

December 14, 2020

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

Re: CHPRC SAF I21-004
Work Order: 527768
SDG: GEL527768

Dear Mr. Fitzgerald:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 18, 2020. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

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,



Clare Drennen for
Heather Shaffer
Project Manager

Purchase Order: 300071 - 7H
Chain of Custody: I21-004-141, I21-004-151, I21-004-152 and I21-004-165
Enclosures



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Case Narrative

**General Narrative
for
CH2MHill Plateau Remediation Company (74393)
CHPRC SAF I21-004
SDG: GEL527768**

December 14, 2020

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 November 18, 2020, for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

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

Sample Identification

The laboratory received the following samples:

| Laboratory Identification | Sample Description |
|--------------------------------------|-------------------------------|
| 527768001 | B3XPC2 |
| 527768002 | B3XP92 |
| 527768003 | B3XNX4 |
| 527768004 | B3XNX5 |

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: General Chemistry and Radiochemistry.

We certify that this package is in compliance with the Analytical Laboratory Services for CH2M Hill Plateau Remediation Company Statement of Work, 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 data package deliverable has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.



Clare Drennen for
Heather Shaffer
Project Manager

Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL527768
Work Order #: 527768

General Chemistry

Ion Chromatography

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

Technical Information

Sample Dilutions

The following samples 1204697786 (Non SDG 527750012DUP), 1204697787 (Non SDG 527750012PS) and 527768001 (B3XPC2) were diluted because target analyte concentrations exceeded the calibration range.

| | |
|----------|--------|
| Analyte | 527768 |
| | 001 |
| Chloride | 5X |
| Nitrate | 5X |
| Sulfate | 5X |

Sample Re-analysis

Samples 1204697786 (Non SDG 527750012DUP) and 1204697787 (Non SDG 527750012PS) were re-analyzed to verify the results.

Radiochemistry

SMR_COMMON_GEA

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

SMR_TRITIUM_LSC

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

SMR_C14_LSC

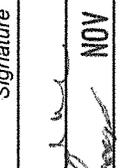
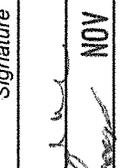
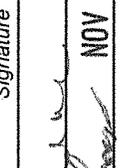
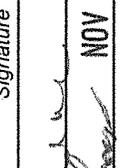
There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

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

Chain of Custody and Supporting Documentation

| | | | |
|---|---|---|---------------|
| CH2M Hill Plateau Remediation Company Kathy Turner CHPRC | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST C.O.C.# I21-004-141 Page 1 of 1 | |
| Collector: Kathy Turner CHPRC | Contact/Requester: Karen Waters-Husted | Telephone No.: 509-376-4650 | 527768 |
| SAF No.: I21-004 | Sampling Origin: Hanford Site | Purchase Order/Charge Code: 300071 | |
| Project Title: AEA 1, November 2020 | Logbook No.: HNF-N-506 -114 | Ice Chest No.: GWS-131 | |
| Shipped To (Lab): GEL Laboratories, LLC | Method of Shipment: Commercial Carrier | Bill of Lading/Air Bill No.: 7721 0677 0266 | |
| Protocol: SURV | Priority: 30 Days | Offsite Property No.: N/A | |
| POSSIBLE SAMPLE HAZARDS/REMARK ** ** 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 N/A | |
| Sample No. | Filter | Date | Time |
| B3XP92 | N | 11/17/20 | 0800 |
| B3XP92 | N | 1 | 1 |
| No/Type Container | | Sample Analysis | |
| 1x250-mL G/P | | SMR_C14_LSC | |
| 1x250-mL P | | SMR_TRITIUM_LSC | |
| Holding Time | | Preservative | |
| 6 Months | | None | |
| 6 Months | | None | |

| | | | |
|--|--|--|--|
| Relinquished By | | Received By | |
| Print First and Last Name Kathy Turner CHPRC | Signature  | Print First and Last Name Jeff Lucas CHPRC | Signature  |
| Date/Time NOV 17 2020 0815 | Date/Time NOV 17 2020 0815 | Date/Time NOV 17 2020 0815 | Date/Time NOV 17 2020 0815 |
| FED EX | | FEDEX | |
| Print First and Last Name Jeff Lucas CHPRC | Signature  | Print First and Last Name Stacy Boone GEL Laboratories | Signature  |
| Date/Time NOV 17 2020 1005 | Date/Time NOV 17 2020 1005 | Date/Time NOV 18 2020 1005 | Date/Time NOV 18 2020 1005 |
| 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.# I21-004-151
 Page 1 of 1

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 527768

Collector: Lorin Kelly
 Telephone No.: 509-376-4650

SAF No.: I21-004
 Purchase Order/Charge Code: 300071

Project Title: AEA 1, November 2020
 Logbook No.: HNF-N-506 113/85

Shipped To (Lab): GEL Laboratories, LLC
 Method of Shipment Commercial Carrier
 Ice Chest No.: 6ws-131

