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DRC-2020-018921

Div of Waste Management
and Radiation Control

NOV 20 2020

November 17, 2020

**Sent VIA OVERNIGHT DELIVERY**

Mr. Ty L. Howard
Director
Division of Waste Management and Radiation Control
Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144850
Salt Lake City, UT 84116

**Re: Transmittal of Annual Tailings System Wastewater Monitoring Report**
**Groundwater Quality Discharge Permit UGW370004 White Mesa Uranium Mill**

Dear Mr. Howard:

Enclosed are two copies of the White Mesa Uranium Mill Annual Tailings System Wastewater Monitoring Report for 2020 as required by the Groundwater Quality Discharge Permit UGW370004, as well as two CDs each containing a word searchable electronic copy of the report.

If you should have any questions regarding this report please contact me.

Yours very truly,

Kathy Weinel

ENERGY FUELS RESOURCES (USA) INC.
Kathy Weinel
Quality Assurance Manager

cc: Scott A. Bakken
Terry Slade
Dave Frydenlund
Logan Shumway

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# White Mesa Uranium Mill

# 2020 Annual Tailings System Wastewater Sampling Report

**State of Utah**
**Groundwater Discharge Permit No. UGW370004**

Prepared by:

**Energy Fuels Resources (USA) Inc.**
225 Union Boulevard, Suite 600
Lakewood, CO 80228

**November 17, 2020**

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# 2020 ANNUAL TAILINGS SYSTEM WASTEWATER SAMPLING REPORT

## 1.0 INTRODUCTION

This is the 2020 Annual Tailings System Wastewater Sampling Report for the Energy Fuels Resources (USA) Inc. ("EFRI") White Mesa Mill (the "Mill"), as required under Part I.F.9 of the Mill's State of Utah Groundwater Discharge Permit No. UGW370004 (the "Permit") and Section 6.0 of the *Mill's Sampling and Analysis Plan for The Tailings Management System, Leak Detection Systems and Slimes Drains,* Revision: 3.0, dated July 8, 2016 (the "Sampling Plan") and approved by the State of Utah Division of Waste Management and Radiation Control ("DWMRC") on August 8, 2016.

Cell solution and slimes drain sampling is required under the Sampling Plan and Part I.E.10 of the Permit to be conducted on an annual basis in August of each year for the solutions in Cells 1, 3, 4A, and 4B, the solutions in the slimes drains in Cells 2, 3, 4A, and 4B (for Cells 3, 4A and 4B after the commencement of dewatering), the solutions in the leak detection system ("LDS") in Cell 4A and 4B and any detected solutions in the LDS in Cells 1, 2, and 3 at the time of the August Sampling event. The results of the sampling event are required to be reported to the DWMRC with the Mill's Third Quarter Groundwater Monitoring Report due December 1, of each year.

## 2.0 SUMMARY OF MILL TAILINGS SYSTEM ACTIVITIES IN 2020

This section provides a brief description of the Mill's tailings management system, and any changes that were made as a result of Mill activities during the reporting year. A description of which systems were sampled is provided in Section 3.0.

The Mill is designed not to discharge to groundwater or surface waters. Instead, the Mill tailings system utilizes tailings and evaporation cells for disposal, evaporation, and management of Mill tailings, effluents, and other wastes as indicated below:

- Cell 1: dedicated to evaporation of Mill waste solutions;
- Cell 2: contains Mill tailings and has been closed to tailings disposal since 1995 and 11e.(2) byproduct materials since 2000. Cell 2 Phase 1 cover placement commenced in April 2016;
- Cell 3: contains Mill tailings and is in the final stages of filling. It also accepts other Mill wastes and 11e.(2) material from in-situ recovery ("ISR") operations;
- Cell 4A: receives Mill tailings and is used for evaporation of Mill solutions; and
- Cell 4B: is used for evaporation of Mill solutions.

### 2.1 Cell 1

Cell 1 is a 55-acre impoundment built in June of 1981. It operates as an evaporation pond which receives solutions only. Cell 1 is equipped with a LDS. In 2020, Cell 1 received fluid from the Mill process, storm water run-off, and Mill laboratory waste. The LDS in Cell 1 was dry in 2020.

### 2.2 Cell 2

Cell 2 is a 67-acre impoundment built in May of 1980. Cell 2 contains Mill tailings and has been closed to tailings disposal since 1995 and 11e.(2) byproduct materials since 2000. Cell 2 Phase 1 cover placement commenced in April 2016. Cell 2 is equipped with a LDS and a slimes drain. The LDS was dry in 2020. As part of closure activities, EFRI began monitoring the slimes drain system in 2008. The fluid from the slimes drain is pumped to Cell 4A. Cell 2 no longer receives any solutions or solids.

### 2.3 Cell 3

Cell 3 is a 71-acre impoundment built in September 1982. Cell 3 is nearly full of solids. This cell is equipped with a LDS and a slimes drain. The LDS was dry in 2020 and the slimes drain system will be monitored once dewatering begins. In 2020, Cell 3 received solid Mill waste and solid 11e.2 byproduct material from in situ recovery ("ISR") facilities.

### 2.4 Cell 4A

Cell 4A is a 40-acre impoundment built in 2008. This cell is equipped with a LDS and a slimes drain. The slimes drain system will be monitored once dewatering begins. The LDS in Cell 4A was sampled in 2020, as described below. In 2020, Cell 4A received solutions from the Mill process, and solid tailings sands.

### 2.5 Cell 4B

Cell 4B is a 40-acre impoundment built in 2011. It operates as an evaporation pond which receives solutions only. Cell 4B is equipped with a LDS. In 2020, Cell 4B received fluid from the Mill process. The LDS in Cell 4B was sampled in 2020, as described below.

## 3.0 SAMPLING EVENTS AND SAMPLING METHODOLOGY

### 3.1 Sampling Events

Samples of solutions from Cells 1, 4A, and 4B, the Cell 2 slimes drain and the Cell 4A and Cell 4B LDSs were collected on August 19, 2020. Cell 3 was dry in 2020 and no solution samples were collected.

In accordance with the Permit, DWMRC was notified of the sampling event, and a DWMRC representative was present for a part of the sampling. The DWMRC representative collected split sample aliquots.

Maps showing the locations of the solution and slimes drain and, when applicable, LDS sampling locations are attached under Tab B. Table 1, included in the Tables Tab, provides an overview of all solution monitoring samples collected during the current period and includes the sampling date, laboratory report date, and the work order/lab set ID associated with the analytical data.

The Permit requires that the samples be analyzed for the water quality parameters listed in Table 2 of the Permit and SVOCs.

Additionally, in order to further characterize the radiological constituents and physical properties of the solution, EFRI conducted voluntary analyses on the August 19, 2020 samples for radium-226, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, uranium-238, and specific gravity. The additional data from the August 19, 2020 sampling event are included in separate data tables in Tab D. The gross alpha results have been evaluated and are included as required. These additional data are included in this report for informational purposes only. EFRI may or may not choose to continue these analyses in future sampling events.

