manual | Concentration exceeds the calibration range of the instrument | Y | Organics | | Qualifier Uploaded |
| A | Manual | The TIC is a suspected aldol-condensation product | Y | Organics | Semi-Volatile | Uploaded with TIC |
| X | Programmed | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier | Y | | | Replaces H Hold Date In RAD replaces UI. Same usage as standard X as well. |
| N | Programmed | Spike Sample recovery is outside control limits. | Y | | | |
| * | Programmed | Duplicate analysis not within control limits | Y | Inorganics | | |
| > | Programmed | Result greater than quantifiable range or greater than upper limit of the analysis range | Y | General Chemistry | | |
| Z | Manual | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier | Y | | | |
| B | Programmed | 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). | Y | Inorganics | Metals | Replaces J Estimated Value |
| D | Programmed | Results are reported from a diluted aliquot of sample. | Y | | | Dilution |
| E | Programmed | Reported value is estimated due to interferences. See comment in narrative. | Y | Inorganics | Metals | GEL E |
| M | Manual | Duplicate precision not met. | Y | Inorganics | Metals | Replaces * |
| o | Programmed | Analyte failed to recover within LCS limits (Organics only) | Y | Organics | | |
| S | Manual | Reported value determined by the Method of Standard Additions (MSA) | Y | Inorganics | | Not coded B/C Rarely performed |
| T | Programmed | Spike and/or spike duplicate sample recovery is outside control limits. | Y | Organics | | GC/MS only |
| W | Manual | Post-digestion spike recovery for GFAA out of control limit. Sample absorbency < 50% of spike absorbency. | Y | Inorganics | | No GFAA in house. |
| B | Programmed | The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample | Y | Radiological | | |
| Y | Manual | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier | Y | | | |
| + | Manual | Correlation coefficient for Method of Standard Additions (MSA) is < 0.995 | Y | Inorganics | | |
| B | Programmed | 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). | Y | General Chemistry | | Replaces J Estimated Value |
| C | Programmed | Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples. | Y | Inorganics | Metals | Replaces B Blank Detection |
| C | Programmed | Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is > 5% of the measured concentration and/or decision level for associated samples. | Y | General Chemistry | | Replaces B Blank Detection |
| < | Programmed | Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide | Y | General Chemistry | | for Reactive CN/S |

Laboratory Certifications

List of current GEL Certifications as of 16 February 2015

| State | Certification |
|---------------------------|------------------------------|
| Alaska | UST-110 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 Interim |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| Delaware | SC000122013-10 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-12-00283, P330-12-00284 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC000122013-10 |
| 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 | LA150001 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Michigan | 9976 |
| Mississippi | SC000122013-10 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122014-1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68-00485 |
| Plant Material Permit | PDEP-12-00260 |
| South Carolina Chemistry | 10120001 |
| South Carolina GVL | 23611001 |
| South Carolina Radiochemi | 10120002 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-15-10 |
| Utah NELAP | SC000122014-16 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780-12 |

Volatile Analysis

Case Narrative

Method/Analysis Information

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

Analytical Method: SW846 8260C

Analytical Batch Number: 1445277

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|------------------|--|
| 363482010 | B2YLW0 |
| 363482011 | B2YLW1 |
| 1203232867 | Method Blank (MB) |
| 1203232868 | Laboratory Control Sample (LCS) |
| 1203232869 | Laboratory Control Sample (LCS) |
| 1203232870 | 363428001(B2Y452) Post Spike (PS) |
| 1203232871 | 363428001(B2Y452) Post Spike (PS) |
| 1203232872 | 363428001(B2Y452) Post Spike Duplicate (PSD) |
| 1203232873 | 363428001(B2Y452) Post Spike Duplicate (PSD) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 21.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an industry shortage.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements

The calibration verification standard requirements were not all met. There were no positive results for any of the analytes that were outside the calibration criteria. The results are reported.

Quality Control (QC) Information**Blank (MB) Statement**

The blank analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries

Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 363428001 (B2Y452) was designated for spike analysis.

Matrix Spike (PS) Recovery Statement

The spike 1203232870 (B2Y452PS) recoveries were not all within the acceptance limits.

Matrix Spike Duplicate (PSD) Recovery Statement

The spike duplicate 1203232872 (B2Y452PSD) recoveries were not all within the acceptance limits.

Relative Percent Difference (RPD) Statement

The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information**Holding Time Specifications**

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Re-analyses were not required for samples in this SDG.

Miscellaneous Information**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1372054.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) were not required for this SDG.

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|----------------------|---|-----------------------------|------------------|---------------------------------|-----------------------|
| VOA2.I | Agilent 7890/5975 GC/MS w/ OI Eclipse/Archon Autosampler | HP7890N/HP5975C | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all 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: GEL363482 GEL Work Order: 363482

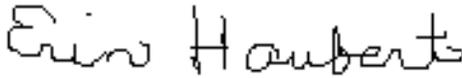
The Qualifiers in this report are defined as follows:

- T Spike and/or spike duplicate sample recovery is outside control limits.
- U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

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

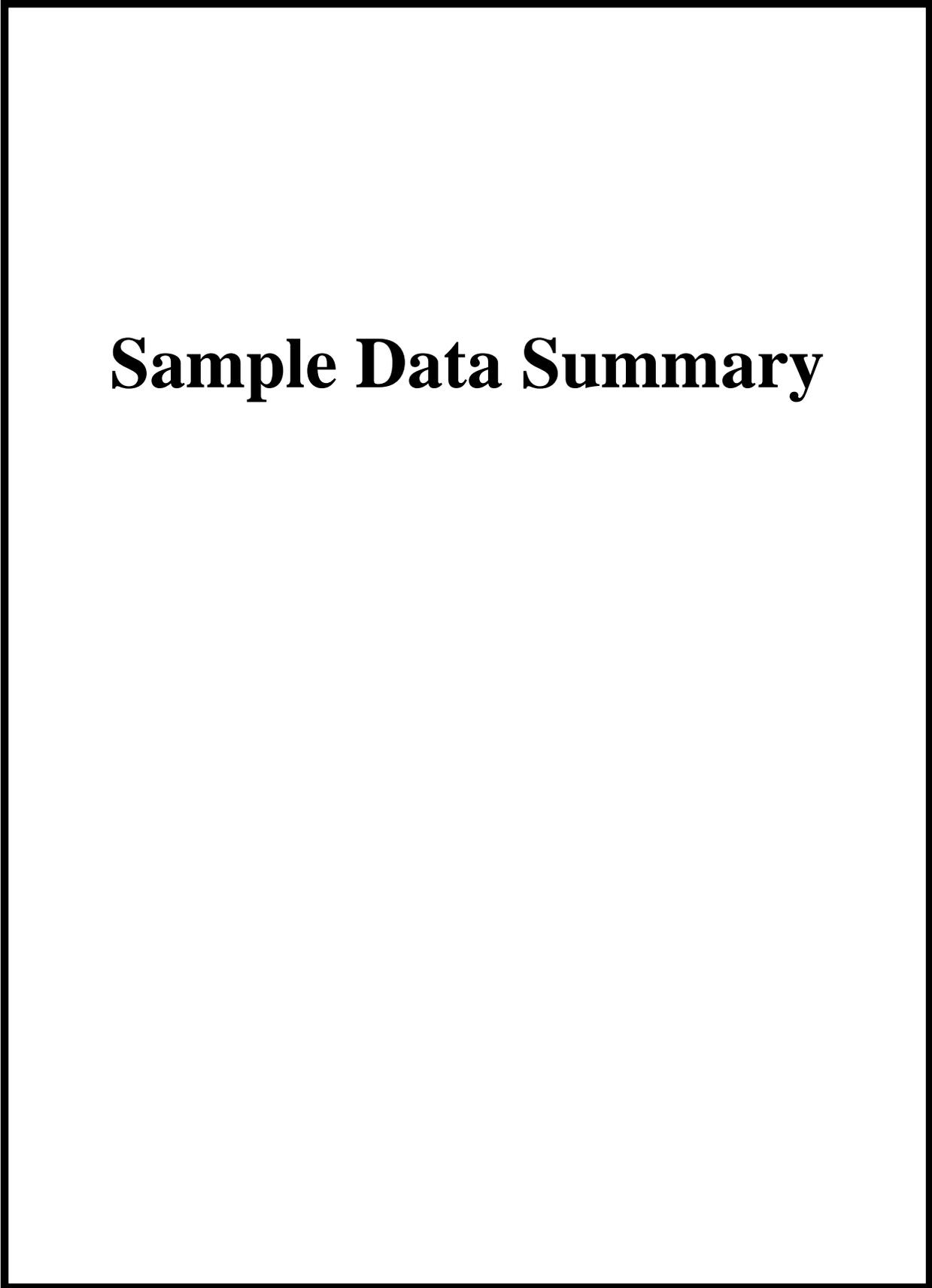
The following data validator verified the information presented in this data report:

Signature: 

Name: Erin Haubert

Date: 12 JAN 2015

Title: Data Validator



Sample Data Summary

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 12, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW0 | Project: | CPRC0S15012 |
| Sample ID: | 363482010 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 07:00 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-------|------|-------|----|---------|----------|------|---------|--------|
| Volatile Organics | | | | | | | | | | | |
| <i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i> | | | | | | | | | | | |
| 1,1,1-Trichloroethane 71-55-6 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | ACJ | 12/20/14 | 1906 | 1445277 | 1 |
| 1,1,2-Trichloroethane 79-00-5 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane 75-34-3 | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene 75-35-4 | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane 107-06-2 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene 106-46-7 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 2-Butanone 78-93-3 | U | 0.00 | 3.00 | 10.0 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone 108-10-1 | U | 0.00 | 3.00 | 10.0 | ug/L | 1 | | | | | |
| Acetone 67-64-1 | TU | 0.00 | 3.00 | 20.0 | ug/L | 1 | | | | | |
| Benzene 71-43-2 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Carbon disulfide 75-15-0 | U | 0.00 | 1.60 | 10.0 | ug/L | 1 | | | | | |
| Carbon tetrachloride 56-23-5 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Chlorobenzene 108-90-7 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Chloroform 67-66-3 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Ethylbenzene 100-41-4 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Methylene chloride 75-09-2 | | 5.63 | 1.60 | 5.00 | ug/L | 1 | | | | | |
| Propionitrile 107-12-0 | U | 0.00 | 3.00 | 10.0 | ug/L | 1 | | | | | |
| Tetrachloroethylene 127-18-4 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 12, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YLW0 | Project: | CPRC0S15012 |
| Sample ID: | 363482010 | Client ID: | CPRC001 |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-------|------|-------|----|---------|------|------|-------|--------|
| Volatile Organics | | | | | | | | | | | |
| <i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i> | | | | | | | | | | | |
| Tetrahydrofuran | U | 0.00 | 1.50 | 50.0 | ug/L | 1 | | | | | |
| 109-99-9 | | | | | | | | | | | |
| Toluene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 108-88-3 | | | | | | | | | | | |
| Trichloroethylene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 79-01-6 | | | | | | | | | | | |
| Vinyl chloride | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 75-01-4 | | | | | | | | | | | |
| Xylenes (total) | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 1330-20-7 | | | | | | | | | | | |
| cis-1,2-Dichloroethylene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 156-59-2 | | | | | | | | | | | |
| n-Butyl alcohol | U | 0.00 | 83.3 | 250 | ug/L | 1 | | | | | |
| 71-36-3 | | | | | | | | | | | |
| trans-1,2-Dichloroethylene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 156-60-5 | | | | | | | | | | | |

The following Analytical Methods were performed

| Method | Description | Analyst | Comments |
|--------|-------------|---------|----------|
| 1 | SW846 8260C | | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|-----------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 8260VOA_GCMS: COMMON + GW 01 "As Received" | 49.4 ug/L | 50.0 | 98.7 | (77%-123%) |
| Bromofluorobenzene | 8260VOA_GCMS: COMMON + GW 01 "As Received" | 52.0 ug/L | 50.0 | 104 | (80%-120%) |
| Toluene-d8 | 8260VOA_GCMS: COMMON + GW 01 "As Received" | 50.9 ug/L | 50.0 | 102 | (80%-120%) |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 12, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW1 | Project: | CPRC0S15012 |
| Sample ID: | 363482011 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 11:03 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-------|------|-------|----|---------|----------|------|---------|--------|
| Volatile Organics | | | | | | | | | | | |
| <i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i> | | | | | | | | | | | |
| 1,1,1-Trichloroethane 71-55-6 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | ACJ | 12/20/14 | 1936 | 1445277 | 1 |
| 1,1,2-Trichloroethane 79-00-5 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane 75-34-3 | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene 75-35-4 | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane 107-06-2 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene 106-46-7 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 2-Butanone 78-93-3 | U | 0.00 | 3.00 | 10.0 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone 108-10-1 | U | 0.00 | 3.00 | 10.0 | ug/L | 1 | | | | | |
| Acetone 67-64-1 | TU | 0.00 | 3.00 | 20.0 | ug/L | 1 | | | | | |
| Benzene 71-43-2 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Carbon disulfide 75-15-0 | U | 0.00 | 1.60 | 10.0 | ug/L | 1 | | | | | |
| Carbon tetrachloride 56-23-5 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Chlorobenzene 108-90-7 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Chloroform 67-66-3 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Ethylbenzene 100-41-4 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| Methylene chloride 75-09-2 | U | 1.34 | 1.60 | 5.00 | ug/L | 1 | | | | | |
| Propionitrile 107-12-0 | U | 0.00 | 3.00 | 10.0 | ug/L | 1 | | | | | |
| Tetrachloroethylene 127-18-4 | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 12, 2015

Client Sample ID: B2YLW1 Project: CPRC0S15012
 Sample ID: 363482011 Client ID: CPRC001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-------|------|-------|----|---------|------|------|-------|--------|
| Volatile Organics | | | | | | | | | | | |
| <i>8260VOA_GCMS: COMMON + GW 01 "As Received"</i> | | | | | | | | | | | |
| Tetrahydrofuran | U | 0.00 | 1.50 | 50.0 | ug/L | 1 | | | | | |
| 109-99-9 | | | | | | | | | | | |
| Toluene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 108-88-3 | | | | | | | | | | | |
| Trichloroethylene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 79-01-6 | | | | | | | | | | | |
| Vinyl chloride | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 75-01-4 | | | | | | | | | | | |
| Xylenes (total) | U | 0.00 | 0.300 | 10.0 | ug/L | 1 | | | | | |
| 1330-20-7 | | | | | | | | | | | |
| cis-1,2-Dichloroethylene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 156-59-2 | | | | | | | | | | | |
| n-Butyl alcohol | U | 0.00 | 83.3 | 250 | ug/L | 1 | | | | | |
| 71-36-3 | | | | | | | | | | | |
| trans-1,2-Dichloroethylene | U | 0.00 | 0.300 | 5.00 | ug/L | 1 | | | | | |
| 156-60-5 | | | | | | | | | | | |

The following Analytical Methods were performed

| Method | Description | Analyst | Comments |
|--------|-------------|---------|----------|
| 1 | SW846 8260C | | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--|-----------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 8260VOA_GCMS: COMMON + GW 01 "As Received" | 49.7 ug/L | 50.0 | 99.3 | (77%-123%) |
| Bromofluorobenzene | 8260VOA_GCMS: COMMON + GW 01 "As Received" | 51.6 ug/L | 50.0 | 103 | (80%-120%) |
| Toluene-d8 | 8260VOA_GCMS: COMMON + GW 01 "As Received" | 51.3 ug/L | 50.0 | 103 | (80%-120%) |