Protocol: SURV
 Priority: 30 Days
 Bill of Lading/Air Bill No.: 7721 0677 0286

Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARK
 ** ** 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
 N/A

| Sample No. | Filter | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|------------|--------|-------------|------|-------------------|-----------------|--------------|---------------|
| B3XNX4 | N | NOV 17 2020 | 0700 | 1x500-mL G/P | SMR_COMMON_GEA | 6 Months | HNO3 to pH <2 |
| B3XNX4 | N | NOV 17 2020 | 0700 | 1x250-mL P | SMR_TRITIUM_LSC | 6 Months | None |

| Relinquished By | | Received By | |
|---------------------------|-----------------|---------------------------|--------------------|
| Print First and Last Name | Signature | Print First and Last Name | Signature |
| Lorin Kelly | <i>L. Kelly</i> | Jeff Lucas /CHPRC | <i>Jeff Lucas</i> |
| | NOV 17 2020 | NOV 17 2020 | 0945 |
| | NOV 17 2020 | NOV 18 2020 | 1005 |
| | | Stacy Boone | <i>Stacy Boone</i> |
| | | GEL Laboratories | |

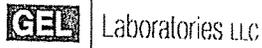
Matrix *
 S = Soil DS = Drum Solids
 SE = Sediment DL = Drum Liquids
 SO = Solid T = Tissue
 SL = Sludge WI = Wipe
 W = Water L = Liquid
 O = Oil V = Vegetation
 A = Air X = Other

Disposal Method (e.g., Return to customer, per lab procedure, used in process):
 Disposed By: _____ Date/Time: _____

FINAL SAMPLE DISPOSITION

| | | | |
|--|--|---|--|
| CH2MHill Plateau Remediation Company | | C.O.C.# I21-004-152 Page 1 of 1 | |
| Collector: Lorin Kelly | | Telephone No.: 509-376-4650 | |
| SAF No.: I21-004 | | Purchase Order/Charge Code: 300071 | |
| Project Title: AEA 1, November 2020 | | Ice Chest No.: 625-131 | |
| Shipped To (Lab): GEL Laboratories, LLC | | Bill of Lading/Air Bill No.: 7721 0677 0286 | |
| Protocol: SURV | | Offsite Property No.: N/A | |
| POSSIBLE SAMPLE HAZARDS/REMARK ** 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 N/A | |
| Contact/Requester: Karen Waters-Husted Sampling Origin: Hanford Site Logbook No.: HNF-N-506 113/85 Method of Shipment: Commercial Carrier Priority: 30 Days | | Sample Analysis 6 Months HNO3 to pH <2 6 Months None | |

| | | | |
|--|--|--|--|
| Relinquished By Print First and Last Name: Lorin Kelly Signature: <i>Lorin Kelly</i> Date/Time: NOV 17 2020 0845 | | Received By Print First and Last Name: Jeff Lucas / FEDEX Signature: <i>Jeff Lucas</i> Date/Time: NOV 17 2020 0945 | |
| Signature: <i>Jeff Lucas</i> Date/Time: NOV 17 2020 0945 | | Signature: <i>FEDEX</i> Date/Time: NOV 18 2020 1005 | |
| Signature: <i>FEDEX</i> Date/Time: NOV 18 2020 1005 | | Signature: <i>FEDEX</i> Date/Time: NOV 18 2020 1005 | |
| FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process): | | Disposed By: | |
| Date/Time: | | Date/Time: | |



SAMPLE RECEIPT & REVIEW FORM

Client: CPRC SDG/AR/COC/Work Order: 527768
 Received By: SL BOONE Date Received: NOVEMBER 18, 2020

Carrier and Tracking Number
 FedEx Express FedEx Ground UPS Field Services Courier Other
7721 0677 0266 | c 7721 1020 2695 | c

Suspected Hazard Information Yes No
 *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.

A) Shipped as a DOT Hazardous? Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___

B) Did the client designate the samples are to be received as radioactive? COC notation or radioactive stickers on containers equal client designation.

C) Did the RSO classify the samples as radioactive? Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr
 Classified as: Rad 1 Rad 2 Rad 3

D) Did the client designate samples are hazardous? COC notation or hazard labels on containers equal client designation.