### 3.2 Field Data

Attached under Tab A are copies of all of the field data sheets recorded in association with the annual tailings system monitoring program. Sampling dates are listed in Table 1.

### 3.3 Sampling Methodology, Equipment and Decontamination Procedures

As noted in the DWMRC-approved Sampling Plan, Revision 3.0, dated July 8, 2016, field filtering and preservation of metals and gross alpha sample aliquots was not completed due to safety concerns associated with the filtering apparatus and the backpressure created by the increased viscosity of these samples. The gross alpha and metals aliquots were filtered and preserved as necessary by the analytical laboratory. It is important to note that field preservation of the samples is to preclude biological growth and prevent the inorganic analytes from precipitating. Based on past field data, the cell solutions and LDS and slimes drain samples are at a pH of 3.06 or less at the time of collection without additional preservative. The addition of acidic preservatives in the field would add minimal if any protection from biological growth or precipitation. The VOC sample aliquots were preserved in the field.

#### 3.3.1 Cells

Cell solution samples were collected as noted above, at the cell sampling stations shown on the Figures in Tab B, using approved procedures described in the DWMRC-approved Sampling Plan, Section 3.1.2.

Disposable or dedicated sampling equipment was used during this sampling event and, as such, rinsate samples were not required.

#### 3.3.2 Cell 2 Slimes Drain

Once a tailings cell has started the dewatering procedures, a sample will be collected from the slimes drain system. At this time Cell 2 is the only slimes drain that requires sampling. The location of the slimes drain for Cell 2 is shown in Tab B. While Cells 3, 4A and 4B are equipped with slimes drain sample locations, Cells 3 and 4A are still active and Cell 4B is being used as an

evaporation pond, and the slimes drains will not be pumped (and/or sampled) until dewatering operations have commenced.

The Cell 2 slimes drain, shown on the Figures in Tab B, was sampled using a disposable bailer as noted in the DWMRC-approved Sampling Plan, Section 3.1.3.

Due to the use of a disposable bailer, a rinsate sample was not required.

### 3.3.3 Cell 4A Leak Detection Systems

The Cell 4A LDS sample was collected from the sampling station shown on the Figures in Tab B using a dedicated stainless steel bucket and ladle as noted in the DWMRC-approved Sampling Plan, Section 3.2.2.

### 3.3.4 Cell 4B Leak Detection Systems

The Cell 4B LDS sample was collected from the sampling station shown on the Figures in Tab B using a dedicated stainless steel bucket and ladle as noted in the DWMRC-approved Sampling Plan, Section 3.2.2.

### 3.3.5 Cells 1, 2, 3,

The Cells 1, 2, 3 LDSs were not sampled during the 2020 sampling event because the systems were dry.

## 3.4 Field QC Samples

The field Quality Control ("QC") samples generated during this sampling event included one duplicate and one trip blank per shipment to each laboratory which received samples for VOCs. The duplicate sample (Cell 65) was submitted blind to the analytical laboratory. As previously stated, no rinsate blanks were collected during this sampling event as only dedicated or disposable equipment was used for sample collection.

## 3.5 Laboratory Results

All analytical results were provided by one of the Mill's two contract analytical laboratories, GEL Laboratories ("GEL") or Energy Laboratories ("EL").

The laboratories utilized during this investigation were certified under the Environmental Lab Certification Program administered by the UDEQ Bureau of Lab Improvement for the analyses they completed.

The analytical data as well as the laboratory Quality Assurance ("QA")/QC summaries are included under Tab C.

## 4.0 QUALITY ASSURANCE AND DATA EVALUATION

The Permit requires that the annual tailings system wastewater sampling program be conducted in compliance with the requirements specified in the Mill's approved White Mesa Uranium Mill Groundwater Monitoring Quality Assurance Plan ("QAP"), the approved Sampling Plan and the Permit itself. To meet these requirements, the data validation completed for the tailings system wastewater sampling program and discussed in this Section utilized the requirements outlined in the QAP, the Permit and the approved Sampling Plan as necessary. The Mill Quality Assurance Manager ("QAM") performed a QA/QC review to confirm compliance of the monitoring program with the requirements of the Permit, the QAP, and the Sampling Plan. As required, data QA includes preparation and analysis of QC samples in the field, review of field procedures, an analyte completeness review, and quality control review of laboratory data methods and data. Identification of field QC samples that were collected and analyzed is provided in Section 3.4 and 4.3.1. Discussion of adherence to the Sampling Plan is provided in Section 4.1. Analytical completeness review results are provided in Section 4.2. The steps and tests applied to check laboratory data QA/QC are discussed in Section 4.3.

The analytical laboratories have provided summary reports of the analytical QA/QC measurements necessary to maintain conformance with National Environmental Laboratory Accreditation Conference ("NELAC") certification and reporting protocol. The analytical laboratory QA/QC Summary Reports, including copies of the Chain of Custody forms for each set of Analytical Results, follow the analytical results under Tab C. Results of review of the laboratory QA/QC information are provided under Tab E and discussed in Section 4.3, below.

### 4.1 Adherence to Sampling Plan and Permit Requirements

On a review of adherence by Mill personnel to the QA/QC requirements, the QAM observed that QA/QC requirements established in the Permit, the QAP, and the Sampling Plan were met, as discussed below.

### 4.2 Analyte Completeness Review

All analyses required by the Permit Table 2 were completed. In addition, all cell solution samples were analyzed for SVOCs as required by the Permit.

It is important to note that the SVOC analyses include Tentatively Identified Compounds ("TICs"). The SVOC compound 4-chlorophenol would be reported in the TIC data list if detected. 4-chlorophenol was not detected.

### 4.3 Data Validation

The QAP and the Permit identify the data validation steps and data quality control checks required for the tailings system wastewater monitoring program. Consistent with these requirements, the QAM performed the following evaluations: a field data QA/QC evaluation, a receipt temperature check, a holding time check, an analytical method check, a reporting limit

check, a trip blank check, a QA/QC evaluation of sample duplicates, a gross alpha counting error evaluation and a review of each laboratory's reported QA/QC information. Each evaluation is discussed in the following sections. Data check tables indicating the results of each test are provided under Tab E.

### 4.3.1 Field Data QA/QC Evaluation

The QAM performs a review of all field recorded data to assess adherence with QAP, Permit, and Sampling Plan requirements. The assessment involved review of the Field Data sheets. Review of the Field Data Sheets noted that all requirements for field data collection were met.

### 4.3.2 Holding Time Evaluation

QAP Table 1 identifies the method holding times for each suite of parameters. Sample holding time checks are provided under Tab E. All samples were analyzed within the required holding time.

It is important to note that pH is analyzed by the laboratory and is not measured in the field because the acidic nature of the samples requires a more robust meter than what is available for field use. In most circumstances pH is measured at the time of sample collection and a holding time is not assessed. If pH is not measured at the time of collection, a 15-minute time limit is set. EL flagged the pH results with an "H" flag because the pH was measured beyond the 15-minute limit. This does not affect the usability of the data, as the sample matrices are stable and pH is collected for informational purposes only and there are no compliance criteria for pH measurements.