Quality Control Summary

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Report Date: January 12, 2015

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CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 363482

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|-----------------------|------------|---------------|-------------|-----------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|
| Volatile-GC/MS | | | | | | | | | | | |
| Batch | 1445277 | | | | | | | | | | |
| QC1203232868 | LCS | | | | | | | | | | |
| 1,1,1-Trichloroethane | 50.0 | | | 40.0 | ug/L | | 79.9 | (70%-130%) | ACJ | 12/20/14 | 12:34 |
| 1,1,2-Trichloroethane | 50.0 | | | 40.8 | ug/L | | 81.6 | (70%-130%) | | | |
| 1,1-Dichloroethane | 50.0 | | | 39.9 | ug/L | | 79.7 | (70%-130%) | | | |
| 1,1-Dichloroethylene | 50.0 | | | 37.8 | ug/L | | 75.6 | (70%-130%) | | | |
| 1,2-Dichloroethane | 50.0 | | | 39.1 | ug/L | | 78.2 | (70%-130%) | | | |
| 1,4-Dichlorobenzene | 50.0 | | | 39.9 | ug/L | | 79.8 | (70%-130%) | | | |
| 2-Butanone | 250 | | | 259 | ug/L | | 104 | (70%-130%) | | | |
| 4-Methyl-2-pentanone | 250 | | | 203 | ug/L | | 81.2 | (70%-130%) | | | |
| Acetone | 250 | | | 252 | ug/L | | 101 | (70%-130%) | | | |
| Benzene | 50.0 | | | 40.0 | ug/L | | 79.9 | (70%-130%) | | | |
| Carbon disulfide | 250 | | | 196 | ug/L | | 78.4 | (70%-130%) | | | |
| Carbon tetrachloride | 50.0 | | | 40.8 | ug/L | | 81.7 | (70%-130%) | | | |
| Chlorobenzene | 50.0 | | | 40.3 | ug/L | | 80.6 | (70%-130%) | | | |
| Chloroform | 50.0 | | | 39.6 | ug/L | | 79.1 | (70%-130%) | | | |
| Ethylbenzene | 50.0 | | | 41.1 | ug/L | | 82.1 | (70%-130%) | | | |
| Methylene chloride | 50.0 | | | 39.9 | ug/L | | 79.7 | (70%-130%) | | | |
| Tetrachloroethylene | 50.0 | | | 39.5 | ug/L | | 79 | (70%-130%) | | | |
| Toluene | 50.0 | | | 40.3 | ug/L | | 80.7 | (70%-130%) | | | |
| Trichloroethylene | 50.0 | | | 40.8 | ug/L | | 81.6 | (70%-130%) | | | |
| Vinyl chloride | 50.0 | | | 44.4 | ug/L | | 88.8 | (70%-130%) | | | |

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|------|-------|-------|------|------|------------|-------|----------|-------|
| Volatile-GC/MS | | | | | | | | | | | |
| Batch | 1445277 | | | | | | | | | | |
| Xylenes (total) | 150 | | | 122 | ug/L | | 81.2 | (70%-130%) | ACJ | 12/20/14 | 12:34 |
| cis-1,2-Dichloroethylene | 50.0 | | | 39.8 | ug/L | | 79.6 | (70%-130%) | | | |
| n-Butyl alcohol | 5000 | | | 4430 | ug/L | | 88.7 | (70%-130%) | | | |
| trans-1,2-Dichloroethylene | 50.0 | | | 39.4 | ug/L | | 78.8 | (70%-130%) | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | | 51.3 | ug/L | | 103 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | | 50.5 | ug/L | | 101 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | | 50.7 | ug/L | | 101 | (80%-120%) | | | |
| QC1203232869 | LCS | | | | | | | | | | |
| Propionitrile | 250 | | | 267 | ug/L | | 107 | (70%-130%) | | 12/20/14 | 13:35 |
| Tetrahydrofuran | 250 | | | 268 | ug/L | | 107 | (70%-130%) | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | | 52.3 | ug/L | | 105 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | | 51.8 | ug/L | | 104 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | | 50.1 | ug/L | | 100 | (80%-120%) | | | |
| QC1203232867 | MB | | | | | | | | | | |
| 1,1,1-Trichloroethane | | | U | 0.300 | ug/L | | | | | 12/20/14 | 14:35 |
| 1,1,2-Trichloroethane | | | U | 0.300 | ug/L | | | | | | |
| 1,1-Dichloroethane | | | U | 0.300 | ug/L | | | | | | |
| 1,1-Dichloroethylene | | | U | 0.300 | ug/L | | | | | | |
| 1,2-Dichloroethane | | | U | 0.300 | ug/L | | | | | | |
| 1,4-Dichlorobenzene | | | U | 0.300 | ug/L | | | | | | |
| 2-Butanone | | | U | 3.00 | ug/L | | | | | | |
| 4-Methyl-2-pentanone | | | U | 3.00 | ug/L | | | | | | |
| Acetone | | | U | 3.00 | ug/L | | | | | | |

QC Summary

Workorder: 363482

Page 3 of 7

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|------|-------|-------|------|------|------------|-------|----------|-------|
| Volatile-GC/MS | | | | | | | | | | | |
| Batch | 1445277 | | | | | | | | | | |
| Benzene | | | U | 0.300 | ug/L | | | | ACJ | 12/20/14 | 14:35 |
| Carbon disulfide | | | U | 1.60 | ug/L | | | | | | |
| Carbon tetrachloride | | | U | 0.300 | ug/L | | | | | | |
| Chlorobenzene | | | U | 0.300 | ug/L | | | | | | |
| Chloroform | | | U | 0.300 | ug/L | | | | | | |
| Ethylbenzene | | | U | 0.300 | ug/L | | | | | | |
| Methylene chloride | | | U | 1.60 | ug/L | | | | | | |
| Propionitrile | | | U | 3.00 | ug/L | | | | | | |
| Tetrachloroethylene | | | U | 0.300 | ug/L | | | | | | |
| Tetrahydrofuran | | | U | 1.50 | ug/L | | | | | | |
| Toluene | | | U | 0.300 | ug/L | | | | | | |
| Trichloroethylene | | | U | 0.300 | 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 | | | | | | |
| n-Butyl alcohol | | | U | 83.3 | ug/L | | | | | | |
| trans-1,2-Dichloroethylene | | | U | 0.300 | ug/L | | | | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | | 51.9 | ug/L | | 104 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | | 51.5 | ug/L | | 103 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | | 48.7 | ug/L | | 97.5 | (80%-120%) | | | |
| QC1203232870 363428001 PS | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 50.0 | U | 0.00 | 41.7 | ug/L | | 83.3 | (70%-130%) | | 12/20/14 | 20:06 |

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|--------------------------|---------|--------|------|----|-------|------|-------|------------|-------|----------|-------|
| Volatile-GC/MS | | | | | | | | | | | |
| Batch | 1445277 | | | | | | | | | | |
| 1,1,2-Trichloroethane | 50.0 | U | 0.00 | | 41.7 | ug/L | 83.3 | (70%-130%) | ACJ | 12/20/14 | 20:06 |
| 1,1-Dichloroethane | 50.0 | U | 0.00 | | 44.1 | ug/L | 88.2 | (70%-130%) | | | |
| 1,1-Dichloroethylene | 50.0 | U | 0.00 | | 41.1 | ug/L | 82.2 | (70%-130%) | | | |
| 1,2-Dichloroethane | 50.0 | U | 0.00 | | 40.5 | ug/L | 81 | (70%-130%) | | | |
| 1,4-Dichlorobenzene | 50.0 | U | 0.00 | | 39.6 | ug/L | 79.2 | (70%-130%) | | | |
| 2-Butanone | 250 | U | 0.00 | | 198 | ug/L | 79.2 | (70%-130%) | | | |
| 4-Methyl-2-pentanone | 250 | U | 0.00 | | 217 | ug/L | 87 | (70%-130%) | | | |
| Acetone | 250 | TU | 0.00 | T | 132 | ug/L | 52.8* | (70%-130%) | | | |
| Benzene | 50.0 | U | 0.00 | | 43.5 | ug/L | 87.1 | (70%-130%) | | | |
| Carbon disulfide | 250 | U | 0.00 | | 223 | ug/L | 89.3 | (70%-130%) | | | |
| Carbon tetrachloride | 50.0 | U | 0.00 | | 43.1 | ug/L | 86.3 | (70%-130%) | | | |
| Chlorobenzene | 50.0 | U | 0.00 | | 41.4 | ug/L | 82.7 | (70%-130%) | | | |
| Chloroform | 50.0 | U | 0.00 | | 42.9 | ug/L | 85.8 | (70%-130%) | | | |
| Ethylbenzene | 50.0 | U | 0.00 | | 43.1 | ug/L | 86.2 | (70%-130%) | | | |
| Methylene chloride | 50.0 | J | 1.90 | | 43.7 | ug/L | 83.6 | (70%-130%) | | | |
| Tetrachloroethylene | 50.0 | U | 0.00 | | 39.7 | ug/L | 79.3 | (70%-130%) | | | |
| Toluene | 50.0 | U | 0.00 | | 42.2 | ug/L | 84.5 | (70%-130%) | | | |
| Trichloroethylene | 50.0 | U | 0.00 | | 42.3 | ug/L | 84.7 | (70%-130%) | | | |
| Vinyl chloride | 50.0 | U | 0.00 | | 49.8 | ug/L | 99.6 | (70%-130%) | | | |
| Xylenes (total) | 150 | U | 0.00 | | 128 | ug/L | 85.4 | (70%-130%) | | | |
| cis-1,2-Dichloroethylene | 50.0 | U | 0.00 | | 44.4 | ug/L | 88.7 | (70%-130%) | | | |

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|------|------|-------|-------|------|------------|----------|----------|-------|
| Volatile-GC/MS | | | | | | | | | | | |
| Batch | 1445277 | | | | | | | | | | |
| n-Butyl alcohol | 5000 | U | 0.00 | 5000 | ug/L | | 99.9 | (70%-130%) | | | |
| trans-1,2-Dichloroethylene | 50.0 | U | 0.00 | 44.1 | ug/L | | 88.2 | (70%-130%) | ACJ | 12/20/14 | 20:06 |
| **1,2-Dichloroethane-d4 | 50.0 | | 49.7 | 49.6 | ug/L | | 99.2 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | 53.0 | 49.1 | ug/L | | 98.2 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | 50.2 | 49.8 | ug/L | | 99.6 | (80%-120%) | | | |
| QC1203232871 363428001 PS | | | | | | | | | | | |
| Propionitrile | 250 | U | 0.00 | 253 | ug/L | | 101 | (70%-130%) | | 12/20/14 | 21:06 |
| Tetrahydrofuran | 250 | U | 0.00 | 248 | ug/L | | 99.1 | (70%-130%) | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | 49.7 | 50.1 | ug/L | | 100 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | 53.0 | 52.3 | ug/L | | 105 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | 50.2 | 49.4 | ug/L | | 98.9 | (80%-120%) | | | |
| QC1203232872 363428001 PSD | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 50.0 | U | 0.00 | 39.7 | ug/L | 4.77 | 79.4 | (0%-20%) | | 12/20/14 | 20:36 |
| 1,1,2-Trichloroethane | 50.0 | U | 0.00 | 41.8 | ug/L | 0.240 | 83.5 | (0%-20%) | | | |
| 1,1-Dichloroethane | 50.0 | U | 0.00 | 40.6 | ug/L | 8.33 | 81.2 | (0%-20%) | | | |
| 1,1-Dichloroethylene | 50.0 | U | 0.00 | 38.7 | ug/L | 6.01 | 77.4 | (0%-20%) | | | |
| 1,2-Dichloroethane | 50.0 | U | 0.00 | 39.3 | ug/L | 3.16 | 78.5 | (0%-20%) | | | |
| 1,4-Dichlorobenzene | 50.0 | U | 0.00 | 39.3 | ug/L | 0.887 | 78.5 | (0%-20%) | | | |
| 2-Butanone | 250 | U | 0.00 | 188 | ug/L | 5.19 | 75.1 | (0%-20%) | | | |
| 4-Methyl-2-pentanone | 250 | U | 0.00 | 211 | ug/L | 2.92 | 84.5 | (0%-20%) | | | |
| Acetone | 250 | TU | 0.00 | T | 126 | ug/L | 4.47 | 50.5* | (0%-20%) | | |
| Benzene | 50.0 | U | 0.00 | 41.2 | ug/L | 5.45 | 82.5 | (0%-20%) | | | |
| Carbon disulfide | 250 | U | 0.00 | 204 | ug/L | 8.98 | 81.7 | (0%-20%) | | | |
| Carbon tetrachloride | 50.0 | U | 0.00 | 40.5 | ug/L | 6.24 | 81.1 | (0%-20%) | | | |

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|------|------|-------|------|------|------------|-------|----------|-------|
| Volatile-GC/MS | | | | | | | | | | | |
| Batch | 1445277 | | | | | | | | | | |
| Chlorobenzene | 50.0 | U | 0.00 | 40.6 | ug/L | 1.88 | 81.2 | (0%-20%) | ACJ | 12/20/14 | 20:36 |
| Chloroform | 50.0 | U | 0.00 | 40.4 | ug/L | 6.10 | 80.7 | (0%-20%) | | | |
| Ethylbenzene | 50.0 | U | 0.00 | 41.5 | ug/L | 3.78 | 83 | (0%-20%) | | | |
| Methylene chloride | 50.0 | J | 1.90 | 41.4 | ug/L | 5.50 | 78.9 | (0%-20%) | | | |
| Tetrachloroethylene | 50.0 | U | 0.00 | 39.3 | ug/L | 1.01 | 78.5 | (0%-20%) | | | |
| Toluene | 50.0 | U | 0.00 | 41.1 | ug/L | 2.74 | 82.2 | (0%-20%) | | | |
| Trichloroethylene | 50.0 | U | 0.00 | 41.3 | ug/L | 2.61 | 82.5 | (0%-20%) | | | |
| Vinyl chloride | 50.0 | U | 0.00 | 48.9 | ug/L | 1.74 | 97.9 | (0%-20%) | | | |
| Xylenes (total) | 150 | U | 0.00 | 123 | ug/L | 3.95 | 82.1 | (0%-20%) | | | |
| cis-1,2-Dichloroethylene | 50.0 | U | 0.00 | 41.7 | ug/L | 6.18 | 83.4 | (0%-20%) | | | |
| n-Butyl alcohol | 5000 | U | 0.00 | 4940 | ug/L | 1.05 | 98.9 | (0%-20%) | | | |
| trans-1,2-Dichloroethylene | 50.0 | U | 0.00 | 40.1 | ug/L | 9.65 | 80.1 | (0%-20%) | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | 49.7 | 49.1 | ug/L | | 98.2 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | 53.0 | 51.0 | ug/L | | 102 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | 50.2 | 50.1 | ug/L | | 100 | (80%-120%) | | | |
| QC1203232873 363428001 PSD | | | | | | | | | | | |
| Propionitrile | 250 | U | 0.00 | 283 | ug/L | 11.5 | 113 | (0%-20%) | | 12/20/14 | 21:36 |
| Tetrahydrofuran | 250 | U | 0.00 | 279 | ug/L | 11.9 | 112 | (0%-20%) | | | |
| **1,2-Dichloroethane-d4 | 50.0 | | 49.7 | 50.0 | ug/L | | 99.9 | (77%-123%) | | | |
| **Bromofluorobenzene | 50.0 | | 53.0 | 52.2 | ug/L | | 104 | (80%-120%) | | | |
| **Toluene-d8 | 50.0 | | 50.2 | 49.8 | ug/L | | 99.6 | (80%-120%) | | | |

Notes:

QC Summary

Workorder: 363482

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| 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 (Organics 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.