E) Did the RSO identify possible hazards? If D or E is yes, select Hazards below.
 PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

| Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|-------------------------------------|----|----|---|
| 1 Shipping containers received intact and sealed? | <input checked="" type="checkbox"/> | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 Chain of custody documents included with shipment? | <input checked="" type="checkbox"/> | | | Circle Applicable: Client contacted and provided COC COC created upon receipt |
| 3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | <input checked="" type="checkbox"/> | | | Preservation Method: <u>Wet Ice</u> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: _____ |
| 4 Daily check performed and passed on IR temperature gun? | <input checked="" type="checkbox"/> | | | Temperature Device Serial #: <u>TR1-20</u> Secondary Temperature Device Serial # (If Applicable): |
| 5 Sample containers intact and sealed? | <input checked="" type="checkbox"/> | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 6 Samples requiring chemical preservation at proper pH? | <input checked="" type="checkbox"/> | | | Sample ID's and Containers Affected: If Preservation added, Lot#: |
| 7 Do any samples require Volatile Analysis? | <input checked="" type="checkbox"/> | | | If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer) |
| | | | | Do liquid VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No ___ NA ___ (If unknown, select No) |
| | | | | Are liquid VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No ___ NA ___ Sample ID's and containers affected: |
| 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"/> | | | ID's and containers affected: |
| 10 Date & time on COC match date & time on bottles? | <input checked="" type="checkbox"/> | | | Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) |
| 11 Number of containers received match number indicated on COC? | <input checked="" type="checkbox"/> | | | Circle Applicable: No container count on COC Other (describe) |
| 12 Are sample containers identifiable as GEL provided by use of GEL labels? | <input checked="" type="checkbox"/> | | | |
| 13 COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> | | | Circle Applicable: Not relinquished Other (describe) |

Comments (Use Continuation Form if needed):
7721 1035 9837 | c 7721 1020 3165 | c

PM (or PMA) review: Initials CD Date 11/19/20 Page 1 of 1

Data Review Qualifier Definitions

Project Specific Qualifier Definitions for GEL Client Code: CPRC

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

Laboratory Certifications

List of current GEL Certifications as of 11 December 2020

| State | Certification |
|---------------------------|------------------------------|
| Alabama | 42200 |
| Alaska | 17-018 |
| Alaska Drinking Water | SC00012 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-15-00283, P330-15-00253 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C-SC-01 |
| Kansas NELAP | E-10332 |
| Kentucky SDWA | 90129 |
| Kentucky Wastewater | 90129 |
| Louisiana Drinking Water | LA024 |
| Louisiana NELAP | 03046 (AI33904) |
| Maine | 2019020 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Massachusetts PFAS Approv | Letter |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122021-1 |
| New Hampshire NELAP | 2054 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| North Dakota | R-158 |
| Oklahoma | 2019-165 |
| Pennsylvania NELAP | 68-00485 |
| Puerto Rico | SC00012 |
| S. Carolina Radiochem | 10120002 |
| Sanitation Districts of L | 9255651 |
| South Carolina Chemistry | 10120001 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-20-17 |
| Utah NELAP | SC000122020-33 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |

General Chem Analysis

Case Narrative

**General Chemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL527768
Work Order #: 527768**

Product: Ion Chromatography**Analytical Method:** 9056_ANIONS_IC**Analytical Procedure:** GL-GC-E-086 REV# 28**Analytical Batch:** 2064284

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

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|--|
| 527768001 | B3XPC2 |
| 1204697784 | Method Blank (MB) |
| 1204697785 | Laboratory Control Sample (LCS) |
| 1204697786 | 527750012(NonSDG) Sample Duplicate (DUP) |
| 1204697787 | 527750012(NonSDG) Post Spike (PS) |

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

Data Summary:

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

Technical Information**Sample Dilutions**

The following samples 1204697786 (Non SDG 527750012DUP), 1204697787 (Non SDG 527750012PS) and 527768001 (B3XPC2) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

| Analyte | 527768 |
|----------|--------|
| | 001 |
| Chloride | 5X |
| Nitrate | 5X |
| Sulfate | 5X |

Sample Re-analysis

Samples 1204697786 (Non SDG 527750012DUP) and 1204697787 (Non SDG 527750012PS) were re-analyzed to verify the results.

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**

CPRC002 CH2MHill Plateau Remediation Company (74393)

Client SDG: GEL527768 GEL Work Order: 527768

The Qualifiers in this report are defined as follows:

B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

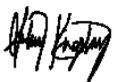
D Results are reported from a diluted aliquot of sample.

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

Review/Validation

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

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

Signature: 

Name: Aubrey Kingsbury

Date: 30 NOV 2020

Title: Data Validator

Sample Data Summary

Certificate of Analysis

Report Date: November 30, 2020

Company : CH2MHill Plateau Remediation Company
 Address : MSIN R3-50 CHPRC
 PO Box 1600
 Richland, Washington 99352
 Contact: Mr. Scot Fitzgerald
 Project: CHPRC SAF I21-004

Client Sample ID: B3XPC2 Project: CPRC0I21004
 Sample ID: 527768001 Client ID: CPRC002
 Matrix: WATER
 Collect Date: 17-NOV-20 09:13
 Receive Date: 18-NOV-20
 Collector: Client