### 4.3.3 Laboratory Receipt Temperature Check

Chain of Custody sheets were reviewed to confirm compliance with the Permit. Sample receipt temperature checks are provided under Tab E. All samples were received within the required temperature limit.

### 4.3.4 Analytical Method Check

All analytical methods reported by both laboratories were checked against the required methods specified in Table 1 of the QAP. It is important to note that neither the QAP nor the Permit specify a method for laboratory pH or conductivity. The QAM verified that the laboratory pH and conductivity methods used by the laboratory were appropriate and provided accurate data.

Table 1 of the QAP does not specify a method for SVOCs because SVOCs are not routinely collected in the Mill groundwater samples. The GWDP requires that tailings and slimes drain samples shall include the SVOCs identified in EPA Method 8270D. The GWDP does not specify that EPA Method 8270D be used for analysis, only that the compounds specified in that method be included in the analytical list. All of the SVOCs in the GWDP-specified list were included in the analytical data however EPA Method 8270B, rather than 8270D, was used to complete the analyses. The analytical data are included in Tab C.

Analytical method check results are provided in Tab E.

### 4.3.5 Reporting Limit Evaluation

All analytical method reporting limits reported by both laboratories were checked against the reporting limits specified in the Permit. Section I.E.4 of the Permit requires the following Reporting Limits:

> "all water quality analyses reported shall have a minimum detection limit or reporting limit that is less than or equal to the respective:
>
> i. Ground Water Quality Standards ("GWQS") concentrations defined in Table 2 of this Permit,
>
> ii. For TDS, Sulfate, and Chloride, the Minimum Detection Limit for those constituents for Cell solution monitoring will be as follows: 1,000 mg/L, 1,000 mg/L, and 1 mg/L, respectively, and
>
> iii. Lower limits of quantitation for groundwater for semi-volatile organic compounds listed in Table 2 of EPA Method 8270D, Revision 4, dated February, 2007."

Reporting limits are provided in Tab E. There are several constituents that do not have specified reporting limits in either the Permit or EPA Method 8270D. The reporting limits established by the laboratory are reported in the data packages. The reporting limits are comparable to other analytes in the same method based on the same matrix. The reporting limits used by the laboratory are considered acceptable based on the matrix and known difficulties caused by the sample matrix.

One metal, two VOCs and all of the SVOCs had reporting limits that exceeded the reporting limits listed in the permit or the method respectively.

The metal and VOCs that had reporting limits that exceeded the reporting limits are:

- Silver in Cell 4A LDS – 2020 reporting limit = 200 ug/L
- Methylene chloride in Cell 2 Slimes – 2020 reporting limit = 25 ug/L
- Methylene chloride in Cell 4A LDS – 2020 reporting limit = 25 ug/L

The laboratory reported a silver result (150 ug/L) in Cell 4A LDS below the RL. The laboratory reported the data and qualified the result with a "J". The raised silver RL has no effect on the usability of the data because the reported concentration of silver in the Cell 4A LDS sample is above the permit required RL of 100 ug/L.

The Cell 2 slimes drain and Cell 4A LDS samples had methylene chloride RLs above the permit required RL of 5 ug/L. These exceedances were likely the result of dilutions necessary to

address the matrix interferences inherent in these samples. The exceedances do not affect the quality or usability of the data because the results of this sampling provide an "inventory" of cell composition and are not used for comparison to regulatory limits.

The reporting limits for the SVOCs exceeded the recommended RLs in Method 8270D. GEL provided both a method detection limit ("DL") and RL. The DL is based on the sample composition and other sample-specific variables such as TDS and pH. Method 8270D provides "recommended" quantitation limits for water samples. The tailings solution matrix is not comparable to routine groundwater samples and require dilutions to address these matrix interferences. The laboratory will report detections to the DL and therefore that is the lowest limit for reporting (i.e. the RL). These RL exceedances were likely the result of dilutions necessary to address the matrix interferences inherent in these samples. The exceedances do not affect the quality or usability of the data because the results of this sampling provide an "inventory" of cell composition and are not used for comparison to regulatory limits.

In addition, several sets of sample results had the reporting limit raised for at least one analyte due to sample dilution. In all cases the reported value for the analyte was higher than the increased detection limit.

### 4.3.6 Trip Blank Evaluation

All trip blank results were reviewed to identify any blank contamination. Trip blank evaluations are provided in Tab E. All trip blank results associated with the samples were less than the reporting limit for the VOCs except acetone. Acetone was reported at 5.80 ug/L in the trip blank.

All of the tailings solution results were more than an order of magnitude greater than the trip blank acetone result. The data are usable for the intended purpose because trip blank detection is indicative of a high bias to the sample results. A high bias results in a more conservative data application. EFRI does not believe the data quality has been affected.

### 4.3.7 QA/QC Evaluation for Sample Duplicates

Section 9.1.4 a) of the QAP states that the relative percent difference (the "RPD") will be calculated for the comparison of duplicate and original field samples. The QAP acceptance limits for RPDs between the duplicate and original field sample is less than or equal to 20% unless the measured results are less than 5 times the required detection limit. This standard is based on the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994, 9240.1-05-01 as cited in the QAP. The RPDs are calculated for all duplicate pairs for all analytes regardless of whether or not the reported concentrations are greater than 5 times the required detection limits; however, data will be considered noncompliant only when the results are greater than 5 times the required detection limit and the RPD is greater than 20%. RPDs are also only calculated when both the sample and the duplicate report a detection for any given analyte. If only one of the pair reports a detection the RPD cannot be calculated. The additional duplicate information is provided for information purposes.

All duplicate results were within 20% RPD. Results of the RPD test are provided under Tab E. The radiologic duplicates are discussed in Section 4.3.8 below.

### 4.3.8 Radiologic Counting Error

Section 9.14 of the QAP requires that all gross alpha analysis reported with an activity equal to or greater than the Groundwater Compliance Limit (the "GWCL") (for the tailings system wastewater samples the GWQS will be used), shall have a counting variance that is equal to or less than 20% of the reported activity concentration. An error term may be greater than 20% of the reported activity concentration when the sum of the activity concentration and error term is less than or equal to the GWQS.

Results of routine radiologic sample QC are provided under Tab E. All tailings system wastewater radiologic sample results met the counting error requirement.

Section 9.1.4 of the QAP also requires a comparability check between the sample and field duplicate sample results utilizing the formula provided below:

$$| A-B | /(s_a^2+s_b^2)^{1/2} \leq 2$$

The original and duplicate sample met the duplicate comparability check specified in the QAP for gross alpha. Results of the RPD test are provided under Tab E.

### 4.3.9 Laboratory Matrix QC Evaluation

Section 9.2 of the QAP requires that the laboratory's QA/QC Manager check the following items in developing data reports: (1) sample preparation information is correct and complete, (2) analysis information is correct and complete, (3) appropriate analytical laboratory procedures are followed, (4) analytical results are correct and complete, (5) QC samples are within established control limits, (6) blanks are within QC limits, (7) special sample preparation and analytical requirements have been met, and (8) documentation is complete. In addition to other laboratory checks described above, EFRI's QAM rechecks QC samples and blanks (items (5) and (6)) to confirm that the percent recovery for spikes and the relative percent difference for spike duplicates are within the method-specific required limits, or that the case narrative sufficiently explains any deviation from these limits. Results of this quantitative check are provided under Tab E. All lab QA/QC results from both EL and GEL met these requirements. There were QC results which did not meet laboratory established acceptance limits, as identified in Tab E and described below.