Miscellaneous

DATA EXCEPTION REPORT

| | | | |
|--------------------------------------|--------------------------------------|--|-----------------------------|
| Mo.Day Yr. 12-JAN-15 | Division: Industrial | Quality Criteria: Specifications | Type: Process |
| Instrument Type: VOA GC/MS | Test / Method: SW846 8260C | Matrix Type: Liquid | Client Code: CPRC |
| Batch ID: 1445277 | Sample Numbers: See Below | | |

Potentially affected work order(s)(SDG): 363428(GEL363428),363442(GEL363442),363479(GEL363479),363482(GEL363482)

Application Issues:

Failed Recovery for MS/PS
Failed CCV or CCB
Failed Recovery for MSD/PSD

| | |
|--|--|
| Specification and Requirements Exception Description: | DER Disposition: |
| <p>1. QC samples 1203232870MS and 1203232872MSD were below the spike recovery acceptance limits for Acetone.</p> <p>2. The CCV was above the 8260C acceptance limits of +/-20% for the following analytes: Acetone +20.71% 2-Butanone +30.07% 2-Hexanone +27.41%</p> | <p>1. Narrate and report data. The MS/MSD recovered in a similar manner and passed %RPD.</p> <p>2. Narrate and report data. These analytes are biased high and were not detected in the samples.</p> |

Originator's Name:
Amy Jamison 12-JAN-15

Data Validator/Group Leader:
Erin Haubert 12-JAN-15

Metals Analysis

Case Narrative

Metals Fractional Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363482

| Sample ID | Client ID |
|------------------|--|
| 363482007 | B2YK49 |
| 363482008 | B303W2 |
| 363482009 | B303V0 |
| 363482010 | B2YLW0 |
| 363482011 | B2YLW1 |
| 1203232475 | Method Blank (MB)ICP |
| 1203232476 | Laboratory Control Sample (LCS) |
| 1203232479 | 363482007(B2YK49L) Serial Dilution (SD) |
| 1203232477 | 363482007(B2YK49S) Matrix Spike (MS) |
| 1203232478 | 363482007(B2YK49SD) Matrix Spike Duplicate (MSD) |
| 1203232464 | Method Blank (MB)ICP-MS |
| 1203232465 | Laboratory Control Sample (LCS) |
| 1203232468 | 363482007(B2YK49L) Serial Dilution (SD) |
| 1203232466 | 363482007(B2YK49S) Matrix Spike (MS) |
| 1203232467 | 363482007(B2YK49SD) Matrix Spike Duplicate (MSD) |

Sample Analysis

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

Method/Analysis Information

| | |
|---------------------------------------|--|
| Analytical Batch: | 1445104 and 1445100 |
| Prep Batch : | 1445103 and 1445099 |
| Standard Operating Procedures: | GL-MA-E-013 REV# 23, GL-MA-E-006 REV# 11 and GL-MA-E-014 REV# 25 |
| Analytical Method: | SW846 3005A/6010C and SW846 3005A/6020A |
| Prep Method : | SW846 3005A |

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

System Configuration

The Metals analysis-ICP was performed on a PE 7300 Optima radial/axial-viewing inductively coupled plasma atomic emission spectrometer. The instrument is equipped with an ESI SC-FAST introduction, cyclonic spray chamber, and yttrium or scandium internal standard.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN 9000 inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer,

and dual mode electron multiplier detector. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

The Metals analysis - ICPMS was performed on a Perkin Elmer ELAN DRC-e inductively coupled plasma mass spectrometer (ICP-MS). The instrument is equipped with a cross-flow nebulizer, quadrupole mass spectrometer, and dual mode electron multiplier detector, and dynamic reaction cell. The DRC-e uses a dynamic reaction cell to eliminate polyatomic interferences. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 300X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

The Metals analysis - ICPMS was performed on a PerkinElmer NexION 350X ICPMS. The instrument is equipped with a ESI PFA-ST nebulizer, quadrupole mass spectrometer, dual mode electron multiplier detector, and Kinetic Energy Discrimination (KED) technology. Internal standards of scandium, germanium, indium, tantalum, and/or lutetium were utilized to cover the mass spectrum.

Calibration Information

Instrument Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

CRDL/PQL Requirements

The PQL standard recoveries for SW846 6010C met the control limits with the exception of potassium. Client sample concentrations were less than the MDL or greater than two times the PQL; therefore the data were not adversely affected. ICP.

ICSA/ICSAB Statement

All interference check samples (ICSA and ICSAB) associated with this SDG met the established acceptance criteria.

Continuing Calibration Blanks (CCB) Requirements

All continuing calibration blanks (CCB) bracketing this batch met the established acceptance criteria.

Continuing Calibration Verification (CCV) Requirements

All continuing calibration verifications (CCV) bracketing this SDG met the acceptance criteria.

Quality Control (QC) Information

Method Blank (MB) Statement

The method blanks (MB) analyzed with this SDG met the acceptance criteria. The sodium concentration was greater than the MDL in blank 1203232475 (MB)-ICP. The boron concentration was greater than the MDL in blank 1203232464 (MB)-ICP-MS. The tin concentration was greater than the reporting limit (RL) in blank 1203232464 (MB)-ICP-MS. The tin concentrations in client samples were not above the RL; therefore the data were not adversely affected. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

Quality Control (QC) Sample Statement

The following samples were selected as the quality control (QC) samples for this SDG: 363482007 (B2YK49)-ICP and ICP-MS.

Matrix Spike (MS) Recovery Statement

The percent recoveries (%R) obtained from the MS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

Matrix Spike Duplicate (MSD) Recovery Statement

The percent recovery (%R) obtained from the MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. All applicable analytes met the acceptance criteria.

MS/MSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) obtained from the designated matrix spike duplicate (MSD) is evaluated based on acceptance criteria of 20%. The RPD values between qualifying analyte results in the MS and MSD were within the acceptance limits.

Serial Dilution % Difference Statement

The serial dilution is used to assess matrix suppression or enhancement. Raw element concentrations 25x the IDL/MDL for CVAA, 50X the IDL/MDL for ICP and 100X the IDL/MDL for ICP-MS analyses are applicable for serial dilution assessment. Not all the applicable analyte percent difference (%D) values were within the acceptance criteria. The %D value for strontium was not within the acceptance criteria in sample 1203232468 (B2YK49SDILT)-ICP-MS.

Technical Information**Holding Time Specifications**

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP.

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. The samples in this SDG did not require dilutions.

Preparation Information

The samples in this SDG were prepared exactly according to the cited SOP.

Miscellaneous Information**Electronic Packaging Comment**

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. Data exception reports were included behind the Case Narrative or in the Miscellaneous Data section of this data package. The following DER was generated for this SDG: 1372691. ICP-MS.

Additional Comments

Additional comments were not required for this SDG.

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer: Pat Steelf Date: 01/13/2015

Sample Data Summary

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: GEL363482 GEL Work Order: 363482

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).

C Target analyte was detected in the sample and the associated blank. The associated blank concentration is \geq EQL or is $> 5\%$ of the measured concentration and/or decision level for associated samples.

D Results are reported from a diluted aliquot of sample.

M Duplicate precision not met.

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.

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by

Pat Steele 01/13/2015

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YK49 | Project: | CPRC0S15012 |
| Sample ID: | 363482007 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 17-DEC-14 13:46 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----------|-------|-------|------|---------|------|----------|-------|-----------|
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>6010_METALS_ICP:GW 04 (6 metals) "As Received"</i> | | | | | | | | | | | |
| Calcium | | 58500 | +/-11700 | 50.0 | 200 | ug/L | 1 | JWJ | 12/20/14 | 1204 | 1445104 1 |
| 7440-70-2 | | | | | | | | | | | |
| Iron | | 108 | +/-23.8 | 30.0 | 100 | ug/L | 1 | | | | |
| 7439-89-6 | | | | | | | | | | | |
| Magnesium | | 14200 | +/-2840 | 110 | 300 | ug/L | 1 | | | | |
| 7439-95-4 | | | | | | | | | | | |
| Potassium | | 13500 | +/-2700 | 50.0 | 150 | ug/L | 1 | | | | |
| 7440-09-7 | | | | | | | | | | | |
| Sodium | | 8500 | +/-1700 | 100 | 300 | ug/L | 1 | | | | |
| 7440-23-5 | | | | | | | | | | | |
| Vanadium | | 15.7 | +/-3.16 | 1.00 | 5.00 | ug/L | 1 | | | | |
| 7440-62-2 | | | | | | | | | | | |
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020_METALS_ICPMS: GW 01 "As Received"</i> | | | | | | | | | | | |
| Antimony | U | 0.396 | +/-0.343 | 1.00 | 5.00 | ug/L | 1 | BCD1 | 01/09/15 | 1838 | 1445100 2 |
| 7440-36-0 | | | | | | | | | | | |
| Barium | | 35.5 | +/-7.11 | 0.600 | 5.00 | ug/L | 1 | | | | |
| 7440-39-3 | | | | | | | | | | | |
| Cadmium | U | 0.018 | +/-0.0368 | 0.110 | 2.00 | ug/L | 1 | | | | |
| 7440-43-9 | | | | | | | | | | | |
| Chromium | | 130 | +/-26.1 | 2.00 | 10.0 | ug/L | 1 | | | | |
| 7440-47-3 | | | | | | | | | | | |
| Cobalt | B | 0.172 | +/-0.0479 | 0.100 | 4.00 | ug/L | 1 | | | | |
| 7440-48-4 | | | | | | | | | | | |
| Copper | B | 1.25 | +/-0.275 | 0.350 | 8.00 | ug/L | 1 | | | | |
| 7440-50-8 | | | | | | | | | | | |
| Lead | U | 0.111 | +/-0.168 | 0.500 | 2.00 | ug/L | 1 | | | | |
| 7439-92-1 | | | | | | | | | | | |
| Manganese | | 5.00 | +/-1.05 | 1.00 | 5.00 | ug/L | 1 | | | | |
| 7439-96-5 | | | | | | | | | | | |
| Molybdenum | B | 1.50 | +/-0.305 | 0.165 | 20.0 | ug/L | 1 | | | | |
| 7439-98-7 | | | | | | | | | | | |
| Nickel | | 2.91 | +/-0.605 | 0.500 | 2.00 | ug/L | 1 | | | | |
| 7440-02-0 | | | | | | | | | | | |
| Selenium | U | 1.05 | +/-0.542 | 1.50 | 5.00 | ug/L | 1 | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

Client Sample ID: B2YK49 Project: CPRC0S15012
 Sample ID: 363482007 Client ID: CPRC001

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----------|-------|-------|------|---------|------|----------|-------|-----------|
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020_METALS_ICPMS: GW 01 "As Received"</i> | | | | | | | | | | | |
| 7782-49-2 | | | | | | | | | | | |
| Silver | U | 0.022 | +/-0.0668 | 0.200 | 2.00 | ug/L | | | | | |
| 7440-22-4 | | | | | | | | | | | |
| Strontium | M | 406 | +/-81.2 | 2.00 | 10.0 | ug/L | | | | | |
| 7440-24-6 | | | | | | | | | | | |
| Thallium | U | 0.111 | +/-0.152 | 0.450 | 2.00 | ug/L | | | | | |
| 7440-28-0 | | | | | | | | | | | |
| Thorium | U | 0.093 | +/-0.129 | 0.383 | 2.00 | ug/L | | | | | |
| 7440-29-1 | | | | | | | | | | | |
| Tin | BC | 2.00 | +/-0.521 | 1.00 | 5.00 | ug/L | | | | | |
| 7440-31-5 | | | | | | | | | | | |
| Uranium | | 2.63 | +/-0.527 | 0.067 | 0.200 | ug/L | | | | | |
| 7440-61-1 | | | | | | | | | | | |
| Zinc | U | 1.73 | +/-1.22 | 3.50 | 10.0 | ug/L | | | | | |
| 7440-66-6 | | | | | | | | | | | |
| Aluminum | | 82.6 | +/-17.3 | 15.0 | 50.0 | ug/L | 1 | SKJ | 01/12/15 | 1701 | 1445100 3 |
| 7429-90-5 | | | | | | | | | | | |
| Beryllium | U | 0.003 | +/-0.0667 | 0.200 | 2.00 | ug/L | | | | | |
| 7440-41-7 | | | | | | | | | | | |
| Arsenic | | 2.14 | +/-0.710 | 1.70 | 5.00 | ug/L | 1 | BAJ | 01/13/15 | 1208 | 1445100 4 |
| 7440-38-2 | | | | | | | | | | | |
| Boron | C | 15.1 | +/-3.30 | 4.00 | 15.0 | ug/L | 1 | PRB | 01/13/15 | 1442 | 1445100 5 |
| 7440-42-8 | | | | | | | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|-----------------------|---------|----------|------|------------|
| SW846 3005A | ICP-MS 3005A PREP | JP1 | 12/19/14 | 1731 | 1445099 |
| SW846 3005A | SW846 3005A for 6010C | JP1 | 12/19/14 | 1731 | 1445103 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 3005A/6010C | |
| 2 | SW846 3005A/6020A | |
| 3 | SW846 3005A/6020A | |
| 4 | SW846 3005A/6020A | |
| 5 | SW846 3005A/6020A | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B303W2 | Project: | CPRC0S15012 |
| Sample ID: | 363482008 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 17-DEC-14 13:46 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----------|-------|-------|------|---------|------|----------|-------|-----------|
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>6010_METALS_ICP:GW 04 (6 metals) "As Received"</i> | | | | | | | | | | | |
| Calcium | | 57800 | +/-11600 | 50.0 | 200 | ug/L | 1 | JWJ | 12/20/14 | 1214 | 1445104 1 |
| 7440-70-2 | | | | | | | | | | | |
| Iron | U | 0.293 | +/-10.0 | 30.0 | 100 | ug/L | 1 | | | | |
| 7439-89-6 | | | | | | | | | | | |
| Magnesium | | 14200 | +/-2840 | 110 | 300 | ug/L | 1 | | | | |
| 7439-95-4 | | | | | | | | | | | |
| Potassium | | 13200 | +/-2650 | 50.0 | 150 | ug/L | 1 | | | | |
| 7440-09-7 | | | | | | | | | | | |
| Sodium | | 8400 | +/-1680 | 100 | 300 | ug/L | 1 | | | | |
| 7440-23-5 | | | | | | | | | | | |
| Vanadium | | 16.3 | +/-3.27 | 1.00 | 5.00 | ug/L | 1 | | | | |
| 7440-62-2 | | | | | | | | | | | |
| Metals Analysis-ICP-MS | | | | | | | | | | | |
| <i>6020_METALS_ICPMS: GW 01 "As Received"</i> | | | | | | | | | | | |
| Antimony | U | 0.294 | +/-0.338 | 1.00 | 5.00 | ug/L | 1 | BCD1 | 01/09/15 | 1908 | 1445100 2 |
| 7440-36-0 | | | | | | | | | | | |
| Barium | | 35.1 | +/-7.02 | 0.600 | 5.00 | ug/L | 1 | | | | |
| 7440-39-3 | | | | | | | | | | | |
| Cadmium | U | 0.003 | +/-0.0367 | 0.110 | 2.00 | ug/L | 1 | | | | |
| 7440-43-9 | | | | | | | | | | | |
| Chromium | | 126 | +/-25.2 | 2.00 | 10.0 | ug/L | 1 | | | | |
| 7440-47-3 | | | | | | | | | | | |
| Cobalt | B | 0.224 | +/-0.0558 | 0.100 | 4.00 | ug/L | 1 | | | | |
| 7440-48-4 | | | | | | | | | | | |
| Copper | B | 0.908 | +/-0.216 | 0.350 | 8.00 | ug/L | 1 | | | | |
| 7440-50-8 | | | | | | | | | | | |
| Lead | U | -0.003 | +/-0.167 | 0.500 | 2.00 | ug/L | 1 | | | | |
| 7439-92-1 | | | | | | | | | | | |
| Manganese | B | 2.01 | +/-0.522 | 1.00 | 5.00 | ug/L | 1 | | | | |
| 7439-96-5 | | | | | | | | | | | |
| Molybdenum | B | 1.44 | +/-0.293 | 0.165 | 20.0 | ug/L | 1 | | | | |
| 7439-98-7 | | | | | | | | | | | |
| Nickel | | 2.43 | +/-0.515 | 0.500 | 2.00 | ug/L | 1 | | | | |
| 7440-02-0 | | | | | | | | | | | |
| Selenium | U | 0.991 | +/-0.538 | 1.50 | 5.00 | ug/L | 1 | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