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|--------------------------------------|-----------|--------|------|------|-------|----|----|---------|----------|------|---------|--------|
| Ion Chromatography | | | | | | | | | | | | |
| 9056_ANIONS_IC: COMMON "As Received" | | | | | | | | | | | | |
| Fluoride | B | 202 | 33.0 | 500 | ug/L | | 1 | LXA2 | 11/18/20 | 1450 | 2064284 | 1 |
| Nitrite-N | U | 33.0 | 33.0 | 100 | ug/L | | 1 | | | | | |
| Chloride | D | 15200 | 335 | 1000 | ug/L | | 5 | LXA2 | 11/19/20 | 0108 | 2064284 | 2 |
| Nitrate-N | D | 4890 | 165 | 500 | ug/L | | 5 | | | | | |
| Sulfate | D | 29800 | 665 | 2000 | ug/L | | 5 | | | | | |

The following Analytical Methods were performed:

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

Notes:

Column headers are defined as follows:

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

Quality Control Summary

GEL LABORATORIES LLC

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

QC Summary

Report Date: November 30, 2020

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

Contact: Mr. Scot Fitzgerald

Workorder: 527768

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---------------------------|-----------|--------|------|-------|-------|-------|------|----------|------------|----------|-------|
| Ion Chromatography | | | | | | | | | | | |
| Batch | 2064284 | | | | | | | | | | |
| QC1204697786 | 527750012 | DUP | | | | | | | | | |
| Chloride | D | 15200 | D | 15100 | ug/L | 1.1 | | (0%-20%) | LXA2 | 11/19/20 | 09:24 |
| Fluoride | B | 200 | B | 199 | ug/L | 0.25 | ^ | (+/-500) | | 11/18/20 | 17:56 |
| Nitrate-N | D | 4810 | D | 4770 | ug/L | 0.783 | | (0%-20%) | | 11/19/20 | 09:24 |
| Nitrite-N | U | 33.0 | U | 33.0 | ug/L | N/A | | | | 11/18/20 | 17:56 |
| Sulfate | D | 65000 | D | 64400 | ug/L | 0.827 | | (0%-20%) | | 11/19/20 | 09:24 |
| QC1204697785 | LCS | | | | | | | | | | |
| Chloride | 5000 | | | 4680 | ug/L | | | 93.6 | (80%-120%) | 11/18/20 | 19:28 |
| Fluoride | 2500 | | | 2380 | ug/L | | | 95.2 | (80%-120%) | | |
| Nitrate-N | 2500 | | | 2340 | ug/L | | | 93.5 | (80%-120%) | | |
| Nitrite-N | 2500 | | | 2340 | ug/L | | | 93.7 | (80%-120%) | | |
| Sulfate | 10000 | | | 9450 | ug/L | | | 94.5 | (80%-120%) | | |
| QC1204697784 | MB | | | | | | | | | | |
| Chloride | | | U | 67.0 | ug/L | | | | | 11/18/20 | 18:57 |
| Fluoride | | | U | 33.0 | ug/L | | | | | | |
| Nitrate-N | | | U | 33.0 | ug/L | | | | | | |

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QC Summary

Workorder: 527768

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| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---------------------------|---------|--------|-------|------|-------|------|------|------------|-------|----------|-------|
| Ion Chromatography | | | | | | | | | | | |
| Batch | 2064284 | | | | | | | | | | |
| Nitrite-N | | | U | 33.0 | ug/L | | | | LXA2 | 11/18/20 | 18:57 |
| Sulfate | | | U | 133 | ug/L | | | | | | |
| QC1204697787 527750012 PS | | | | | | | | | | | |
| Chloride | 5.00 | D | 3.05 | D | 7.93 | mg/L | 97.7 | (75%-125%) | | 11/19/20 | 09:55 |
| Fluoride | 2.50 | B | 0.200 | | 2.55 | mg/L | 94.1 | (75%-125%) | | 11/18/20 | 18:26 |
| Nitrate-N | 2.50 | D | 0.961 | D | 3.39 | mg/L | 97.1 | (75%-125%) | | 11/19/20 | 09:55 |
| Nitrite-N | 2.50 | U | 0.000 | | 2.37 | mg/L | 94.6 | (75%-125%) | | 11/18/20 | 18:26 |
| Sulfate | 10.0 | D | 13.0 | D | 23.1 | mg/L | 101 | (75%-125%) | | 11/19/20 | 09:55 |

Notes:

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).
- C Target analyte was detected in the sample and the associated blank. The associated blank concentration is >= EQL or is > 5% of the measured concentration and/or decision level for associated samples.
- D Results are reported from a diluted aliquot of sample.
- E Reported value is estimated due to interferences. See comment in narrative.
- 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

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QC Summary

Workorder: 527768

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

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.