A significant number of the tailings system wastewater samples had the RL raised for multiple analytes due to matrix interference and/or sample dilution. RL evaluations are discussed in Section 4.3.5.

The check samples included at least the following: a method blank, a laboratory control spike ("LCS"), a matrix spike ("MS") and a matrix spike duplicate ("MSD"), or the equivalent, where applicable.

All qualifiers, and the corresponding explanations reported in the QA/QC Summary Reports for any of the check samples for any of the analytical methods were reviewed by the QAM.

The QAP Section 8.1.2 requires that a MS/MSD pair be analyzed with each analytical batch, depending upon the analytical method requirements and/or method limitations. The QAP does not specify acceptance limits for the MS/MSD pair, and the QAP does not specify that the MS/MSD pair be prepared on EFRI samples only. Acceptance limits for MS/MSDs are set by the laboratories. The review of the information provided by the laboratories in the data packages verified that the QAP requirement to analyze a MS/MSD pair with each analytical batch was met. While the QAP does not require it, the recoveries were reviewed for compliance with the laboratory established acceptance limits. The QAP does not require this level of review, and the results of this review are provided for information only.

The information from the Laboratory QA/QC Summary Reports indicates that the MS/MSDs recoveries and the associated RPDs for the samples were within acceptable laboratory limits except as indicated in Tab E. The data recoveries and RPDs which are outside the laboratory established acceptance limits do not affect the quality or usability of the data because the recoveries and RPDs above or below the acceptance limits are indicative of matrix interference most likely caused by other constituents in the samples. Matrix interferences are applicable to the individual sample results only. The requirement in the QAP to analyze a MS/MSD pair with each analytical batch was met and as such the data are compliant with the QAP.

The QAP specifies that surrogate compounds shall be employed for all organic analyses, but the QAP does not specify acceptance limits for surrogate recoveries. The analytical data associated with the routine quarterly sampling met the requirement specified in the QAP. The information from the Laboratory QA/QC Summary Reports indicates that the surrogate recoveries for the samples were within acceptable laboratory limits for the surrogate compounds. The requirement in the QAP to analyze surrogate compounds was met and the data are compliant with the QAP. Furthermore, there are no QAP requirements for surrogate recoveries.

The information from the Laboratory QA/QC Summary Reports indicates that the LCS/LCSD recoveries for the samples were within acceptable laboratory limits for all LCS/LCSD compounds except as noted in Tab E. The compounds noted with LCS/LCSD recoveries outside of acceptance limits are noted for low recovery and the surrogate recoveries associated with the LCS/LCSD indicate that the analytical system was operating within acceptable limits and the data are acceptable as reported and there is no effect on the usability of the data.

The QAP, Section 8.1.2 requires that each analytical batch shall be accompanied by a method blank. The analytical batches routinely contain a blank, which is a blank sample made and carried through all analytical steps. For the Mill samples, a method blank was prepared for the analytical methods. Per the approved QAP, contamination detected in analysis of method blanks will be used to evaluate any analytical laboratory contamination of environmental samples. The

QAP states that non-conformance conditions will exist when contaminant levels in the samples(s) are not an order of magnitude greater than the blank result. There were no detections in the method blanks in this quarter. Method blank results are included in Tab E.

## 5.0 HISTORIC DATA

The historic analytical data for the tailings system wastewater sampling program are included in Tab D. In addition, the minimum and maximum concentrations compiled in the DWMRC GWDP, Statement of Basis for a Uranium Mining Facility at White Mesa, South of Blanding, Utah, dated December 1, 2004 are included in Tab D.

## 6.0 SUMMARY AND CONCLUSIONS

### 6.1 Cell 1

Cell 1 solutions were acidic in nature with a laboratory pH of 0.92. As expected, the solutions contained gross alpha, major ions, metals, and Volatile Organic Compounds ("VOCs"). SVOCs were not detected. Regarding major ions, chloride, fluoride, magnesium, ammonia, potassium, sodium and sulfate were one or more orders of magnitude greater in concentration than the other major ions. Metals exhibiting the greatest concentration by at least one order of magnitude higher than the other metals analyzed included arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, tin, uranium, vanadium and zinc. A decrease was noted in the gross alpha concentration in the August 2020 sample. The variable gross alpha results are being caused by matrix interference due to the nature of the tailings solution and are not representative of gross alpha from radium concentrations in the solution. This is evidenced by the results of the voluntary additional analyses. The results of the voluntary analyses are shown in Tab D.

The concentrations reported in the 2020 sample remained within historic ranges. It is important to note that not all constituents present in the tailings fluids will exhibit the same behavior as a result of concentration of the tailings fluids and any increases or decreases in constituent results will not be linear. The individual constituent results are greatly affected by the matrix of the tailings fluids and each constituent will behave differently based on the matrix interactions and the differing solubility properties of the constituent.

Comparison of Cell 1 fluids to those of Cells 4A, and 4B reveals that Cell 1 is similar in composition and concentration ratios to the fluids in Cells 4A and 4B.

### 6.2 Cell 3

Cell 3 was dry in 2020 and was therefore not sampled.

### 6.3 Cell 4A

Cell 4A solutions were acidic in nature, with a laboratory pH of 2.36. As expected, the solutions contained gross alpha, major ions, metals, and VOCs. SVOCs were not detected. Cell 4A fluid

exhibited the highest major ion concentrations for chloride, fluoride, magnesium, ammonia, potassium, sodium and sulfate. The metals arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, uranium, vanadium and zinc were one or more orders of magnitude greater than the other metals analyzed. A decrease in the gross alpha concentration was noted in the 2020 sample. The variable and decreased gross alpha results are being caused by matrix interference due to the nature of the tailings solution and are not representative of gross alpha from radium concentrations in the solution. This is evidenced by the results of the voluntary additional analyses which are shown in Tab D.

Overall, the concentrations reported in the 2020 sample remained approximately the same as the 2019 sample. Concentration changes noted are within the analytical accuracy of the methods used for analysis. It is important to note that not all constituents present in the tailings fluids will exhibit the same behavior as a result of concentration of the tailings fluids and the increases in constituent results will not be linear. The individual constituent results are greatly affected by the matrix of the tailings fluids and each constituent will behave differently based on the matrix interactions and the differing solubility properties of the constituent.

Comparison of Cell 4A fluids to those of Cells 1, and 4B reveals that Cell 4A is similar in composition and concentration ratios to the fluids in Cells 1, and 4B.