Client Sample ID: B303W2 Project: CPRC0S15012
 Sample ID: 363482008 Client ID: CPRC001

| Parameter | Qualifier | Result | | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|-----------|-------|-------|-------|----|---------|----------|------|---------|--------|
| Metals Analysis-ICP-MS | | | | | | | | | | | | |
| <i>6020_METALS_ICPMS: GW 01 "As Received"</i> | | | | | | | | | | | | |
| 7782-49-2 | | | | | | | | | | | | |
| Silver | U | 0.005 | +/-0.0667 | 0.200 | 2.00 | ug/L | 1 | | | | | |
| 7440-22-4 | | | | | | | | | | | | |
| Strontium | M | 383 | +/-76.6 | 2.00 | 10.0 | ug/L | 1 | | | | | |
| 7440-24-6 | | | | | | | | | | | | |
| Thallium | U | 0.124 | +/-0.152 | 0.450 | 2.00 | ug/L | 1 | | | | | |
| 7440-28-0 | | | | | | | | | | | | |
| Thorium | U | 0.053 | +/-0.128 | 0.383 | 2.00 | ug/L | 1 | | | | | |
| 7440-29-1 | | | | | | | | | | | | |
| Tin | U | 0.309 | +/-0.339 | 1.00 | 5.00 | ug/L | 1 | | | | | |
| 7440-31-5 | | | | | | | | | | | | |
| Uranium | | 2.53 | +/-0.507 | 0.067 | 0.200 | ug/L | 1 | | | | | |
| 7440-61-1 | | | | | | | | | | | | |
| Zinc | U | 2.12 | +/-1.24 | 3.50 | 10.0 | ug/L | 1 | | | | | |
| 7440-66-6 | | | | | | | | | | | | |
| Aluminum | U | 7.31 | +/-5.21 | 15.0 | 50.0 | ug/L | 1 | SKJ | 01/12/15 | 1708 | 1445100 | 3 |
| 7429-90-5 | | | | | | | | | | | | |
| Beryllium | U | -0.001 | +/-0.0667 | 0.200 | 2.00 | ug/L | 1 | | | | | |
| 7440-41-7 | | | | | | | | | | | | |
| Arsenic | | 2.14 | +/-0.710 | 1.70 | 5.00 | ug/L | 1 | BAJ | 01/13/15 | 1217 | 1445100 | 4 |
| 7440-38-2 | | | | | | | | | | | | |
| Boron | C | 15.5 | +/-3.37 | 4.00 | 15.0 | ug/L | 1 | PRB | 01/13/15 | 1448 | 1445100 | 5 |
| 7440-42-8 | | | | | | | | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|-----------------------|---------|----------|------|------------|
| SW846 3005A | ICP-MS 3005A PREP | JP1 | 12/19/14 | 1731 | 1445099 |
| SW846 3005A | SW846 3005A for 6010C | JP1 | 12/19/14 | 1731 | 1445103 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 3005A/6010C | |
| 2 | SW846 3005A/6020A | |
| 3 | SW846 3005A/6020A | |
| 4 | SW846 3005A/6020A | |
| 5 | SW846 3005A/6020A | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B303V0 | Project: | CPRC0S15012 |
| Sample ID: | 363482009 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 11:53 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|----------|------|-------|------|---------|------|----------|-------|-----------|
| <i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i> | | | | | | | | | | | |
| Antimony 7440-36-0 | U | 1.84 | +/-1.22 | 3.50 | 10.0 | ug/L | 1 | JWJ | 12/20/14 | 1216 | 1445104 1 |
| Arsenic 7440-38-2 | U | -3.12 | +/-1.78 | 5.00 | 30.0 | ug/L | 1 | | | | |
| Barium 7440-39-3 | | 57.0 | +/-11.4 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Beryllium 7440-41-7 | U | -0.177 | +/-0.335 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Cadmium 7440-43-9 | U | 0.0262 | +/-0.333 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Calcium 7440-70-2 | | 42200 | +/-8450 | 50.0 | 200 | ug/L | 1 | | | | |
| Chromium 7440-47-3 | B | 3.44 | +/-0.765 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Cobalt 7440-48-4 | U | 0.359 | +/-0.341 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Copper 7440-50-8 | B | 7.19 | +/-1.75 | 3.00 | 10.0 | ug/L | 1 | | | | |
| Iron 7439-89-6 | | 554 | +/-111 | 30.0 | 100 | ug/L | 1 | | | | |
| Magnesium 7439-95-4 | | 10800 | +/-2160 | 110 | 300 | ug/L | 1 | | | | |
| Manganese 7439-96-5 | | 12.0 | +/-2.50 | 2.00 | 10.0 | ug/L | 1 | | | | |
| Nickel 7440-02-0 | B | 1.89 | +/-0.627 | 1.50 | 5.00 | ug/L | 1 | | | | |
| Potassium 7440-09-7 | | 3910 | +/-781 | 50.0 | 150 | ug/L | 1 | | | | |
| Silver 7440-22-4 | U | 0.605 | +/-0.355 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Sodium 7440-23-5 | | 17500 | +/-3490 | 100 | 300 | ug/L | 1 | | | | |
| Strontium 7440-24-6 | | 224 | +/-44.7 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vanadium 7440-62-2 | B | 2.79 | +/-0.649 | 1.00 | 5.00 | ug/L | 1 | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B303V0 | Project: | CPRC0S15012 |
| Sample ID: | 363482009 | Client ID: | CPRC001 |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|---------|------|-------|------|---------|------|------|-------|--------|
| Metals Analysis-ICP | | | | | | | | | | | |
| <i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i> | | | | | | | | | | | |
| Zinc | B | 7.38 | +/-1.84 | 3.30 | 10.0 | ug/L | | | 1 | | |
| 7440-66-6 | | | | | | | | | | | |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|-----------------------|---------|----------|------|------------|
| SW846 3005A | SW846 3005A for 6010C | JP1 | 12/19/14 | 1731 | 1445103 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 3005A/6010C | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW0 | Project: | CPRC0S15012 |
| Sample ID: | 363482010 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 07:00 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|--------|----------|------|-------|------|---------|------|----------|-------|-----------|
| <i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i> | | | | | | | | | | | |
| Antimony 7440-36-0 | U | 0.460 | +/-1.17 | 3.50 | 10.0 | ug/L | 1 | JWJ | 12/20/14 | 1219 | 1445104 1 |
| Arsenic 7440-38-2 | U | -2.58 | +/-1.74 | 5.00 | 30.0 | ug/L | 1 | | | | |
| Barium 7440-39-3 | U | 0.069 | +/-0.334 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Beryllium 7440-41-7 | U | 0.0393 | +/-0.333 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Cadmium 7440-43-9 | U | -0.117 | +/-0.334 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Calcium 7440-70-2 | U | 9.59 | +/-16.8 | 50.0 | 200 | ug/L | 1 | | | | |
| Chromium 7440-47-3 | U | -0.113 | +/-0.334 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Cobalt 7440-48-4 | U | -0.064 | +/-0.334 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Copper 7440-50-8 | U | -0.268 | +/-1.00 | 3.00 | 10.0 | ug/L | 1 | | | | |
| Iron 7439-89-6 | U | -0.475 | +/-10.0 | 30.0 | 100 | ug/L | 1 | | | | |
| Magnesium 7439-95-4 | U | -13 | +/-36.8 | 110 | 300 | ug/L | 1 | | | | |
| Manganese 7439-96-5 | U | 0.0427 | +/-0.667 | 2.00 | 10.0 | ug/L | 1 | | | | |
| Nickel 7440-02-0 | U | -0.22 | +/-0.502 | 1.50 | 5.00 | ug/L | 1 | | | | |
| Silver 7440-22-4 | U | 0.466 | +/-0.346 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Sodium 7440-23-5 | U | 90.8 | +/-38.0 | 100 | 300 | ug/L | 1 | | | | |
| Strontium 7440-24-6 | U | 0.0445 | +/-0.333 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vanadium 7440-62-2 | U | 0.390 | +/-0.342 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Zinc 7440-66-6 | U | 0.773 | +/-1.11 | 3.30 | 10.0 | ug/L | 1 | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YLW0 | Project: | CPRC0S15012 |
| Sample ID: | 363482010 | Client ID: | CPRC001 |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method | |
|---|-----------|--------|---------|------|-------|------|---------|------|----------|-------|---------|---|
| Metals Analysis-ICP | | | | | | | | | | | | |
| <i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i> | | | | | | | | | | | | |
| Potassium 7440-09-7 | B | 60.3 | +/-20.6 | 50.0 | 150 | ug/L | 1 | HSC | 01/13/15 | 1236 | 1445104 | 2 |

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|-----------------------|---------|----------|------|------------|
| SW846 3005A | SW846 3005A for 6010C | JP1 | 12/19/14 | 1731 | 1445103 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 3005A/6010C | |
| 2 | SW846 3005A/6010C | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW1 | Project: | CPRC0S15012 |
| Sample ID: | 363482011 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 11:03 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|-----------|---------|----------|------|-------|------|---------|------|----------|-------|-----------|
| <i>6010_METALS_ICP: COMMON +GW 03 "As Received"</i> | | | | | | | | | | | |
| Antimony 7440-36-0 | U | -3.2 | +/-1.33 | 3.50 | 10.0 | ug/L | 1 | JWJ | 12/20/14 | 1222 | 1445104 1 |
| Arsenic 7440-38-2 | U | 1.56 | +/-1.70 | 5.00 | 30.0 | ug/L | 1 | | | | |
| Barium 7440-39-3 | | 51.0 | +/-10.2 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Beryllium 7440-41-7 | U | -0.148 | +/-0.335 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Cadmium 7440-43-9 | U | 0.0181 | +/-0.333 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Calcium 7440-70-2 | | 48100 | +/-9630 | 50.0 | 200 | ug/L | 1 | | | | |
| Chromium 7440-47-3 | B | 4.96 | +/-1.05 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Cobalt 7440-48-4 | U | -0.0997 | +/-0.334 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Copper 7440-50-8 | B | 7.44 | +/-1.79 | 3.00 | 10.0 | ug/L | 1 | | | | |
| Iron 7439-89-6 | | 110 | +/-24.1 | 30.0 | 100 | ug/L | 1 | | | | |
| Magnesium 7439-95-4 | | 12300 | +/-2460 | 110 | 300 | ug/L | 1 | | | | |
| Manganese 7439-96-5 | U | 1.44 | +/-0.726 | 2.00 | 10.0 | ug/L | 1 | | | | |
| Nickel 7440-02-0 | U | 1.08 | +/-0.544 | 1.50 | 5.00 | ug/L | 1 | | | | |
| Potassium 7440-09-7 | | 6210 | +/-1240 | 50.0 | 150 | ug/L | 1 | | | | |
| Silver 7440-22-4 | U | 0.142 | +/-0.335 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Sodium 7440-23-5 | | 23500 | +/-4700 | 100 | 300 | ug/L | 1 | | | | |
| Strontium 7440-24-6 | | 228 | +/-45.6 | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vanadium 7440-62-2 | | 11.3 | +/-2.29 | 1.00 | 5.00 | ug/L | 1 | | | | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YLW1 | Project: | CPRC0S15012 |
| Sample ID: | 363482011 | Client ID: | CPRC001 |

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|-----------|-----------|--------|----|----|-------|----|---------|------|------|-------|--------|
|-----------|-----------|--------|----|----|-------|----|---------|------|------|-------|--------|

Metals Analysis-ICP

6010_METALS_ICP: COMMON +GW 03 "As Received"

| | | | | | | | | | | | |
|------|---|------|---------|------|------|------|--|--|---|--|--|
| Zinc | B | 6.81 | +/-1.75 | 3.30 | 10.0 | ug/L | | | 1 | | |
|------|---|------|---------|------|------|------|--|--|---|--|--|

7440-66-6

The following Prep Methods were performed

| Method | Description | Analyst | Date | Time | Prep Batch |
|-------------|-----------------------|---------|----------|------|------------|
| SW846 3005A | SW846 3005A for 6010C | JP1 | 12/19/14 | 1731 | 1445103 |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------------|------------------|
| 1 | SW846 3005A/6010C | |

Quality Control Summary

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Report Date: January 13, 2015

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CH2M Hill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 363482

| Parmname | NOM | Sample Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|--------------------------------|------------|--------------------|-----------|--------------|---------------|-------------|--------------|--------------|-------------|-------------|
| Metals Analysis - ICPMS | | | | | | | | | | |
| Batch | 1445100 | | | | | | | | | |
| QC1203232465 | LCS | | | | | | | | | |
| Aluminum | 2000 | | 2220 | ug/L | | 111 | (80%-120%) | SKJ | 01/12/15 | 16:57 |
| Antimony | 50.0 | | 49.2 | ug/L | | 98.4 | (80%-120%) | BCD1 | 01/09/15 | 18:21 |
| Arsenic | 50.0 | | 50.3 | ug/L | | 101 | (80%-120%) | BAJ | 01/13/15 | 12:06 |
| Barium | 50.0 | | 48.1 | ug/L | | 96.2 | (80%-120%) | BCD1 | 01/09/15 | 18:21 |
| Beryllium | 50.0 | | 59.1 | ug/L | | 118 | (80%-120%) | SKJ | 01/12/15 | 16:57 |
| Boron | 100 | | 111 | ug/L | | 111 | (80%-120%) | PRB | 01/13/15 | 14:41 |
| Cadmium | 50.0 | | 50.8 | ug/L | | 102 | (80%-120%) | BCD1 | 01/09/15 | 18:21 |
| Chromium | 50.0 | | 49.7 | ug/L | | 99.5 | (80%-120%) | | | |
| Cobalt | 50.0 | | 51.0 | ug/L | | 102 | (80%-120%) | | | |
| Copper | 50.0 | | 52.1 | ug/L | | 104 | (80%-120%) | | | |
| Lead | 50.0 | | 49.1 | ug/L | | 98.1 | (80%-120%) | | | |
| Manganese | 50.0 | | 50.5 | ug/L | | 101 | (80%-120%) | | | |
| Molybdenum | 50.0 | | 49.5 | ug/L | | 99.1 | (80%-120%) | | | |
| Nickel | 50.0 | | 51.9 | ug/L | | 104 | (80%-120%) | | | |
| Selenium | 50.0 | | 49.4 | ug/L | | 98.8 | (80%-120%) | | | |
| Silver | 50.0 | | 52.3 | ug/L | | 105 | (80%-120%) | | | |
| Strontium | 50.0 | | 51.0 | ug/L | | 102 | (80%-120%) | | | |
| Thallium | 50.0 | | 47.3 | ug/L | | 94.7 | (80%-120%) | | | |
| Thorium | 50.0 | | 48.7 | ug/L | | 97.5 | (80%-120%) | | | |
| Tin | 50.0 | | 51.6 | ug/L | | 103 | (80%-120%) | | | |