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
CH2MHill Plateau Remediation Company
SDG #: GEL527768
Work Order #: 527768

Product: SMR_COMMON_GEA

Analytical Method: GEA

Analytical Procedure: GL-RAD-A-013 REV# 27

Analytical Batch: 2064336

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

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|--|
| 527768003 | B3XNX4 |
| 527768004 | B3XNX5 |
| 1204697898 | Method Blank (MB) |
| 1204697899 | 527609002(B3XNW5) Sample Duplicate (DUP) |
| 1204697900 | Laboratory Control Sample (LCS) |

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: SMR_TRITIUM_LSC

Analytical Method: TRITIUM_LSC

Analytical Procedure: GL-RAD-A-002 REV# 23

Analytical Batch: 2064665

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

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|--|
| 527768002 | B3XP92 |
| 527768003 | B3XNX4 |
| 527768004 | B3XNX5 |
| 1204698521 | Method Blank (MB) |
| 1204698522 | 527609002(B3XNW5) Sample Duplicate (DUP) |
| 1204698523 | 527609002(B3XNW5) Matrix Spike (MS) |
| 1204698524 | Laboratory Control Sample (LCS) |

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration,

continuing calibration, instrument controls and process controls where applicable.

Product: SMR_C14_LSC

Analytical Method: C14_LSC

Analytical Procedure: GL-RAD-A-003 REV# 16

Analytical Batch: 2064668

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

| <u>GEL Sample ID#</u> | <u>Client Sample Identification</u> |
|------------------------------|--|
| 527768002 | B3XP92 |
| 1204698529 | Method Blank (MB) |
| 1204698530 | 527596005(NonSDG) Sample Duplicate (DUP) |
| 1204698531 | 527596005(NonSDG) Matrix Spike (MS) |
| 1204698532 | Laboratory Control Sample (LCS) |

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

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

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

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**Qualifier Definition Report
for**

CPRC002 CH2MHill Plateau Remediation Company (74393)

Client SDG: GEL527768 GEL Work Order: 527768

The Qualifiers in this report are defined as follows:

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

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:** Theresa Austin**Date:** 12 DEC 2020**Title:** Group Leader

Sample Data Summary

GEL527768

Dec 17 2020

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**Certificate of Analysis
Sample Summary**

| | | |
|-----------------------------|----------------------------------|---------------------------|
| SDG Number: GEL527768 | Client: CPRC002 | Project: CPRC0121004 |
| Lab Sample ID: 527768002 | Date Collected: 11/17/2020 08:00 | Matrix: WATER |
| | Date Received: 11/18/2020 10:05 | |
| Client ID: B3XP92 | Method: TRITIUM_LSC | Prep Basis: "As Received" |
| Batch ID: 2064665 | Analyst: TXJ1 | SOP Ref: GL-RAD-A-002 |
| Run Date: 12/10/2020 11:24 | Aliquot: 50 mL | Instrument: LSCPURPLE |
| Data File: T2064665.xls | Prep Method: EPA 906.0 Modified | Count Time: 50 min |
| Prep Batch: 2064665 | | |
| Prep Date: 12/09/2020 10:49 | | |

| CAS No. | Parmname | Qual | Result | Units | Uncert | TPU | MDC | RDL |
|------------|----------|------|--------|-------|--------|-----|-----|-----|
| 10028-17-8 | Tritium | U | 250 | pCi/L | +/-156 | 163 | 252 | 400 |

| Surrogate/Tracer recovery | Result | Nominal | Units | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-------|-----------|-------------------|
|---------------------------|--------|---------|-------|-----------|-------------------|

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

GEL527768

Dec 17 2020

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**Certificate of Analysis
Sample Summary**

| | | |
|-----------------------------|-------------------------------------|---------------------------|
| SDG Number: GEL527768 | Client: CPRC002 | Project: CPRC0121004 |
| Lab Sample ID: 527768002 | Date Collected: 11/17/2020 08:00 | Matrix: WATER |
| | Date Received: 11/18/2020 10:05 | |
| Client ID: B3XP92 | Method: C14_LSC | Prep Basis: "As Received" |
| Batch ID: 2064668 | Analyst: TXJ1 | SOP Ref: GL-RAD-A-003 |
| Run Date: 12/08/2020 20:13 | Aliquot: 100 mL | Instrument: LSCMOCHA |
| Data File: C2064668.xls | Prep Method: EPA EERF C-01 Modified | Count Time: 15 min |
| Prep Batch: 2064668 | | |
| Prep Date: 12/08/2020 11:28 | | |

| CAS No. | Parmname | Qual | Result | Units | Uncert | TPU | MDC | RDL |
|------------|-----------|------|--------|-------|---------|-----|------|------|
| 14762-75-5 | Carbon-14 | | 587 | pCi/L | +/-36.8 | 115 | 31.4 | 50.0 |

| Surrogate/Tracer recovery | Result | Nominal | Units | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-------|-----------|-------------------|
|---------------------------|--------|---------|-------|-----------|-------------------|

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

GEL527768

Dec 17 2020

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL527768
 Lab Sample ID: 527768003

 Client ID: B3XNX4
 Batch ID: 2064336
 Run Date: 11/19/2020 21:12
 Data File: G527768003.CNF;1
 Prep Batch: 2064336
 Prep Date: 11/19/2020 11:55

Client: CPRC002
 Date Collected: 11/17/2020 07:00
 Date Received: 11/18/2020 10:05