### 6.4 Cell 4B

Cell 4B solutions were acidic in nature, with a laboratory pH of 2.24. As expected, the solutions contained gross alpha, major ions, metals and VOCs. SVOCs were not detected. Cell 4B fluid exhibited the highest major ion concentrations for chloride, fluoride, magnesium, ammonia, potassium, sodium and sulfate. The metals arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, uranium, vanadium and zinc were one or more orders of magnitude greater than the other metals analyzed. A decrease in the gross alpha concentration was noted in the 2020 sample. The variable gross alpha results are being caused by matrix interference due to the nature of the tailings solution and are not representative of gross alpha from radium concentrations in the solution. This is evidenced by the results of the voluntary additional analyses which are shown in Tab D.

The concentrations reported in the 2020 sample remained approximately the same as the 2019 sample. Concentration changes noted are within the analytical accuracy of the methods used for analysis. It is important to note that not all constituents present in the tailings fluids will exhibit the same behavior as a result of concentration of the tailings fluids and the increases in constituent results will not be linear. The individual constituent results are greatly affected by the matrix of the tailings fluids and each constituent will behave differently based on the matrix interactions and the differing solubility properties of the constituent.

Comparison of Cell 4B fluids to those of Cells 1, and 4A reveals that Cell 4B is similar in composition and concentration ratios to the fluids in Cells 1, and 4A.

### 6.5 Cell 2 Slimes Drain

Cell 2 Slimes drain fluid was acidic in nature, with a laboratory pH of 3.06. As expected, the solutions contained gross alpha, major ions, metals, and VOCs. No SVOCs were detected. Major ions that were highest in concentration by one or more orders of magnitude included chloride, magnesium, ammonia, sodium and sulfate. For metals, arsenic, cadmium, chromium, cobalt, copper, iron, manganese, molybdenum, nickel, selenium, thallium, uranium, vanadium and zinc were at least one order of magnitude greater in concentration than other metals analyzed. A slight decrease in the gross alpha concentration was noted in the 2020 sample. The gross alpha result decreased but is the same order of magnitude of the historic data. Overall, the concentrations reported in the 2020 sample remained approximately the same as the 2019 sample. Concentration changes noted are within the analytical accuracy of the methods used for analysis.

### 6.6 Cells 3, 4A and 4B Slimes Drain

In accordance with the Permit, the slimes drains for Cell 3, 4A and 4B are not required to be sampled until dewatering operations have begun. Cell 1 was designed to be used solely as an evaporation pond and does not have a slimes drain.

### 6.7 Cells 1, 2, and 3 Leak Detection Systems

Consistent with the Permit, the Cells 1, 2, and 3 LDSs were not sampled during the 2020 sampling event. The Cells 1, 2, and 3 LDSs were dry.

### 6.8 Cell 4A Leak Detection System

Cell 4A LDS solutions were acidic in nature, with a laboratory pH of 2.39. As expected, the solutions contained gross alpha, major ions, metals and VOCs. No SVOCs were detected. Cell 4A LDS fluid exhibited the highest major ion concentrations for chloride, magnesium, ammonia, sodium, and sulfate. The metals arsenic, cadmium, chromium, cobalt, copper, iron, manganese, molybdenum, nickel, selenium, uranium, vanadium, and zinc were one or more orders of magnitude greater than the other metals analyzed. A decrease in the gross alpha concentration was noted in the 2020 sample. The variable gross alpha results are being caused by matrix interference due to the nature of the tailings solution and are not representative of gross alpha from radium concentrations in the solution. This is evidenced by the results of the voluntary additional analyses which are shown in Tab D.

Overall, the concentrations reported in the 2020 Cell 4A LDS sample remained within historic ranges.

### 6.9 Cell 4B Leak Detection System

Cell 4B LDS solutions were acidic in nature, with a laboratory pH of 1.89. As expected, the solutions contained gross alpha, major ions, metals, VOCs. No SVOCs were detected. Cell 4B

LDS fluid exhibited the highest major ion concentrations for chloride, fluoride, magnesium, ammonia, potassium, sodium, and sulfate. The metals arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, uranium, vanadium and zinc were one or more orders of magnitude greater than the other metals analyzed. A decrease in the gross alpha concentration was noted in the 2020 sample. The variable gross alpha results are being caused by matrix interference due to the nature of the tailings solution and are not representative of gross alpha from radium concentrations in the solution. This is evidenced by the results of the voluntary additional analyses which are shown in Tab D.

Overall, the concentrations reported in the 2020 Cell 4B LDS sample are within historic ranges.

### 6.10 Summary and Conclusions of Analytical Results

The metals arsenic, cadmium, chromium, cobalt, copper, iron, manganese, molybdenum, nickel, selenium, uranium, vanadium and zinc were generally present in greatest concentration for all samples. For major ions, chloride, fluoride, magnesium, ammonia, sodium, and sulfate were predominant. Both increases and decreases were noted for several metals and major anions. Concentrations are variable and are driven by Mill operations. EFRI conducted additional voluntary analyses (not required by the GWDP) in order to further characterize the radiological and physical properties of the tailings solution, as discussed Section 3.1 above. The results of the additional voluntary analyses for radium-226, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, uranium-238, and specific gravity show that the variability in gross alpha results are being caused by matrix interference due to the nature of the tailings solution and are not representative of gross alpha from radium concentrations in the solution. EFRI may or may not choose to continue these additional analyses in the future. The changes in concentrations of metals and major ions are reflective of Mill operations and are driven by the addition/movement of fluids during periods of operation. The individual constituent results are greatly affected by the matrix of the tailings fluids and each constituent will behave differently based on the matrix interactions and the differing solubility properties of the constituent. Overall, the results of the 2020 tailings solutions are within historic, expected ranges.

## 7.0 CORRECTIVE ACTION REPORT

No corrective action reports are required for the 2020 annual sampling event.

### 7.1 Assessment of Corrective Actions from Previous Period

No corrective action reports were required for the 2019 annual sampling event and as such there is no assessment of previous actions necessary.

## 8.0 SIGNATURE AND CERTIFICATION

This document was prepared by Energy Fuels Resources (USA) Inc.

Energy Fuels Resources (USA) Inc.

By:

Scott Bakken Digitally signed by Scott Bakken
Date: 2020.11.17 14:27:08 -07'00'

Scott A. Bakken
Vice President, Regulatory Affairs

Date

Certification:

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Scott Bakken Digitally signed by Scott Bakken
Date: 2020.11.17 14:27:29 -07'00'

Scott A. Bakken
Vice President, Regulatory Affairs
Energy Fuels Resources (USA) Inc.