QC Summary

Workorder: 363482

Page 2 of 11

| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|--------------------------------|---------|--------|------|------|-------|--------|------|------------|-------|----------|-------|
| Metals Analysis - ICPMS | | | | | | | | | | | |
| Batch | 1445100 | | | | | | | | | | |
| Uranium | 50.0 | | | 49.8 | ug/L | | 99.6 | (80%-120%) | BCD1 | 01/09/15 | 18:21 |
| Zinc | 50.0 | | | 54.0 | ug/L | | 108 | (80%-120%) | | | |
| QC1203232464 | MB | | | | | | | | | | |
| Aluminum | | | U | ND | ug/L | | | | SKJ | 01/12/15 | 16:55 |
| Antimony | | | U | ND | ug/L | | | | BCD1 | 01/09/15 | 18:15 |
| Arsenic | | | U | ND | ug/L | | | | BAJ | 01/13/15 | 12:04 |
| Barium | | | U | ND | ug/L | | | | BCD1 | 01/09/15 | 18:15 |
| Beryllium | | | U | ND | ug/L | | | | SKJ | 01/12/15 | 16:55 |
| Boron | | | B | 4.44 | ug/L | | | | PRB | 01/13/15 | 14:40 |
| Cadmium | | | U | ND | ug/L | | | | BCD1 | 01/09/15 | 18:15 |
| Chromium | | | U | ND | ug/L | | | | | | |
| Cobalt | | | U | ND | ug/L | | | | | | |
| Copper | | | U | ND | ug/L | | | | | | |
| Lead | | | U | ND | ug/L | | | | | | |
| Manganese | | | U | ND | ug/L | | | | | | |
| Molybdenum | | | U | ND | ug/L | | | | | | |
| Nickel | | | U | ND | ug/L | | | | | | |
| Selenium | | | U | ND | ug/L | | | | | | |
| Silver | | | U | ND | ug/L | | | | | | |
| Strontium | | | U | ND | ug/L | | | | | | |
| Thallium | | | U | ND | ug/L | | | | | | |
| Thorium | | | U | ND | ug/L | | | | | | |

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|--------------------------------|---------|--------|-------|------|-------|--------|------|------------|-------|----------|-------|
| Metals Analysis - ICPMS | | | | | | | | | | | |
| Batch | 1445100 | | | | | | | | | | |
| Tin | | | | 6.07 | ug/L | | | | BCD1 | 01/09/15 | 18:15 |
| Uranium | | | U | ND | ug/L | | | | | | |
| Zinc | | | U | ND | ug/L | | | | | | |
| QC1203232466 363482007 MS | | | | | | | | | | | |
| Aluminum | 2000 | 82.6 | | 2170 | ug/L | | 104 | (75%-125%) | SKJ | 01/12/15 | 17:03 |
| Antimony | 50.0 | U | ND | 48.8 | ug/L | | 96.8 | (75%-125%) | BCD1 | 01/09/15 | 18:44 |
| Arsenic | 50.0 | | 2.14 | 54.5 | ug/L | | 105 | (75%-125%) | BAJ | 01/13/15 | 12:10 |
| Barium | 50.0 | | 35.5 | 77.8 | ug/L | | 84.5 | (75%-125%) | BCD1 | 01/09/15 | 18:44 |
| Beryllium | 50.0 | U | ND | 57.2 | ug/L | | 114 | (75%-125%) | SKJ | 01/12/15 | 17:03 |
| Boron | 100 | C | 15.1 | 132 | ug/L | | 117 | (75%-125%) | PRB | 01/13/15 | 14:44 |
| Cadmium | 50.0 | U | ND | 50.1 | ug/L | | 100 | (75%-125%) | BCD1 | 01/09/15 | 18:44 |
| Chromium | 50.0 | | 130 | 176 | ug/L | | 92.5 | (75%-125%) | | | |
| Cobalt | 50.0 | B | 0.172 | 50.0 | ug/L | | 99.6 | (75%-125%) | | | |
| Copper | 50.0 | B | 1.25 | 49.4 | ug/L | | 96.4 | (75%-125%) | | | |
| Lead | 50.0 | U | ND | 46.5 | ug/L | | 92.7 | (75%-125%) | | | |
| Manganese | 50.0 | | 5.00 | 54.7 | ug/L | | 99.5 | (75%-125%) | | | |
| Molybdenum | 50.0 | B | 1.50 | 49.6 | ug/L | | 96.3 | (75%-125%) | | | |
| Nickel | 50.0 | | 2.91 | 52.6 | ug/L | | 99.5 | (75%-125%) | | | |
| Selenium | 50.0 | U | ND | 52.3 | ug/L | | 102 | (75%-125%) | | | |
| Silver | 50.0 | U | ND | 49.7 | ug/L | | 99.3 | (75%-125%) | | | |
| Strontium | 50.0 | M | 406 | 443 | ug/L | | N/A | (75%-125%) | | | |
| Thallium | 50.0 | U | ND | 44.7 | ug/L | | 89.2 | (75%-125%) | | | |

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|--------------------------------|------------|---------------|-------------|-----------|--------------|---------------|-------------|--------------|--------------|-------------|-------------|
| Metals Analysis - ICPMS | | | | | | | | | | | |
| Batch | 1445100 | | | | | | | | | | |
| Thorium | 50.0 | U | ND | 47.0 | ug/L | | 93.8 | (75%-125%) | BCD1 | 01/09/15 | 18:44 |
| Tin | 50.0 | BC | 2.00 | 50.8 | ug/L | | 97.5 | (75%-125%) | | | |
| Uranium | 50.0 | | 2.63 | 49.9 | ug/L | | 94.4 | (75%-125%) | | | |
| Zinc | 50.0 | U | ND | 53.3 | ug/L | | 103 | (75%-125%) | | | |
| QC1203232467 363482007 MSD | | | | | | | | | | | |
| Aluminum | 2000 | | 82.6 | 2210 | ug/L | 1.57 | 106 | (0%-20%) | SKJ | 01/12/15 | 17:04 |
| Antimony | 50.0 | U | ND | 49.5 | ug/L | 1.40 | 98.1 | (0%-20%) | BCD1 | 01/09/15 | 18:50 |
| Arsenic | 50.0 | | 2.14 | 55.3 | ug/L | 1.38 | 106 | (0%-20%) | BAJ | 01/13/15 | 12:12 |
| Barium | 50.0 | | 35.5 | 80.4 | ug/L | 3.35 | 89.8 | (0%-20%) | BCD1 | 01/09/15 | 18:50 |
| Beryllium | 50.0 | U | ND | 58.2 | ug/L | 1.77 | 116 | (0%-20%) | SKJ | 01/12/15 | 17:04 |
| Boron | 100 | C | 15.1 | 135 | ug/L | 2.27 | 120 | (0%-20%) | PRB | 01/13/15 | 14:45 |
| Cadmium | 50.0 | U | ND | 51.5 | ug/L | 2.78 | 103 | (0%-20%) | BCD1 | 01/09/15 | 18:50 |
| Chromium | 50.0 | | 130 | 177 | ug/L | 0.315 | 93.6 | (0%-20%) | | | |
| Cobalt | 50.0 | B | 0.172 | 50.0 | ug/L | 0.030 | 99.6 | (0%-20%) | | | |
| Copper | 50.0 | B | 1.25 | 49.7 | ug/L | 0.512 | 96.9 | (0%-20%) | | | |
| Lead | 50.0 | U | ND | 47.7 | ug/L | 2.65 | 95.2 | (0%-20%) | | | |
| Manganese | 50.0 | | 5.00 | 54.4 | ug/L | 0.585 | 98.8 | (0%-20%) | | | |
| Molybdenum | 50.0 | B | 1.50 | 50.4 | ug/L | 1.58 | 97.8 | (0%-20%) | | | |
| Nickel | 50.0 | | 2.91 | 52.3 | ug/L | 0.698 | 98.7 | (0%-20%) | | | |
| Selenium | 50.0 | U | ND | 55.2 | ug/L | 5.45 | 108 | (0%-20%) | | | |
| Silver | 50.0 | U | ND | 49.6 | ug/L | 0.107 | 99.2 | (0%-20%) | | | |
| Strontium | 50.0 | M | 406 | 448 | ug/L | 1.00 | N/A | (0%-20%) | | | |

February 19, 2015
GEL LABORATORIES LLC

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

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|--------------------------------|------------|---------------|-------------|-----------|--------------|---------------|-------------|--------------|--------------|-------------|-------------|
| Metals Analysis - ICPMS | | | | | | | | | | | |
| Batch | 1445100 | | | | | | | | | | |
| Thallium | 50.0 | U | ND | 45.8 | ug/L | 2.55 | 91.5 | (0%-20%) | BCD1 | 01/09/15 | 18:50 |
| Thorium | 50.0 | U | ND | 47.4 | ug/L | 0.822 | 94.6 | (0%-20%) | | | |
| Tin | 50.0 | BC | 2.00 | 52.1 | ug/L | 2.61 | 100 | (0%-20%) | | | |
| Uranium | 50.0 | | 2.63 | 50.6 | ug/L | 1.41 | 95.9 | (0%-20%) | | | |
| Zinc | 50.0 | U | ND | 55.2 | ug/L | 3.49 | 107 | (0%-20%) | | | |
| QC1203232468 363482007 SDILT | | | | | | | | | | | |
| Aluminum | | | 82.6 | D | 32.3 | ug/L | 95.2 | (0%-10%) | SKJ | 01/12/15 | 17:07 |
| Antimony | | U | ND | DU | ND | ug/L | N/A | (0%-10%) | BCD1 | 01/09/15 | 19:02 |
| Arsenic | | | 2.14 | DU | ND | ug/L | N/A | (0%-10%) | BAJ | 01/13/15 | 12:15 |
| Barium | | | 35.5 | D | 8.56 | ug/L | 20.6 | (0%-10%) | BCD1 | 01/09/15 | 19:02 |
| Beryllium | | U | ND | DU | ND | ug/L | N/A | (0%-10%) | SKJ | 01/12/15 | 17:07 |
| Boron | | C | 15.1 | DU | ND | ug/L | N/A | (0%-10%) | PRB | 01/13/15 | 14:47 |
| Cadmium | | U | ND | DU | ND | ug/L | N/A | (0%-10%) | BCD1 | 01/09/15 | 19:02 |
| Chromium | | | 130 | D | 31.2 | ug/L | 19.7 | (0%-10%) | | | |
| Cobalt | | B | 0.172 | DU | ND | ug/L | N/A | (0%-10%) | | | |
| Copper | | B | 1.25 | DU | ND | ug/L | N/A | (0%-10%) | | | |
| Lead | | U | ND | DU | ND | ug/L | N/A | (0%-10%) | | | |
| Manganese | | | 5.00 | D | 1.22 | ug/L | 22.3 | (0%-10%) | | | |
| Molybdenum | | B | 1.50 | D | 0.374 | ug/L | 24.7 | (0%-10%) | | | |
| Nickel | | | 2.91 | D | 0.728 | ug/L | 25.1 | (0%-10%) | | | |
| Selenium | | U | ND | DU | ND | ug/L | N/A | (0%-10%) | | | |
| Silver | | U | ND | DU | ND | ug/L | N/A | (0%-10%) | | | |

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|--------------------------------|---------|--------|------|-------|-------|--------|------|----------|-------|----------|-------|
| Metals Analysis - ICPMS | | | | | | | | | | | |
| Batch | 1445100 | | | | | | | | | | |
| Strontium | M | 406 | DM | 91.2 | ug/L | 12.2* | | (0%-10%) | BCD1 | 01/09/15 | 19:02 |
| Thallium | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Thorium | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Tin | BC | 2.00 | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Uranium | | 2.63 | D | 0.614 | ug/L | 16.6 | | (0%-10%) | | | |
| Zinc | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |

Metals Analysis-ICP

Batch 1445104

| | | | | | | | | | | | |
|--------------|------|--|--|------|------|--|------|------------|-----|----------|-------|
| QC1203232476 | LCS | | | | | | | | | | |
| Antimony | 500 | | | 493 | ug/L | | 98.5 | (80%-120%) | JWJ | 12/20/14 | 12:01 |
| Arsenic | 500 | | | 500 | ug/L | | 99.9 | (80%-120%) | | | |
| Barium | 500 | | | 510 | ug/L | | 102 | (80%-120%) | | | |
| Beryllium | 500 | | | 499 | ug/L | | 99.9 | (80%-120%) | | | |
| Cadmium | 500 | | | 498 | ug/L | | 99.5 | (80%-120%) | | | |
| Calcium | 5000 | | | 5080 | ug/L | | 102 | (80%-120%) | | | |
| Chromium | 500 | | | 504 | ug/L | | 101 | (80%-120%) | | | |
| Cobalt | 500 | | | 514 | ug/L | | 103 | (80%-120%) | | | |
| Copper | 500 | | | 507 | ug/L | | 101 | (80%-120%) | | | |
| Iron | 5000 | | | 5070 | ug/L | | 101 | (80%-120%) | | | |
| Magnesium | 5000 | | | 5170 | ug/L | | 103 | (80%-120%) | | | |
| Manganese | 500 | | | 507 | ug/L | | 101 | (80%-120%) | | | |
| Nickel | 500 | | | 507 | ug/L | | 101 | (80%-120%) | | | |
| Potassium | 5000 | | | 4960 | ug/L | | 99.2 | (80%-120%) | | | |

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|------|------|-------|--------|------|------------|-------|----------|-------|
| Metals Analysis-ICP | | | | | | | | | | | |
| Batch | 1445104 | | | | | | | | | | |
| Silver | 500 | | | 493 | ug/L | | 98.7 | (80%-120%) | JWJ | 12/20/14 | 12:01 |
| Sodium | 5000 | | | 5050 | ug/L | | 101 | (80%-120%) | | | |
| Strontium | 500 | | | 515 | ug/L | | 103 | (80%-120%) | | | |
| Vanadium | 500 | | | 525 | ug/L | | 105 | (80%-120%) | | | |
| Zinc | 500 | | | 494 | ug/L | | 98.7 | (80%-120%) | | | |
| QC1203232475 | MB | | | | | | | | | | |
| Antimony | | | U | ND | ug/L | | | | | 12/20/14 | 11:58 |
| Arsenic | | | U | ND | ug/L | | | | | | |
| Barium | | | U | ND | ug/L | | | | | | |
| Beryllium | | | U | ND | ug/L | | | | | | |
| Cadmium | | | U | ND | ug/L | | | | | | |
| Calcium | | | U | ND | ug/L | | | | | | |
| Chromium | | | U | ND | ug/L | | | | | | |
| Cobalt | | | U | ND | ug/L | | | | | | |
| Copper | | | U | ND | ug/L | | | | | | |
| Iron | | | U | ND | ug/L | | | | | | |
| Magnesium | | | U | ND | ug/L | | | | | | |
| Manganese | | | U | ND | ug/L | | | | | | |
| Nickel | | | U | ND | ug/L | | | | | | |
| Potassium | | | U | ND | ug/L | | | | | | |
| Silver | | | U | ND | ug/L | | | | | | |
| Sodium | | | B | 125 | ug/L | | | | | | |