 Method: GEA
 Analyst: MXR1
 Aliquot: 0.5 L
 Prep Method: EPA 901.1

Project: CPRC0121004
 Matrix: WATER

 Prep Basis: "As Received"
 SOP Ref: GL-RAD-A-013
 Instrument: GAM41
 Count Time: 120 min

| CAS No. | Parmname | Qual | Result | Units | Uncert | TPU | MDC | RDL |
|------------|--------------|------|--------|-------|---------|------|------|------|
| 10045-97-3 | Cesium-137 | U | -3.65 | pCi/L | +/-4.77 | 5.05 | 8.40 | 15.0 |
| 10198-40-0 | Cobalt-60 | U | -1.24 | pCi/L | +/-4.58 | 4.61 | 8.97 | |
| 14683-23-9 | Europium-152 | U | 0.337 | pCi/L | +/-12.7 | 12.7 | 21.8 | |
| 15585-10-1 | Europium-154 | U | 5.94 | pCi/L | +/-13.9 | 14.1 | 32.3 | |
| 14391-16-3 | Europium-155 | U | 7.99 | pCi/L | +/-11.1 | 11.7 | 21.0 | |

| Surrogate/Tracer recovery | Result | Nominal | Units | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-------|-----------|-------------------|
|---------------------------|--------|---------|-------|-----------|-------------------|

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

GEL527768

Dec 17 2020

Page 1 Rev 0

**Certificate of Analysis
Sample Summary**

| | | |
|-----------------------------|----------------------------------|---------------------------|
| SDG Number: GEL527768 | Client: CPRC002 | Project: CPRC0121004 |
| Lab Sample ID: 527768003 | Date Collected: 11/17/2020 07:00 | Matrix: WATER |
| | Date Received: 11/18/2020 10:05 | |
| Client ID: B3XNX4 | Method: TRITIUM_LSC | Prep Basis: "As Received" |
| Batch ID: 2064665 | Analyst: TXJ1 | SOP Ref: GL-RAD-A-002 |
| Run Date: 12/10/2020 12:16 | Aliquot: 50 mL | Instrument: LSCPURPLE |
| Data File: T2064665.xls | Prep Method: EPA 906.0 Modified | Count Time: 50 min |
| Prep Batch: 2064665 | | |
| Prep Date: 12/09/2020 10:49 | | |

| CAS No. | Parmname | Qual | Result | Units | Uncert | TPU | MDC | RDL |
|------------|----------|------|--------|-------|--------|-----|-----|-----|
| 10028-17-8 | Tritium | U | -134 | pCi/L | +/-134 | 134 | 251 | 400 |

| Surrogate/Tracer recovery | Result | Nominal | Units | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-------|-----------|-------------------|
|---------------------------|--------|---------|-------|-----------|-------------------|

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

GEL527768

Dec 17 2020

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**Certificate of Analysis
Sample Summary**

SDG Number: GEL527768
Lab Sample ID: 527768004

Client: CPRC002
Date Collected: 11/17/2020 08:45
Date Received: 11/18/2020 10:05

Project: CPRC0121004
Matrix: WATER

Client ID: B3XNX5
Batch ID: 2064336
Run Date: 11/19/2020 21:12
Data File: G527768004.CNF;1
Prep Batch: 2064336
Prep Date: 11/19/2020 11:55

Method: GEA
Analyst: MXR1
Aliquot: 0.5 L
Prep Method: EPA 901.1

Prep Basis: "As Received"
SOP Ref: GL-RAD-A-013
Instrument: GAM42
Count Time: 120 min

| CAS No. | Parmname | Qual | Result | Units | Uncert | TPU | MDC | RDL |
|------------|--------------|------|--------|-------|---------|------|------|------|
| 10045-97-3 | Cesium-137 | U | 1.69 | pCi/L | +/-5.76 | 5.81 | 10.9 | 15.0 |
| 10198-40-0 | Cobalt-60 | U | -1.45 | pCi/L | +/-5.09 | 5.14 | 9.63 | |
| 14683-23-9 | Europium-152 | U | 3.74 | pCi/L | +/-12.1 | 12.2 | 23.3 | |
| 15585-10-1 | Europium-154 | U | 3.57 | pCi/L | +/-12.1 | 12.2 | 26.7 | |
| 14391-16-3 | Europium-155 | U | 6.98 | pCi/L | +/-11.1 | 11.6 | 20.3 | |

| Surrogate/Tracer recovery | Result | Nominal | Units | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-------|-----------|-------------------|
|---------------------------|--------|---------|-------|-----------|-------------------|

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
The MDC is a sample specific MDC.