# TABLES

**Table 1**
**Summary of Tailings System Wastewater Monitoring**

| Location | Sample Date | Date of Laboratory Report | Work Order Number/Lab Set ID |
|---|---|---|---|
| Cell 1 Solutions | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |
| Cell 2 Slimes Drain | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |
| Cell 3 Solutions | 8/19/2020 | Not Sampled - Dry | NA |
| | | Not Sampled - Dry | NA |
| Cell 4A Solutions | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |
| Cell 4A LDS | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |
| Cell 4B Solutions | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |
| Cell 4B LDS | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |
| Cell 65 - Duplicate of Cell 1 | 8/19/2020 | GEL- 09/30/2020 | GEL - 519405 |
| | | EL - 9/9/2020 | EL - C20080962 |

**Notes:**

**GEL = GEL Laboratories, LLC**
**EL = Energy Labs**

***EFRI conducted the annual sampling event in August 2020. EFRI collected additional samples aliquots for specific gravity and additional radiological constituents.**

INDEX OF TABS

Tab A

Tailings System Monitoring Field Sheets

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 1 **Sampling Personnel:** Tanner Holliday, Deen Lyman, Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☐ Yes ☒ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** N/A

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☐ Duplicate

Duplicate Sample Name: _____

**Notes:** Arrived on site at 0825. Samples collected with a ladle at 0830. Left site at 0844.

Date 8/19/2020

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 2 Slimes Slimes #2 **Sampling Personnel:** Tanner Holliday, Deen Lyman Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☒ Yes ☐ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** 34.88

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☒ | ☐ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☐ Duplicate

Duplicate Sample Name: _____

**Notes:** Arrived on site at 0845. Samples bailed and collected at 0850. Left site at 0900.

Date 8/19/2020

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 4A **Sampling Personnel:** Tanner Holliday, Deen Lyman, Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☐ Yes ☒ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** N/A

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☐ Duplicate

Duplicate Sample Name: _____

**Notes:** Arrived on site at 0908. Samples collected with a ladle at 0915. Left site at 0928.

Date 8/19/2020

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 4A LDS **Sampling Personnel:** Tanner Holliday, Deen Lyman
Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☐ Yes ☒ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** N/A

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☐ Duplicate

Duplicate Sample Name: _____

**Notes:** Arrived on site at 0929. Samples collected with a ladle at 0935. Left site at 0940.

Date 8/19/2020

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 4B **Sampling Personnel:** Tanner Holliday, Deen Lyman, Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☐ Yes ☒ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** N/A

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☐ Duplicate

Duplicate Sample Name:_____

**Notes:** Arrived on site at 0950. Samples collected with a ladle at 1000. Left site at 1029.

Date 8/19/2020

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 4B LDS **Sampling Personnel:** Tanner Holliday, Deen Lyman Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☐ Yes ☒ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** N/A

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☐ Duplicate

Duplicate Sample Name: _____

**Notes:** Arrived on site at 0940. Samples collected with a ladle at 0945. Left site at 0949.

Date 8/19/2020

## Field Data Record-Tailings Solutions, LDS and Slimes Drain Sampling

**Location:** Cell 65 **Sampling Personnel:** Tanner Holliday, Deen Lyman
Dean Henderson (DWMRC)

**Is this a Slimes Drain?** ☐ Yes ☒ No

**If this is a Slimes Drain, measure depth to wastewater immediately before sampling.**

**DTW immediately before sampling (slimes only):** N/A

**Weather Conditions at Time of Sampling:** Sunny

**Analytical Parameters/Sample Collection Method:**

| Parameter | Sample Taken | | Filtered | | Sampling Method | | | Lab Name |
|---|---|---|---|---|---|---|---|---|
| | | | | | Peristaltic Pump | Bailer | Ladle | |
| VOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Metals | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Nutrients | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Other Non Radiologics | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |
| Gross Alpha | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| SVOCs | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | GEL |
| Conductivity | ☒ Yes | ☐ No | ☐ Yes | ☒ No | ☐ | ☐ | ☒ | Energy |

**QC Samples Associated with this Location:**

☐ Rinsate Blank

☒ Duplicate

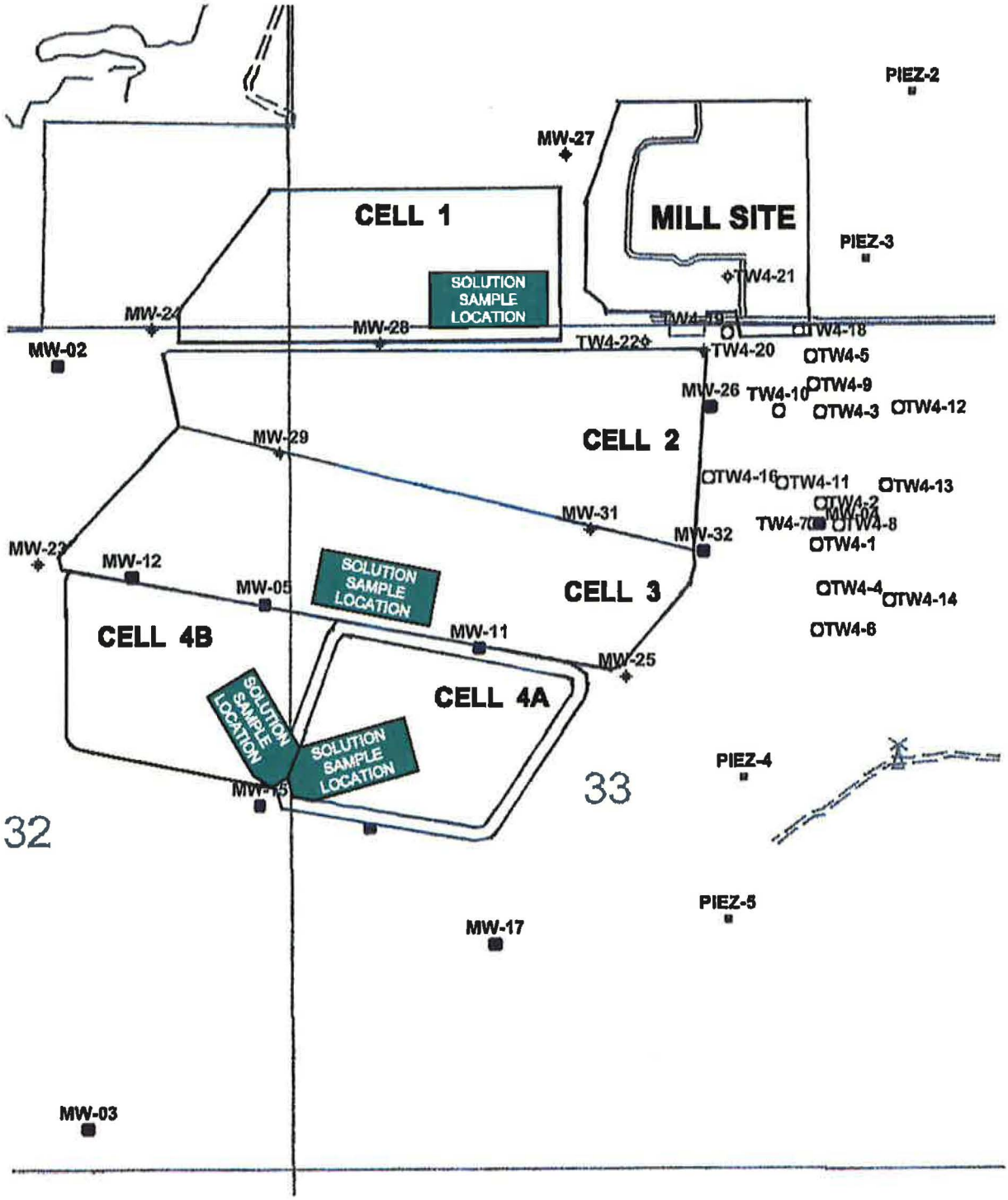
Duplicate Sample Name: _____

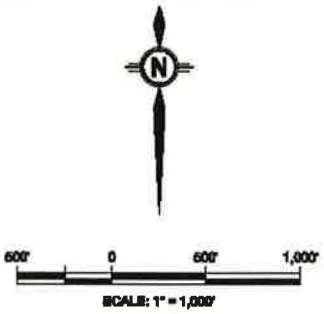
**Notes:** Arrived on site at 0908. Samples collected with a ladle at 0915
Left site at 0928.