QC Summary

Workorder: 363482

| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|-------|-------|-------|--------|------|------------|-------|----------|-------|
| Metals Analysis-ICP | | | | | | | | | | | |
| Batch | 1445104 | | | | | | | | | | |
| Strontium | | | U | ND | ug/L | | | | JWJ | 12/20/14 | 11:58 |
| Vanadium | | | U | ND | ug/L | | | | | | |
| Zinc | | | U | ND | ug/L | | | | | | |
| QC1203232477 363482007 MS | | | | | | | | | | | |
| Antimony | 500 | B | 4.41 | 500 | ug/L | | 99.2 | (75%-125%) | | 12/20/14 | 12:07 |
| Arsenic | 500 | U | ND | 511 | ug/L | | 102 | (75%-125%) | | | |
| Barium | 500 | | 37.8 | 537 | ug/L | | 99.9 | (75%-125%) | | | |
| Beryllium | 500 | U | ND | 497 | ug/L | | 99.4 | (75%-125%) | | | |
| Cadmium | 500 | U | ND | 487 | ug/L | | 97.4 | (75%-125%) | | | |
| Calcium | 5000 | | 58500 | 62500 | ug/L | | N/A | (75%-125%) | | | |
| Chromium | 500 | | 132 | 623 | ug/L | | 98.2 | (75%-125%) | | | |
| Cobalt | 500 | U | ND | 493 | ug/L | | 98.6 | (75%-125%) | | | |
| Copper | 500 | B | 8.45 | 507 | ug/L | | 99.7 | (75%-125%) | | | |
| Iron | 5000 | | 108 | 5060 | ug/L | | 99 | (75%-125%) | | | |
| Magnesium | 5000 | | 14200 | 19000 | ug/L | | 94.6 | (75%-125%) | | | |
| Manganese | 500 | B | 4.95 | 494 | ug/L | | 97.8 | (75%-125%) | | | |
| Nickel | 500 | U | ND | 481 | ug/L | | 96 | (75%-125%) | | | |
| Potassium | 5000 | | 13500 | 18800 | ug/L | | 107 | (75%-125%) | | | |
| Silver | 500 | U | ND | 491 | ug/L | | 98 | (75%-125%) | | | |
| Sodium | 5000 | | 8500 | 13300 | ug/L | | 96.2 | (75%-125%) | | | |
| Strontium | 500 | | 394 | 900 | ug/L | | 101 | (75%-125%) | | | |
| Vanadium | 500 | | 15.7 | 537 | ug/L | | 104 | (75%-125%) | | | |

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|------------------------------|---------|--------|-------|-------|-------|--------|------|------------|-------|----------|-------|
| Metals Analysis-ICP | | | | | | | | | | | |
| Batch | 1445104 | | | | | | | | | | |
| Zinc | 500 | 10.1 | | 490 | ug/L | | 96 | (75%-125%) | JWJ | 12/20/14 | 12:07 |
| QC1203232478 363482007 MSD | | | | | | | | | | | |
| Antimony | 500 | B | 4.41 | 476 | ug/L | 4.94 | 94.3 | (0%-20%) | | 12/20/14 | 12:09 |
| Arsenic | 500 | U | ND | 489 | ug/L | 4.28 | 97.8 | (0%-20%) | | | |
| Barium | 500 | | 37.8 | 521 | ug/L | 3.05 | 96.7 | (0%-20%) | | | |
| Beryllium | 500 | U | ND | 492 | ug/L | 1.11 | 98.3 | (0%-20%) | | | |
| Cadmium | 500 | U | ND | 474 | ug/L | 2.85 | 94.7 | (0%-20%) | | | |
| Calcium | 5000 | | 58500 | 62700 | ug/L | 0.187 | N/A | (0%-20%) | | | |
| Chromium | 500 | | 132 | 610 | ug/L | 2.00 | 95.7 | (0%-20%) | | | |
| Cobalt | 500 | U | ND | 474 | ug/L | 3.86 | 94.9 | (0%-20%) | | | |
| Copper | 500 | B | 8.45 | 494 | ug/L | 2.52 | 97.2 | (0%-20%) | | | |
| Iron | 5000 | | 108 | 4990 | ug/L | 1.30 | 97.7 | (0%-20%) | | | |
| Magnesium | 5000 | | 14200 | 18800 | ug/L | 0.869 | 91.3 | (0%-20%) | | | |
| Manganese | 500 | B | 4.95 | 483 | ug/L | 2.27 | 95.5 | (0%-20%) | | | |
| Nickel | 500 | U | ND | 471 | ug/L | 2.15 | 94 | (0%-20%) | | | |
| Potassium | 5000 | | 13500 | 18500 | ug/L | 1.79 | 100 | (0%-20%) | | | |
| Silver | 500 | U | ND | 477 | ug/L | 2.75 | 95.4 | (0%-20%) | | | |
| Sodium | 5000 | | 8500 | 13300 | ug/L | 0.339 | 95.3 | (0%-20%) | | | |
| Strontium | 500 | | 394 | 895 | ug/L | 0.549 | 100 | (0%-20%) | | | |
| Vanadium | 500 | | 15.7 | 527 | ug/L | 1.86 | 102 | (0%-20%) | | | |
| Zinc | 500 | | 10.1 | 480 | ug/L | 2.07 | 94 | (0%-20%) | | | |
| QC1203232479 363482007 SDILT | | | | | | | | | | | |
| Antimony | | B | 4.41 | DU | ND | ug/L | N/A | (0%-10%) | | 12/20/14 | 12:11 |

QC Summary

Workorder: 363482

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| Parmname | NOM | Sample | Qual | QC | Units | RPD/D% | REC% | Range | Anlst | Date | Time |
|----------------------------|---------|--------|------|-------|-------|--------|------|----------|-------|----------|-------|
| Metals Analysis-ICP | | | | | | | | | | | |
| Batch | 1445104 | | | | | | | | | | |
| Arsenic | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | JWJ | 12/20/14 | 12:11 |
| Barium | | 37.8 | D | 7.59 | ug/L | .595 | | (0%-10%) | | | |
| Beryllium | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Cadmium | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Calcium | | 58500 | D | 11500 | ug/L | 1.34 | | (0%-10%) | | | |
| Chromium | | 132 | D | 25.8 | ug/L | 2.11 | | (0%-10%) | | | |
| Cobalt | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Copper | B | 8.45 | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Iron | | 108 | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Magnesium | | 14200 | D | 2830 | ug/L | .626 | | (0%-10%) | | | |
| Manganese | B | 4.95 | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Nickel | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Potassium | | 13500 | D | 2680 | ug/L | .925 | | (0%-10%) | | | |
| Silver | U | ND | DU | ND | ug/L | N/A | | (0%-10%) | | | |
| Sodium | | 8500 | D | 1770 | ug/L | 3.93 | | (0%-10%) | | | |
| Strontium | | 394 | D | 77.8 | ug/L | 1.26 | | (0%-10%) | | | |
| Vanadium | | 15.7 | D | 3.16 | ug/L | .541 | | (0%-10%) | | | |
| Zinc | | 10.1 | D | 3.52 | ug/L | 73.5 | | (0%-10%) | | | |

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

QC Summary

Workorder: 363482

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

Miscellaneous

| DATA EXCEPTION REPORT | | | |
|---|--|--|-----------------------------|
| Mo.Day Yr. 13-JAN-15 | Division: Industrial | Quality Criteria: Specifications | Type: Process |
| Instrument Type: ICP/MS | Test / Method: SW846 3005A/6020A | Matrix Type: Liquid | Client Code: CPRC |
| Batch ID: 1445100 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 363482(GEL363482) | | | |
| Application Issues: Method Blank contamination | | | |
| Specification and Requirements Exception Description: | | DER Disposition: | |
| 1. Method Blank contamination: QC 1203232464MB | | The MB contains tin concentrations greater than the RL. However, the sample contains boron at concentrations less then the RDL/PQL. Therefore, the data is not adversely affected. | |

Originator's Name:
Samantha Jacobs 13-JAN-15

Data Validator/Group Leader:
Patricia Steele 17-FEB-15

General Chem Analysis

Case Narrative

**General Chemistry Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363482**

Method/Analysis Information

| | | | |
|--------------------------|---------------------------|----------------|---|
| Product: | Ion Chromatography | | |
| Analytical Batch: | 1445091 | Method: | 9056_ANIONS_IC: COMMON and 9056_ANIONS_IC: COMMON + GW 01 |

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 9056A:

| Sample ID | Client ID |
|------------------|--|
| 363482001 | B2YLW2 |
| 363482002 | B2YLW3 |
| 363482003 | B2YM39 |
| 363482004 | B2YM40 |
| 1203232426 | Method Blank (MB) |
| 1203232427 | Laboratory Control Sample (LCS) |
| 1203232428 | 363482004(B2YM40) Sample Duplicate (DUP) |
| 1203232429 | 363482004(B2YM40) Post Spike (PS) |

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-086 REV# 23.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Ion Chromatography analysis was performed on a Dionex ICS-3000 Ion Chromatograph.

Initial Calibration

All initial calibration requirements have been met for this SDG.

Continuing Calibration Blanks

All continuing calibration blanks (CCBs) associated with reported data from this batch were within acceptance limits.

Calibration Verification Information (CCV)

All continuing calibration verification standards (CCVs) associated with reported data from this batch were within acceptance limits.

Y Intercept Rule

The absolute value of the intercept is less than 3 times the MDL.

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 363482004 (B2YM40).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The spike recovery falls outside of the established acceptance limits due to matrix interference: 1203232429 (B2YM40PS). The spike recovery falls outside of the GEL acceptance limits but within the client specified limits. 1203232429 (B2YM40PS).

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

Sample 1203232429 (B2YM40PS) was initially analyzed within holding; however, the holding time had expired prior to reanalysis of diluted sample.

Sample Dilutions

The following samples in this sample group were diluted due to high concentration: 1203232428 (B2YM40DUP), 1203232429 (B2YM40PS), 363482002 (B2YWL3) and 363482004 (B2YM40). The following samples in this sample group were diluted due to matrix interference: 1203232428 (B2YM40DUP), 1203232429 (B2YM40PS), 363482002 (B2YWL3) and 363482004 (B2YM40). The following samples were diluted based on historical data: 1203232428 (B2YM40DUP), 1203232429 (B2YM40PS), 363482002 (B2YWL3) and 363482004 (B2YM40).

Sample Re-analysis

The following sample was reanalyzed due to PS failure. The reanalysis data was reported. 1203232429 (B2YM40PS).

Miscellaneous Information

Data Exception (DER) Documentation

The following DER was generated for this SDG: 1372633. 1203232429 (B2YM40PS).

Manual Integrations

The following samples from this sample group had to be manually integrated due to errors in the instrument software peak integration: 1203232428 (B2YM40DUP), 1203232429 (B2YM40PS), 363482002 (B2YLW3), 363482003 (B2YM39) and 363482004 (B2YM40).

Additional Comments

Additional comments were not required for this SDG.

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Method/Analysis Information

Product: Alkalinity
Analytical Batch: 1446148 **Method:** 2320_ALKALINITY: GW 01

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SM 2320B:

| Sample ID | Client ID |
|------------------|--|
| 363482010 | B2YLW0 |
| 363482011 | B2YLW1 |
| 1203234966 | Method Blank (MB) |
| 1203234968 | Laboratory Control Sample (LCS) |
| 1203234970 | 363297013(B2YKT8) Sample Duplicate (DUP) |
| 1203234972 | 363297013(B2YKT8) Matrix Spike (MS) |

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-GC-E-033 REV# 11.

Preparation/Analytical Method Verification

The SOP stated above has been prepared based on technical research and testing conducted by GEL Laboratories, LLC. and with guidance from the regulatory documents listed in this "Method/Analysis Information" section.

Calibration Information

The Titration and Ion analysis was performed on a manually operated buret.

Initial Standardization

The titrant was properly standardized

Quality Control (QC) Information**Method Blank (MB) Statement**

The MB analyzed with this SDG met the acceptance criteria.

Laboratory Control Sample (LCS) Recovery

The LCS spike recovery met the acceptance limits.

Quality Control (QC) Designation

The following sample was selected for QC analysis: 363297013 (B2YKT8).

Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The MS/PS recovery for this sample set was within the required acceptance limits.

Duplicate Relative Percent Difference (RPD) Statement

The RPD between the sample and its duplicate met the acceptance limits.

Technical Information

GEL assigns holding times based on the date and time of sample collection. Those holding times expressed in hours are calculated in the AlphaLims system by hours. Those holding times expressed as days expire at midnight on the day of expiration.

Holding Times

All samples in this SDG met the specified holding time.

Sample Dilutions

The samples in this SDG did not require dilutions.

Sample Re-analysis

The samples in this SDG did not require re-analysis.

Miscellaneous Information**Data Exception (DER) Documentation**

Data exception reports (DERs) are generated to document procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Additional Comments

50mL of sample was used due to limited quantity. 1203234970 (B2YKT8DUP) and 1203234972 (B2YKT8MS).

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

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.

Review Validation:

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

The following data validator verified the information presented in this case narrative:

Reviewer:  Date: 13Jan15

Sample Data Summary

GEL LABORATORIES LLC

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

**Certificate of Analysis Report
for**

CPRC001 CH2MHill Plateau Remediation Company

Client SDG: GEL363482 GEL Work Order: 363482

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.
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

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 Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Heather Shaffer.