GEL527768

Dec 17 2020

Page 1 Rev 0

**Certificate of Analysis
Sample Summary**

| | | |
|-----------------------------|----------------------------------|---------------------------|
| SDG Number: GEL527768 | Client: CPRC002 | Project: CPRC0121004 |
| Lab Sample ID: 527768004 | Date Collected: 11/17/2020 08:45 | Matrix: WATER |
| | Date Received: 11/18/2020 10:05 | |
| Client ID: B3XNX5 | Method: TRITIUM_LSC | Prep Basis: "As Received" |
| Batch ID: 2064665 | Analyst: TXJ1 | SOP Ref: GL-RAD-A-002 |
| Run Date: 12/10/2020 13:08 | Aliquot: 50 mL | Instrument: LSCPURPLE |
| Data File: T2064665.xls | Prep Method: EPA 906.0 Modified | Count Time: 50 min |
| Prep Batch: 2064665 | | |
| Prep Date: 12/09/2020 10:49 | | |

| CAS No. | Parmname | Qual | Result | Units | Uncert | TPU | MDC | RDL |
|------------|----------|------|--------|-------|--------|-----|-----|-----|
| 10028-17-8 | Tritium | | 1720 | pCi/L | +/-218 | 398 | 250 | 400 |

| Surrogate/Tracer recovery | Result | Nominal | Units | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-------|-----------|-------------------|
|---------------------------|--------|---------|-------|-----------|-------------------|

Comments:

U Analyzed for but not detected above limiting criteria. Includes MDL, MDA, PQL, zero, counting error, and total analytical error.
 TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).
 The MDC is a sample specific MDC.

Quality Control Summary

QC Summary

Report Date: December 12, 2020
Page 1 of 3

Client : CH2MHill Plateau Remediation Company
MSIN R3-50 CHPRC
PO Box 1600
Richland, Washington 99352
Contact: Mr. Scot Fitzgerald
Workorder: 527768

| Parmname | NOM | Sample | Qual | QC | Units | QC Criteria | Range | Analyst | Date Time |
|-----------------------|-----------|---------|------|-----------------|-------|-------------|------------|---------|---------------|
| Rad Gamma Spec | | | | | | | | | |
| Batch | 2064336 | | | | | | | | |
| QC1204697898 | MB | | | | | | | | |
| Cesium-137 | | | U | 0.623 | pCi/L | | | MXR1 | 11/19/2021:13 |
| | | | | Uncert: +/-4.37 | | | | | |
| | | | | TPU: +/-4.38 | | | | | |
| Cobalt-60 | | | U | -4.91 | pCi/L | | | | |
| | | | | Uncert: +/-5.89 | | | | | |
| | | | | TPU: +/-6.31 | | | | | |
| Europium-152 | | | U | 5.93 | pCi/L | | | | |
| | | | | Uncert: +/-14.4 | | | | | |
| | | | | TPU: +/-14.6 | | | | | |
| Europium-154 | | | U | 6.49 | pCi/L | | | | |
| | | | | Uncert: +/-11.3 | | | | | |
| | | | | TPU: +/-11.7 | | | | | |
| Europium-155 | | | U | -0.463 | pCi/L | | | | |
| | | | | Uncert: +/-13.7 | | | | | |
| | | | | TPU: +/-13.7 | | | | | |
| QC1204697899 | 527609002 | DUP | | | | | | | |
| Cesium-137 | | U -1.30 | U | 1.53 | pCi/L | | | | 11/19/2023:31 |
| | | | | Uncert: +/-4.17 | | RPD: 0 | N/A | | |
| | | | | TPU: +/-4.21 | | RER: 0.721 | (0-2) | | |
| Cobalt-60 | | U 4.47 | U | -2.15 | pCi/L | | | | |
| | | | | Uncert: +/-4.71 | | RPD: 0 | N/A | | |
| | | | | TPU: +/-5.14 | | RER: 1.87 | (0-2) | | |
| Europium-152 | | U 1.56 | U | 7.35 | pCi/L | | | | |
| | | | | Uncert: +/-12.4 | | RPD: 0 | N/A | | |
| | | | | TPU: +/-12.5 | | RER: 0.576 | (0-2) | | |
| Europium-154 | | U -4.06 | U | -1.40 | pCi/L | | | | |
| | | | | Uncert: +/-13.1 | | RPD: 0 | N/A | | |
| | | | | TPU: +/-13.2 | | RER: 0.261 | (0-2) | | |
| Europium-155 | | U -8.78 | U | -9.44 | pCi/L | | | | |
| | | | | Uncert: +/-12.8 | | RPD: 0 | N/A | | |
| | | | | TPU: +/-13.4 | | RER: 0.0548 | (0-2) | | |
| QC1204697900 | LCS | | | | | | | | |
| Americium-241 | 1.09E+05 | | | 1.21E+05 | pCi/L | REC: 110 | (80%-120%) | | 11/20/2005:42 |
| | | | | Uncert: +/-3420 | | | | | |
| | | | | TPU: +/-15000 | | | | | |
| Cesium-137 | 38900 | | | 39400 | pCi/L | REC: 101 | (80%-120%) | | |
| | | | | Uncert: +/-806 | | | | | |
| | | | | TPU: +/-3390 | | | | | |
| Cobalt-60 | 24200 | | | 25400 | pCi/L | REC: 105 | (80%-120%) | | |
| | | | | Uncert: +/-814 | | | | | |
| | | | | TPU: +/-2630 | | | | | |
| Europium-152 | | | U | 27.3 | pCi/L | | | | |
| | | | | Uncert: +/-345 | | | | | |
| | | | | TPU: +/-346 | | | | | |