Date 8/19/2020

Tab B

Sample Location Figures




Energy Fuels Resources (USA) Inc.

| REVISIONS | |
|---|---|
| Date | By |
| 10/8/14 | RE |
| 11/24/15 | RE |

Project: White Mesa Mill
County: San Juan State: Utah
Location: T37S, R22E

**Annual Tailings System, Cell Solution Sample Locations**

Author: ____ Date: 11/24/15 Drafted By:

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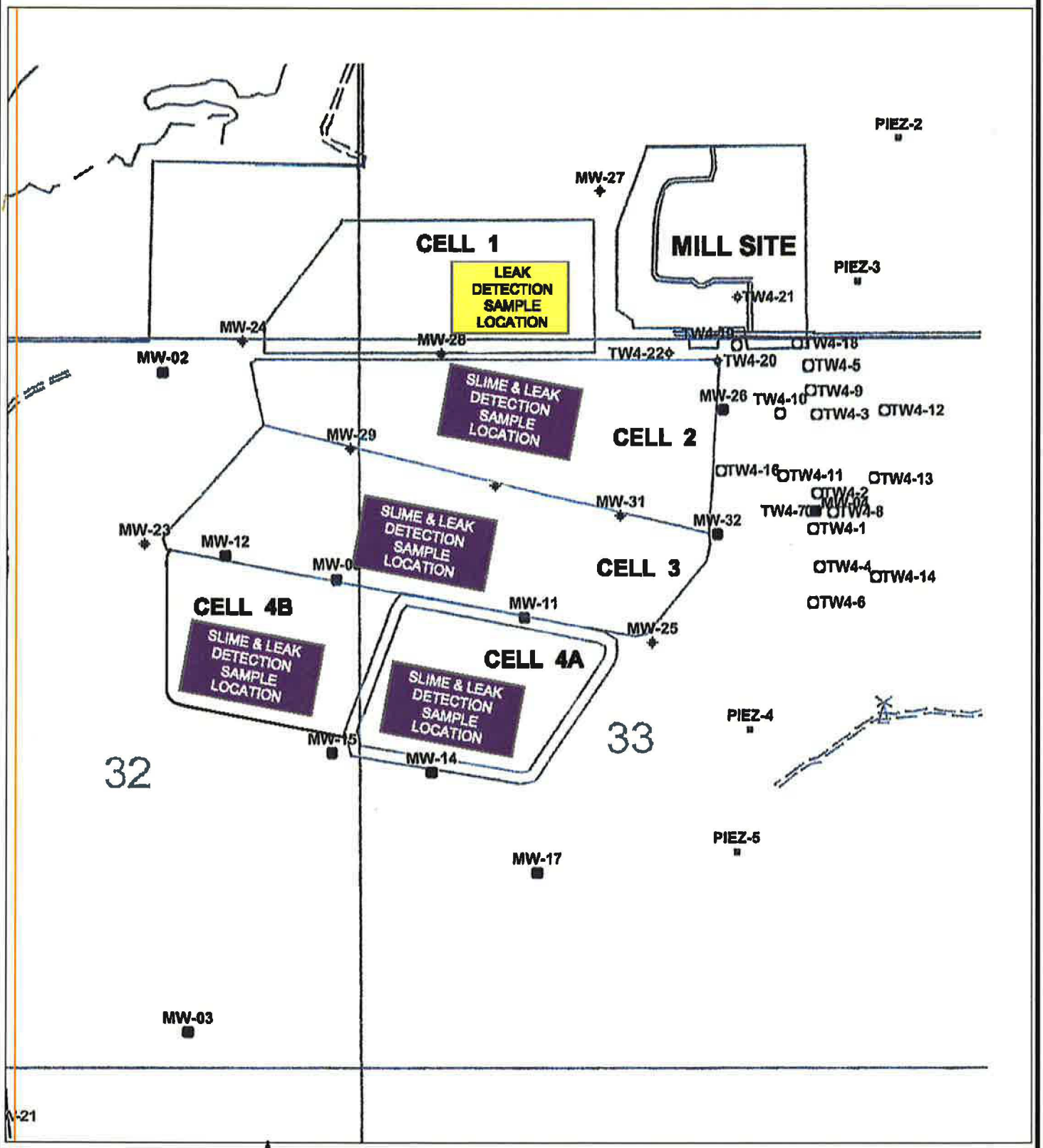


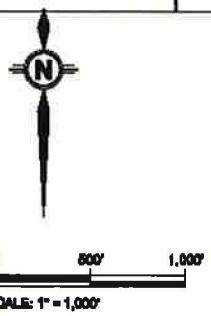


Energy Fuels Resources (USA) Inc.

| REVISIONS | |
|---|---|
| Date | By |
| 10/8/14 | RE |
| 11/24/15 | RE |

Project: White Mesa Mill
County: San Juan State: Utah
Location: T37S, R22E

**Annual Tailings System Slimes and Leak Detection Sample Locations**

Author: ----- Date: 11/24/15 Drafted By:

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Tab C

Laboratory Analytical Reports

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-001
**Client Sample ID:** Cell 1