Reviewed by



Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW2 | Project: | CPRC0S15012 |
| Sample ID: | 363482001 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 07:00 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|-----------|--------|---------|------|-------|------|-------------|--------------------|---------|--------|
| Ion Chromatography | | | | | | | | | | |
| <i>9056_ANIONS_IC: COMMON "As Received"</i> | | | | | | | | | | |
| Chloride 16887-00-6 | U | 0.00 | +/-22.3 | 67.0 | 200 | ug/L | 1 | RXB5 12/19/14 1355 | 1445091 | 1 |
| Fluoride 16984-48-8 | U | 0.00 | +/-11.0 | 33.0 | 500 | ug/L | 1 | | | |
| Nitrate-N 14797-55-8 | U | 0.00 | +/-11.0 | 33.0 | 250 | ug/L | 1 | | | |
| Nitrite-N 14797-65-0 | U | 0.00 | +/-12.7 | 38.0 | 250 | ug/L | 1 | | | |
| Sulfate 14808-79-8 | U | 0.00 | +/-44.3 | 133 | 500 | ug/L | 1 | | | |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 9056A | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW3 | Project: | CPRC0S15012 |
| Sample ID: | 363482002 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 11:03 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|-----------|--------|---------|------|------|-------|----|---------------|------|---------|--------|
| Ion Chromatography | | | | | | | | | | | |
| <i>9056_ANIONS_IC: COMMON "As Received"</i> | | | | | | | | | | | |
| Fluoride 16984-48-8 | B | 343 | +/-15.9 | 33.0 | 500 | ug/L | 1 | RXB5 12/19/14 | 1426 | 1445091 | 1 |
| Nitrite-N 14797-65-0 | U | 0.00 | +/-12.7 | 38.0 | 250 | ug/L | 1 | | | | |
| Chloride 16887-00-6 | D | 20400 | +/-717 | 670 | 2000 | ug/L | 10 | RXB5 12/19/14 | 1935 | 1445091 | 2 |
| Nitrate-N 14797-55-8 | D | 5030 | +/-201 | 330 | 1000 | ug/L | 10 | | | | |
| Sulfate 14808-79-8 | D | 56800 | +/-1950 | 1330 | 4000 | ug/L | 10 | | | | |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 9056A | |
| 2 | SW846 9056A | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YM39 | Project: | CPRC0S15012 |
| Sample ID: | 363482003 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 07:16 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|-----------|--------|---------|------|-------|------|-------------|--------------------|---------|--------|
| Ion Chromatography | | | | | | | | | | |
| <i>9056_ANIONS_IC: COMMON + GW 01 "As Received"</i> | | | | | | | | | | |
| Chloride 16887-00-6 | U | 53.2 | +/-22.4 | 67.0 | 200 | ug/L | 1 | RXB5 12/19/14 1457 | 1445091 | 1 |
| Fluoride 16984-48-8 | U | 0.00 | +/-11.0 | 33.0 | 500 | ug/L | 1 | | | |
| Nitrate-N 14797-55-8 | B | 49.2 | +/-11.1 | 33.0 | 250 | ug/L | 1 | | | |
| Nitrite-N 14797-65-0 | U | 0.00 | +/-12.7 | 38.0 | 250 | ug/L | 1 | | | |
| Phosphorus in phosphate PO4-P | U | 0.00 | +/-22.3 | 67.0 | 500 | ug/L | 1 | | | |
| Sulfate 14808-79-8 | U | 0.00 | +/-44.3 | 133 | 500 | ug/L | 1 | | | |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 9056A | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YM40 | Project: | CPRC0S15012 |
| Sample ID: | 363482004 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 10:03 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|-----------|--------|---------|------|-------|------|-------------|--------------------|---------|--------|
| Ion Chromatography | | | | | | | | | | |
| <i>9056_ANIONS_IC: COMMON + GW 01 "As Received"</i> | | | | | | | | | | |
| Fluoride 16984-48-8 | B | 336 | +/-15.7 | 33.0 | 500 | ug/L | 1 | RXB5 12/19/14 1528 | 1445091 | 1 |
| Nitrite-N 14797-65-0 | U | 0.00 | +/-12.7 | 38.0 | 250 | ug/L | 1 | | | |
| Phosphorus in phosphate PO4-P | U | 58.5 | +/-22.4 | 67.0 | 500 | ug/L | 1 | | | |
| Chloride 16887-00-6 | D | 20700 | +/-725 | 670 | 2000 | ug/L | 10 | RXB5 12/19/14 2006 | 1445091 | 2 |
| Nitrate-N 14797-55-8 | D | 5130 | +/-203 | 330 | 1000 | ug/L | 10 | | | |
| Sulfate 14808-79-8 | D | 52300 | +/-1800 | 1330 | 4000 | ug/L | 10 | | | |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SW846 9056A | |
| 2 | SW846 9056A | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW0 | Project: | CPRC0S15012 |
| Sample ID: | 363482010 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 07:00 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|-----------|--------|-----|------|-------|----|---------------|------|---------|--------|
| Titration and Ion Analysis | | | | | | | | | | |
| <i>2320_ALKALINITY: GW 01 "As Received"</i> | | | | | | | | | | |
| Alkalinity, Total as CaCO3 ALKALINITY | U | 530 | 725 | 1000 | ug/L | | PX01 12/27/14 | 1650 | 1446148 | 1 |
| Bicarbonate alkalinity (CaCO3) 71-52-3 | U | 530 | 725 | 1000 | ug/L | | | | | |
| Carbonate alkalinity (CaCO3) CO3ALKALINITY | U | 0.00 | 725 | 1000 | ug/L | | | | | |
| Hydroxide alkalinity as CaCO3 84625-61-6 | U | 0.00 | 725 | 1000 | ug/L | | | | | |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SM 2320B | |

Certificate of Analysis

Company : CH2MHill Plateau Remediation
 Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: **CHPRC SAF S15-012**

Report Date: January 13, 2015

| | | | |
|-------------------|-----------------|------------|-------------|
| Client Sample ID: | B2YLW1 | Project: | CPRC0S15012 |
| Sample ID: | 363482011 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 11:03 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|-----------|--------|-----|------|-------|----|---------------|------|---------|--------|
| Titration and Ion Analysis | | | | | | | | | | |
| <i>2320_ALKALINITY: GW 01 "As Received"</i> | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | 126000 | 725 | 1000 | ug/L | | PX01 12/27/14 | 1654 | 1446148 | 1 |
| ALKALINITY | | | | | | | | | | |
| Bicarbonate alkalinity (CaCO3) | | 126000 | 725 | 1000 | ug/L | | | | | |
| 71-52-3 | | | | | | | | | | |
| Carbonate alkalinity (CaCO3) | U | 0.00 | 725 | 1000 | ug/L | | | | | |
| CO3ALKALINITY | | | | | | | | | | |
| Hydroxide alkalinity as CaCO3 | U | 0.00 | 725 | 1000 | ug/L | | | | | |
| 84625-61-6 | | | | | | | | | | |

The following Analytical Methods were performed

| Method | Description | Analyst Comments |
|--------|-------------|------------------|
| 1 | SM 2320B | |

Quality Control Summary

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Report Date: January 13, 2015

Page 1 of 3

CH2M Hill Plateau Remediation Company

MSIN R3-50 CHPRC

PO Box 1600

Richland, Washington

Contact: Mr. Scot Fitzgerald

Workorder: 363482

| <u>Parmname</u> | <u>NOM</u> | <u>Sample</u> | <u>Qual</u> | <u>QC</u> | <u>Units</u> | <u>RPD%</u> | <u>REC%</u> | <u>Range</u> | <u>Anlst</u> | <u>Date</u> | <u>Time</u> |
|---------------------------|------------|---------------|-------------|-----------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|
| Ion Chromatography | | | | | | | | | | | |
| Batch | 1445091 | | | | | | | | | | |
| QC1203232428 | 363482004 | DUP | | | | | | | | | |
| Chloride | D | 20700 | D | 20700 | ug/L | 0.295 | | (0%-20%) | RXB5 | 12/19/14 | 20:37 |
| Fluoride | B | 336 | B | 333 | ug/L | 0.956 ^ | | (+/-500) | | 12/19/14 | 15:59 |
| Nitrate-N | D | 5130 | D | 5110 | ug/L | 0.332 | | (0%-20%) | | 12/19/14 | 20:37 |
| Nitrite-N | U | 38.0 | U | 38.0 | ug/L | N/A | | | | 12/19/14 | 15:59 |
| Phosphorus in phosphate | U | 67.0 | U | 67.0 | ug/L | N/A | | | | | |
| Sulfate | D | 52300 | D | 52300 | ug/L | 0.0382 | | (0%-20%) | | 12/19/14 | 20:37 |
| QC1203232427 | LCS | | | | | | | | | | |
| Chloride | 5000 | | | 4610 | ug/L | | 92.3 | (90%-110%) | | 12/19/14 | 23:12 |
| Fluoride | 2500 | | | 2390 | ug/L | | 95.5 | (90%-110%) | | | |
| Nitrate-N | 2500 | | | 2370 | ug/L | | 94.7 | (90%-110%) | | | |
| Nitrite-N | 2500 | | | 2360 | ug/L | | 94.4 | (90%-110%) | | | |
| Phosphorus in phosphate | 1250 | | | 1230 | ug/L | | 98.4 | (90%-110%) | | | |
| Sulfate | 10000 | | | 9590 | ug/L | | 95.9 | (90%-110%) | | | |
| QC1203232426 | MB | | | | | | | | | | |
| Chloride | | | U | 67.0 | ug/L | | | | | 12/19/14 | 22:40 |
| Fluoride | | | U | 33.0 | ug/L | | | | | | |
| Nitrate-N | | | U | 33.0 | ug/L | | | | | | |
| Nitrite-N | | | U | 38.0 | ug/L | | | | | | |
| Phosphorus in phosphate | | | U | 67.0 | ug/L | | | | | | |
| Sulfate | | | U | 133 | ug/L | | | | | | |
| QC1203232429 | 363482004 | PS | | | | | | | | | |

February 19, 2015
GEL LABORATORIES LLC

Rev. 1

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

QC Summary

Workorder: 363482

Page 2 of 3

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---------------------------|------------|---------------|-------------|-----------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|
| Ion Chromatography | | | | | | | | | | | |
| Batch | 1445091 | | | | | | | | | | |
| Chloride | 5.00 | D | 2.07 | D | 7.28 | mg/L | 104 | (90%-110%) | | 12/19/14 | 21:07 |
| Fluoride | 2.50 | B | 0.336 | | 2.81 | mg/L | 98.9 | (90%-110%) | RXB5 | 01/13/15 | 12:35 |
| Nitrate-N | 2.50 | D | 0.513 | D | 3.03 | mg/L | 101 | (90%-110%) | | 12/19/14 | 21:07 |
| Nitrite-N | 2.50 | U | 0.00 | X | 2.53 | mg/L | 101 | (90%-110%) | | 01/13/15 | 12:35 |
| Phosphorus in phosphate | 1.25 | U | 0.0585 | X | 1.11 | mg/L | 84.3* | (90%-110%) | | | |
| Sulfate | 10.0 | D | 5.23 | D | 15.8 | mg/L | 105 | (90%-110%) | | 12/19/14 | 21:07 |

Titration and Ion Analysis

| | | | | | | | | | | | |
|--------------------------------|---------|---|--------|---|--------|------|------|----------|------------|----------|-------|
| Batch | 1446148 | | | | | | | | | | |
| QC1203234970 363297013 DUP | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | | 112000 | | 114000 | ug/L | 1.87 | (0%-20%) | PXO1 | 12/27/14 | 16:09 |
| Bicarbonate alkalinity (CaCO3) | | | 112000 | | 114000 | ug/L | 1.87 | (0%-20%) | | | |
| Carbonate alkalinity (CaCO3) | | U | 1450 | U | 1450 | ug/L | N/A | | | | |
| Hydroxide alkalinity as CaCO3 | | U | 1450 | U | 1450 | ug/L | N/A | | | | |
| QC1203234968 LCS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 50000 | | | | 51400 | ug/L | | 103 | (90%-110%) | 12/27/14 | 15:53 |
| QC1203234966 MB | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | | | | U | 725 | ug/L | | | | 12/27/14 | 15:53 |
| Bicarbonate alkalinity (CaCO3) | | | | U | 725 | ug/L | | | | | |
| Carbonate alkalinity (CaCO3) | | | | U | 725 | ug/L | | | | | |
| Hydroxide alkalinity as CaCO3 | | | | U | 725 | ug/L | | | | | |
| QC1203234972 363297013 MS | | | | | | | | | | | |
| Alkalinity, Total as CaCO3 | 100000 | | 112000 | | 217000 | ug/L | | 105 | (80%-120%) | 12/27/14 | 16:11 |

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

GEL LABORATORIES LLC

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

QC Summary

Workorder: 363482

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

Miscellaneous

| DATA EXCEPTION REPORT | | | |
|---|--------------------------------------|---|-----------------------------|
| Mo.Day Yr. 13-JAN-15 | Division: Industrial | Quality Criteria: Specifications | Type: Process |
| Instrument Type: IC | Test / Method: SW846 9056A | Matrix Type: Liquid | Client Code: CPRC |
| Batch ID: 1445091 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 363482(GEL363482) | | | |
| Application Issues: Sample Analyzed out of Holding | | | |
| Specification and Requirements Exception Description: | | DER Disposition: | |
| 1. Sample Analyzed out of Holding: QC 1203232429PS | | 1. Sample was initially analyzed within holding; however, the holding time had expired prior to reanalysis of diluted sample. | |

Originator's Name:
Rachael Bell 13-JAN-15

Data Validator/Group Leader:
Thomas Lewis 13-JAN-15

Radiological Analysis

Radiochemistry Case Narrative
CH2MHill Plateau Remediation Company (CPRC)
SDG GEL363482
Work Order 363482

Method/Analysis Information

Product: 9310_ALPHABETA_GPC: COMMON

Analytical Method: EPA 900.0/SW846 9310

Analytical Batch Number: 1445804

| Sample ID | Client ID |
|------------------|--|
| 363482010 | B2YLW0 |
| 363482011 | B2YLW1 |
| 1203234179 | MB for batch 1445804 |
| 1203234183 | Laboratory Control Sample (LCS) |
| 1203234180 | 363568006(B2YM20) Sample Duplicate (DUP) |
| 1203234181 | 363568006(B2YM20) Matrix Spike (MS) |
| 1203234182 | 363568006(B2YM20) Matrix Spike Duplicate (MSD) |

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-001 REV# 18.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363568006 (B2YM20).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Gross Alpha/Beta Preparation Information

High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

The matrix spike and matrix spike duplicate, 1203234181 (B2YM20MS) and 1203234182 (B2YM20MSD), aliquots were reduced to conserve sample volume.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

| | |
|--------------------------|-------------------------------------|
| Product: | SRISO_SEP_PRECIP_GPC: COMMON |
| Analytical Method: | EPA 905.0 Modified |
| Analytical Batch Number: | 1446314 |

| | |
|------------------|------------------|
| Sample ID | Client ID |
| 363482005 | B2YM37 |

| | |
|------------|--|
| 363482006 | B2YM38 |
| 1203235390 | MB for batch 1446314 |
| 1203235392 | Laboratory Control Sample (LCS) |
| 1203235391 | 363568006(B2YM20) Sample Duplicate (DUP) |

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-004 REV# 17.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:**Blank Information**

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363568006 (B2YM20).

QC Information

All of the QC samples met the required acceptance limits.

Technical Information:**Holding Time**

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

None of the samples in this sample set required reprep or reanalysis.

Chemical Recoveries

All chemical recoveries meet the required acceptance limits for this sample set.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:**Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Manual Integration

No manual integrations were performed on data in this batch.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product: KPA_UTOT: COMMON

Analytical Method: ASTM D 5174

Analytical Batch Number: 1448083

| Sample ID | Client ID |
|------------------|--|
| 363482005 | B2YM37 |
| 363482006 | B2YM38 |
| 363482010 | B2YLOW |
| 363482011 | B2YLOW1 |
| 1203239964 | MB for batch 1448083 |
| 1203239967 | Laboratory Control Sample (LCS) |
| 1203239968 | Laboratory Control Sample (LCS) |
| 1203239965 | 363568005(B2YM09) Sample Duplicate (DUP) |
| 1203239966 | 363568005(B2YM09) Matrix Spike (MS) |

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

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-023 REV# 19.

Calibration Information:**Calibration Information**

All initial and continuing calibration requirements have been met. The calibration for Total Uranium is performed prior to each analysis and is located with the raw data.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information

The blank volume is representative of the sample volume in this batch.

Designated QC

The following sample was used for QC: 363568005 (B2YM09).