QC Summary

Workorder: 527768

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| Parname | NOM | Sample | Qual | QC | Units | QC Criteria | Range | Analyst | Date Time |
|---------------------------------|-----------|---------|------|---------|-------|-------------|------------|---------|---------------|
| Rad Gamma Spec | | | | | | | | | |
| Batch | 2064336 | | | | | | | | |
| Europium-154 | | | U | 5.73 | pCi/L | | | | |
| | Uncert: | | | +/-207 | | | | | |
| | TPU: | | | +/-207 | | | | | |
| Europium-155 | | | U | -14.7 | pCi/L | | | | |
| | Uncert: | | | +/-357 | | | | | |
| | TPU: | | | +/-357 | | | | | |
| Rad Liquid Scintillation | | | | | | | | | |
| Batch | 2064665 | | | | | | | | |
| QC1204698521 | MB | | | | | | | | |
| Tritium | | | U | 10.1 | pCi/L | | | TXJ1 | 12/10/2014:00 |
| | Uncert: | | | +/-141 | | | | | |
| | TPU: | | | +/-141 | | | | | |
| QC1204698522 | 527609002 | DUP | | | | | | | |
| Tritium | | 3570 | | 3620 | pCi/L | | | | 12/10/2014:52 |
| | Uncert: | +/-278 | | +/-278 | | RPD: 1 | (0%-20%) | | |
| | TPU: | +/-745 | | +/-753 | | RER: 0.0877 | (0-2) | | |
| QC1204698523 | 527609002 | MS | | | | | | | |
| Tritium | 5090 | 3570 | | 8880 | pCi/L | REC: 104 | (75%-125%) | | 12/10/2015:44 |
| | Uncert: | +/-278 | | +/-726 | | | | | |
| | TPU: | +/-745 | | +/-1860 | | | | | |
| QC1204698524 | LCS | | | | | | | | |
| Tritium | 5070 | | | 4780 | pCi/L | REC: 94.4 | (80%-120%) | | 12/10/2016:00 |
| | Uncert: | | | +/-556 | | | | | |
| | TPU: | | | +/-1080 | | | | | |
| Batch | 2064668 | | | | | | | | |
| QC1204698529 | MB | | | | | | | | |
| Carbon-14 | | | U | -3.62 | pCi/L | | | TXJ1 | 12/08/2020:29 |
| | Uncert: | | | +/-17.7 | | | | | |
| | TPU: | | | +/-17.7 | | | | | |
| QC1204698530 | 527596005 | DUP | | | | | | | |
| Carbon-14 | | 284 | | 308 | pCi/L | | | | 12/08/2017:01 |
| | Uncert: | +/-31.2 | | +/-32.0 | | RPD: 8 | (0%-20%) | | |
| | TPU: | +/-61.3 | | +/-65.5 | | RER: 0.507 | (0-2) | | |
| QC1204698531 | 527596005 | MS | | | | | | | |
| Carbon-14 | 1510 | 284 | | 1730 | pCi/L | REC: 95.7 | (75%-125%) | | 12/08/2020:45 |
| | Uncert: | +/-31.2 | | +/-86.3 | | | | | |
| | TPU: | +/-61.3 | | +/-333 | | | | | |
| QC1204698532 | LCS | | | | | | | | |
| Carbon-14 | 755 | | | 748 | pCi/L | REC: 99.1 | (80%-120%) | | 12/08/2021:01 |
| | Uncert: | | | +/-40.4 | | | | | |
| | TPU: | | | +/-145 | | | | | |

Notes:

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

The Qualifiers in this report are defined as follows:

- < Sample is below the EPA guidance level for Reactive Releasable Cyanide and/or Reactive Releasable Sulfide
- > Result greater than quantifiable range or greater than upper limit of the analysis range
- B The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the IDL/MDL (as appropriate).

QC Summary

Workorder: 527768

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| Parmname | NOM | Sample | Qual | QC | Units | QC Criteria | Range | Analyst | Date | Time |
|----------|-----|--------|------|----|-------|-------------|-------|---------|------|------|
| B | | | | | | | | | | |
| C | | | | | | | | | | |
| D | | | | | | | | | | |
| E | | | | | | | | | | |
| N | | | | | | | | | | |
| U | | | | | | | | | | |
| UX | | | | | | | | | | |
| X | | | | | | | | | | |
| Y | | | | | | | | | | |
| Z | | | | | | | | | | |
| o | | | | | | | | | | |

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.