Technical Information:

Holding Time

All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis

Samples 363482005 (B2YM37) and 363482011 (B2YLV1) were treated with a post-spike due to contractual requirements and reanalyzed to test for quenching. The post-spike verified the initial results, so the initial results are reported. Samples 363482006 (B2YM38) were diluted 1:10, treated with a post-spike due to contractual requirements, and reanalyzed to test for quenching. The post-spike verified the diluted result, so the diluted result is reported. Sample 363482010 (B2YLV0) was reanalyzed due to the initial analysis having zeros for the results. The second analyzed result yielded numerical numbers for the result. The sample was treated with a post-spike due to contractual requirements and reanalyzed to test for quenching. The post-spike verified the second analyzed result, so the second analyzed result is reported. The entire batch is a re-prep of batch 1445297 due to a failed MS recovery.

Recounts

None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC

The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments

MB 1203239964 (MB) failed R2 and/or lifetime. This was due to insufficient uranium in the sample for measurement. The results are reported.

Qualifier Information

| Qualifier | Reason | Analyte | Sample | Client Sample |
|-----------|--|---------------|-----------|---------------|
| D | Results are reported from a diluted aliquot of sample. | Total Uranium | 363482006 | B2YM38 |

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: GEL363482 GEL Work Order: 363482

The Qualifiers in this report are defined as follows:

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: Kate Gellatly

Date: 13 JAN 2015

Title: Analyst I

Sample Data Summary

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF S15-012

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YM37 | Project: | CPRC0S15012 |
| Sample ID: | 363482005 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|-----------|---------|-------------|-------|-----------|------|-------|----|---------|----------|------|---------|------|
| Rad Gas Flow Proportional Counting | | | | | | | | | | | | | |
| <i>SRISO_SEP_PRECIP_GPC: COMMON "As Received"</i> | | | | | | | | | | | | | |
| Total Strontium SR-RAD | U | -0.143 | +/-0.606 | 1.24 | +/-0.607 | 2.00 | pCi/L | | KSD1 | 01/07/15 | 1017 | 1446314 | 1 |
| Rad Total Uranium | | | | | | | | | | | | | |
| <i>KPA_UTOT: COMMON "As Received"</i> | | | | | | | | | | | | | |
| Total Uranium 7440-61-1 | U | -0.0448 | +/-0.0163 | 0.245 | +/-0.0167 | 1.00 | ug/L | 1 | CXP3 | 01/09/15 | 0806 | 1448083 | 2 |

The following Analytical Methods were performed

| Method | Description |
|--------|--------------------|
| 1 | EPA 905.0 Modified |
| 2 | ASTM D 5174 |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|---------------------------|-----------|-------------------|
| Strontium Carrier | SRISO_SEP_PRECIP_GPC: COM | 84.0 | (25%-125%) |

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 The Qualifiers in this report are defined as follows :

- B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample
 - 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
- The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF S15-012

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YM38 | Project: | CPRC0S15012 |
| Sample ID: | 363482006 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|-----------|--------|-------------|------|----------|------|-------|----|---------|----------|------|---------|------|
| Rad Gas Flow Proportional Counting | | | | | | | | | | | | | |
| <i>SRISO_SEP_PRECIP_GPC: COMMON "As Received"</i> | | | | | | | | | | | | | |
| Total Strontium | U | 0.237 | +/-0.649 | 1.19 | +/-0.651 | 2.00 | pCi/L | | KSD1 | 01/07/15 | 1017 | 1446314 | 1 |
| SR-RAD | | | | | | | | | | | | | |
| Rad Total Uranium | | | | | | | | | | | | | |
| <i>KPA_UTOT: COMMON "As Received"</i> | | | | | | | | | | | | | |
| Total Uranium | D | 46.9 | +/-1.69 | 2.45 | +/-5.04 | 1.00 | ug/L | 10 | CXP3 | 01/09/15 | 0808 | 1448083 | 2 |
| 7440-61-1 | | | | | | | | | | | | | |

The following Analytical Methods were performed

| Method | Description |
|--------|--------------------|
| 1 | EPA 905.0 Modified |
| 2 | ASTM D 5174 |

| Surrogate/Tracer recovery | Test | Recovery% | Acceptable Limits |
|---------------------------|---------------------------|-----------|-------------------|
| Strontium Carrier | SRISO_SEP_PRECIP_GPC: COM | 88.9 | (25%-125%) |

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 The Qualifiers in this report are defined as follows :

- B The associated QC sample blank has a result $\geq 2X$ the MDA and, after corrections, result is \geq MDA for this sample
 - 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
- The above sample is reported on an "as received" basis.

Certificate of Analysis

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF S15-012

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YLW0 | Project: | CPRC0S15012 |
| Sample ID: | 363482010 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time | Batch | Mtd. |
|---|-----------|--------|-------------|-------|------------|------|-------|----|---------|----------|------|---------|------|
| Rad Gas Flow Proportional Counting | | | | | | | | | | | | | |
| <i>9310_ALPHABETA_GPC: COMMON "As Received"</i> | | | | | | | | | | | | | |
| Alpha 12587-46-1 | U | -0.756 | +/-0.909 | 2.10 | +/-0.909 | 3.00 | pCi/L | | GXR1 | 01/08/15 | 1123 | 1445804 | 1 |
| Beta 12587-47-2 | U | 0.284 | +/-1.75 | 3.09 | +/-1.75 | 4.00 | pCi/L | | | | | | |
| Rad Total Uranium | | | | | | | | | | | | | |
| <i>KPA_UTOT: COMMON "As Received"</i> | | | | | | | | | | | | | |
| Total Uranium 7440-61-1 | U | 0.014 | +/-0.00147 | 0.245 | +/-0.00187 | 1.00 | ug/L | 1 | CXP3 | 01/09/15 | 0934 | 1448083 | 2 |

The following Analytical Methods were performed

| Method | Description |
|--------|----------------------|
| 1 | EPA 900.0/SW846 9310 |
| 2 | ASTM D 5174 |

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 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
- < 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
- A The TIC is a suspected aldol-condensation product
- 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).
- B The analyte was detected in both the associated QC blank and in the sample.
- B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
- C Analyte has been confirmed by GC/MS analysis
- 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 Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.

Certificate of Analysis

Company : CH2M Hill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF S15-012

Report Date: January 13, 2015

| | | | |
|-------------------|-----------|------------|-------------|
| Client Sample ID: | B2YLW1 | Project: | CPRC0S15012 |
| Sample ID: | 363482011 | Client ID: | CPRC001 |
| Matrix: | WATER | | |
| Collect Date: | 18-DEC-14 | | |
| Receive Date: | 19-DEC-14 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | TPU | RL | Units | DF | Analyst | Date | Time Batch | Mtd. |
|---|-----------|--------|-------------|-------|----------|------|-------|----|---------|----------|--------------|------|
| Rad Gas Flow Proportional Counting | | | | | | | | | | | | |
| <i>9310_ALPHABETA_GPC: COMMON "As Received"</i> | | | | | | | | | | | | |
| Alpha 12587-46-1 | | 5.20 | +/-2.37 | 2.80 | +/-2.52 | 3.00 | pCi/L | | GXR1 | 01/08/15 | 1123 1445804 | 1 |
| Beta 12587-47-2 | | 11.9 | +/-2.39 | 2.96 | +/-3.08 | 4.00 | pCi/L | | | | | |
| Rad Total Uranium | | | | | | | | | | | | |
| <i>KPA_UTOT: COMMON "As Received"</i> | | | | | | | | | | | | |
| Total Uranium 7440-61-1 | | 7.02 | +/-0.253 | 0.245 | +/-0.632 | 1.00 | ug/L | 1 | CXP3 | 01/09/15 | 0813 1448083 | 2 |

The following Analytical Methods were performed

| Method | Description |
|--------|----------------------|
| 1 | EPA 900.0/SW846 9310 |
| 2 | ASTM D 5174 |

Notes:
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96 sigma).
 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
- < 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
- A The TIC is a suspected aldol-condensation product
- 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).
- B The analyte was detected in both the associated QC blank and in the sample.
- B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
- C Analyte has been confirmed by GC/MS analysis
- 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 Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.

Quality Control Data

QC Summary

Report Date: January 13, 2015

Page 1 of 3

Client : CH2MHill Plateau Remediation Company
 MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Workorder: 363482

| Parmname | NOM | Sample | Qual | QC | Units | QC Criteria | Range | Analyst | Date Time |
|---------------------|-----------|--------|-------|------------------|---------|---------------------|-------|---------|---------------|
| Rad Gas Flow | | | | | | | | | |
| Batch | 1445804 | | | | | | | | |
| QC1203234179 | MB | | | | | | | | |
| Alpha | | | U | -0.983 | pCi/L | | | GXR1 | 01/08/1511:25 |
| | | | | Uncert: +/-1.27 | | | | | |
| | | | | TPU: +/-1.27 | | | | | |
| Beta | | | U | 0.677 | pCi/L | | | | |
| | | | | Uncert: +/-1.51 | | | | | |
| | | | | TPU: +/-1.51 | | | | | |
| QC1203234180 | 363568006 | DUP | | | | | | | |
| Alpha | | 7.18 | | 6.73 | pCi/L | | | | 01/08/1511:26 |
| | | | | Uncert: +/-2.68 | | RPD: 6 (0% - 100%) | | | |
| | | | | TPU: +/-2.93 | | RER: 0.217 (0-2) | | | |
| Beta | | 8.23 | | 7.61 | pCi/L | | | | |
| | | | | Uncert: +/-2.12 | | RPD: 8 (0% - 100%) | | | |
| | | | | TPU: +/-2.57 | | RER: 0.358 (0-2) | | | |
| QC1203234181 | 363568006 | MS | | | | | | | |
| Alpha | | 243 | 7.18 | 281 | pCi/L | REC: 113 (75%-125%) | | | 01/08/1511:26 |
| | | | | Uncert: +/-2.68 | | | | | |
| | | | | TPU: +/-2.93 | | | | | |
| Beta | | 952 | 8.23 | 1040 | pCi/L | REC: 109 (75%-125%) | | | |
| | | | | Uncert: +/-2.12 | | | | | |
| | | | | TPU: +/-2.57 | | | | | |
| QC1203234182 | 363568006 | MSD | | | | | | | |
| Alpha | | 243 | 7.18 | 306 | pCi/L | REC: 123 (75%-125%) | | | |
| | | | | Uncert: +/-2.68 | | RPD: 9 (0%-20%) | | | |
| | | | | TPU: +/-2.93 | | RER: 0.606 (0-2) | | | |
| Beta | | 952 | 8.23 | 1030 | pCi/L | REC: 107 (75%-125%) | | | |
| | | | | Uncert: +/-2.12 | | RPD: 1 (0%-20%) | | | |
| | | | | TPU: +/-2.57 | | RER: 0.0964 (0-2) | | | |
| QC1203234183 | LCS | | | | | | | | |
| Alpha | | 81.1 | | 85.4 | pCi/L | REC: 105 (80%-120%) | | | 01/08/1511:26 |
| | | | | Uncert: +/-8.96 | | | | | |
| | | | | TPU: +/-17.1 | | | | | |
| Beta | | 317 | | 318 | pCi/L | REC: 100 (80%-120%) | | | |
| | | | | Uncert: +/-11.4 | | | | | |
| | | | | TPU: +/-55.1 | | | | | |
| Batch | 1446314 | | | | | | | | |
| QC1203235390 | MB | | | | | | | | |
| Total Strontium | | | U | -0.369 | pCi/L | | | KSD1 | 01/07/1510:17 |
| | | | | Uncert: +/-0.406 | | | | | |
| | | | | TPU: +/-0.407 | | | | | |
| QC1203235391 | 363568006 | DUP | | | | | | | |
| Total Strontium | | U | 0.244 | U | -0.0915 | pCi/L | | | 01/07/1510:19 |
| | | | | Uncert: +/-0.669 | | RPD: 0 N/A | | | |
| | | | | TPU: +/-0.672 | | RER: 0.685 (0-2) | | | |
| QC1203235392 | LCS | | | | | | | | |

QC Summary

Workorder: 363482

Page 2 of 3

| Parmname | NOM | Sample | Qual | QC | Units | QC Criteria | Range | Analyst | Date Time |
|---------------------|-----------|---------|------|------------|-------|-------------|------------|---------|---------------|
| Rad Gas Flow | | | | | | | | | |
| Batch | 1446314 | | | | | | | | |
| Total Strontium | 81.2 | | | 72.5 | pCi/L | REC: 89 | (80%-120%) | | |
| | Uncert: | | | +/-3.95 | | | | | |
| | TPU: | | | +/-17.2 | | | | | |
| Rad Total U | | | | | | | | | |
| Batch | 1448083 | | | | | | | | |
| QC1203239964 | MB | | | | | | | | |
| Total Uranium | | | U | -0.0686 | ug/L | | | CXP3 | 01/09/1509:05 |
| | Uncert: | | | +/-0.00245 | | | | | |
| | TPU: | | | +/-0.00617 | | | | | |
| QC1203239965 | 363568005 | DUP | | | | | | | |
| Total Uranium | | D | 106 | 102 | ug/L | | | | 01/09/1509:10 |
| | Uncert: | +/-3.81 | | +/-6.31 | | RPD: 3 | (0% - 20%) | | |
| | TPU: | +/-11.4 | | +/-10.5 | | RER: 0.428 | (0-2) | | |
| QC1203239966 | 363568005 | MS | | | | | | | |
| Total Uranium | 50.0 | D | 106 | 159 | ug/L | REC: 107 | (75%-125%) | | 01/09/1509:13 |
| | Uncert: | +/-3.81 | | +/-9.76 | | | | | |
| | TPU: | +/-11.4 | | +/-16.4 | | | | | |
| QC1203239967 | LCS | | | | | | | | |
| Total Uranium | 50.0 | | | 52.4 | ug/L | REC: 105 | (80%-120%) | | 01/09/1509:17 |
| | Uncert: | | | +/-3.24 | | | | | |
| | TPU: | | | +/-5.40 | | | | | |
| QC1203239968 | LCS | | | | | | | | |
| Total Uranium | 5.00 | | | 4.71 | ug/L | REC: 94 | (80%-120%) | | 01/09/1509:18 |
| | Uncert: | | | +/-0.169 | | | | | |
| | TPU: | | | +/-0.424 | | | | | |

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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
- < 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
- A The TIC is a suspected aldol-condensation product
- 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).
- B The analyte was detected in both the associated QC blank and in the sample.
- B The associated QC sample blank has a result >= 2X the MDA and, after corrections, result is >= MDA for this sample
- C Analyte has been confirmed by GC/MS analysis
- 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 Concentration exceeds the calibration range of the instrument
- E Reported value is estimated due to interferences. See comment in narrative.
- 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
- M Duplicate precision not met.

QC Summary

Workorder: 363482

Page 3 of 3

| Parname | NOM | Sample | Qual | QC | Units | QC Criteria | Range | Analyst | Date | Time |
|---------|--|--------|------|----|-------|-------------|-------|---------|------|------|
| N | Spike Sample recovery is outside control limits. | | | | | | | | | |
| P | Aroclor target analyte with greater than 25% difference between column analyses. | | | | | | | | | |
| S | Reported value determined by the Method of Standard Additions (MSA) | | | | | | | | | |
| 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. | | | | | | | | | |
| 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 | | | | | | | | | |
| o | Analyte failed to recover within LCS limits (Organics 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.

** Indicates analyte is a surrogate compound.

^ 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.

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.