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 08:30
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:18 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:18 / dmb |
| Chloride | 40000 | mg/L | D | 100 | | E300.0 | 08/24/20 18:13 / dmb |
| Fluoride | 7460 | mg/L | D | 100 | | A4500-F C | 08/24/20 11:43 / dmb |
| Sulfate | 222000 | mg/L | D | 400 | | E300.0 | 08/24/20 18:13 / dmb |
| Calcium | 618 | mg/L | D | 30 | | E200.7 | 08/24/20 15:33 / meh |
| Magnesium | 12300 | mg/L | | 1 | | E200.7 | 08/24/20 15:33 / meh |
| Potassium | 4580 | mg/L | D | 20 | | E200.7 | 08/24/20 15:33 / meh |
| Sodium | 62900 | mg/L | D | 50 | | E200.7 | 08/24/20 15:33 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 81500 | umhos/cm | E | 5 | | A2510 B | 08/21/20 13:54 / kjp |
| pH | 0.92 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 13:54 / kjp |
| pH Measurement Temp | 13 | °C | | | | A4500-H B | 08/21/20 13:54 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 422000 | mg/L | D | 5000 | | A2540 C | 08/24/20 14:34 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 191 | mg/L | D | 0.5 | | E353.2 | 08/24/20 16:21 / dmb |
| Nitrogen, Ammonia as N | 10600 | mg/L | D | 1000 | | E350.1 | 08/26/20 09:55 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 599000 | ug/L | D | 100 | | E200.8 | 08/25/20 18:44 / jcg |
| Beryllium | 1330 | ug/L | D | 30 | | E200.8 | 09/01/20 22:19 / jcg |
| Cadmium | 9070 | ug/L | D | 10 | | E200.8 | 08/25/20 12:42 / jcg |
| Chromium | 25700 | ug/L | D | 100 | | E200.8 | 08/25/20 12:42 / jcg |
| Cobalt | 51400 | ug/L | D | 10 | | E200.8 | 08/25/20 12:42 / jcg |
| Copper | 2110000 | ug/L | D | 1000 | | E200.8 | 08/25/20 18:44 / jcg |
| Iron | 1.54E+07 | ug/L | D | 5000 | | E200.8 | 08/25/20 18:44 / jcg |
| Lead | 42400 | ug/L | D | 100 | | E200.8 | 08/25/20 18:44 / jcg |
| Manganese | 833000 | ug/L | D | 100 | | E200.7 | 08/24/20 15:33 / meh |
| Mercury | 14 | ug/L | | 1 | | E245.1 | 09/03/20 12:20 / eet-d |
| Molybdenum | 247000 | ug/L | D | 10 | | E200.8 | 08/25/20 12:42 / jcg |
| Nickel | 27100 | ug/L | D | 30 | | E200.8 | 08/25/20 12:42 / jcg |
| Selenium | 16600 | ug/L | D | 20 | | E200.8 | 08/25/20 12:42 / jcg |
| Silver | 1290 | ug/L | D | 4 | | E200.8 | 08/25/20 12:42 / jcg |
| Thallium | ND | ug/L | D | 50 | | E200.8 | 09/02/20 15:02 / jcg |
| Tin | 1220 | ug/L | | 50 | | E200.8 | 08/25/20 12:42 / jcg |
| Uranium | 200000 | ug/L | D | 100 | | E200.8 | 08/25/20 18:44 / jcg |
| Vanadium | 2090000 | ug/L | D | 1000 | | E200.8 | 08/25/20 18:44 / jcg |
| Zinc | 396000 | ug/L | D | 3000 | | E200.8 | 08/25/20 18:44 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 350000 | mg/L | | | | A1030 E | 08/26/20 10:07 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-001
**Client Sample ID:** Cell 1

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 08:30
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | 4.20 | % | | | | A1030 E | 08/26/20 10:07 / jlw |
| Anions | 6150 | meq/L | | | | A1030 E | 08/26/20 10:07 / jlw |
| Cations | 6690 | meq/L | | | | A1030 E | 08/26/20 10:07 / jlw |
| Cation/Anion Balance includes selected metals | | | | | | | |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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

# Certificate of Analysis

Report Date: September 14, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 1
Sample ID: 519405001
Matrix: Water
Collect Date: 19-AUG-20 08:30
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | | 6.41 | 1.67 | 5.00 | ug/L | | 1 | MXL2 | 08/26/20 | 1116 | 2033589 | 1 |
| Acetone | | 32.6 | 1.74 | 5.00 | ug/L | | 1 | | | | | |
| Benzene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Chloroform | | 2.84 | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Chloromethane | | 1.49 | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Methylene chloride | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | | |
| Naphthalene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Tetrahydrofuran | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | | |
| Toluene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Xylenes (total) | U | ND | 1.00 | 3.00 | ug/L | | 1 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 58.2 ug/L | 50.0 | 116 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 49.8 ug/L | 50.0 | 100 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 50.0 ug/L | 50.0 | 100 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

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# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 1
Sample ID: 519405001
Matrix: Water
Collect Date: 19-AUG-20 08:30
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/26/20 | 2252 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 1
Sample ID: 519405001

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 1
Sample ID: 519405001

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/26/20 22 52* |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 1090 ug/L | 1000 | 109 | (32%-122%) | | |
| 2-Fluorobiphenyl | 397 ug/L | 500 | 79 | (31%-107%) | | |
| Nitrobenzene-d5 | 397 ug/L | 500 | 79 | (35%-113%) | | |
| Phenol-d5 | 399 ug/L | 1000 | 40 | (15%-91%) | | |
| p-Terphenyl-d14 | 402 ug/L | 500 | 80 | (35%-134%) | | |
| 2-Fluorophenol | 533 ug/L | 1000 | 53 | (15%-88%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/26/20 22 52* |
|---|---|---|---|---|---|---|---|
| unknown | | 1.981 | 1490 ug/L | 0 | J | | |
| Butyrolactone | 000096-48-0 | 4.302 | 134 ug/L | 90 | NJ | | |
| unknown | | 5.682 | 152 ug/L | 0 | J | | |
| unknown | | 5.751 | 313 ug/L | 0 | J | | |
| unknown | | 5.778 | 80.4 ug/L | 0 | J | | |
| unknown | | 5.848 | 2750 ug/L | 0 | J | | |
| unknown | | 5.944 | 89.7 ug/L | 0 | J | | |
| unknown | | 6.094 | 54.7 ug/L | 0 | J | | |
| unknown | | 7.062 | 42.6 ug/L | 0 | J | | |
| unknown | | 7.618 | 43.5 ug/L | 0 | J | | |
| unknown | | 7.677 | 43.5 ug/L | 0 | J | | |
| unknown | | 8.1 | 57.1 ug/L | 0 | J | | |
| 1(3H)-Isobenzofuranone | 000087-41-2 | 8.618 | 54.2 ug/L | 97 | NJ | | |
| unknown | | 9.18 | 64.2 ug/L | 0 | J | | |
| 1,4-Benzenediamine, N,N-diethyl- | 000093-05-0 | 9.394 | 65.2 ug/L | 98 | NJ | | |
| 1H-Isoindole-1,3(2H)-dione | 000085-41-6 | 9.442 | 54.4 ug/L | 98 | NJ | | |
| unknown | | 9.875 | 57.6 ug/L | 0 | J | | |
| unknown | | 9.977 | 63.9 ug/L | 0 | J | | |
| unknown | | 10.207 | 76.5 ug/L | 0 | J | | |
| unknown | | 10.25 | 47.8 ug/L | 0 | J | | |
| unknown | | 13.261 | 43.7 ug/L | 0 | J | | |
| unknown | | 13.352 | 209 ug/L | 0 | J | | |
| unknown | | 13.555 | 107 ug/L | 0 | J | | |
| unknown | | 13.865 | 142 ug/L | 0 | J | | |
| unknown | | 13.892 | 92.6 ug/L | 0 | J | | |

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# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 1
Sample ID: 519405001

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| unknown | | | 14.325 | 47.8 | ug/L | 0 | J | | | | | |
| unknown | | | 14.47 | 57.8 | ug/L | 0 | J | | | | | |
| unknown | | | 15.149 | 42.8 | ug/L | 0 | J | | | | | |
| unknown | | | 15.705 | 42.5 | ug/L | 0 | J | | | | | |
| unknown | | | 16.572 | 90.6 | ug/L | 0 | J | | | | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**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

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

# Certificate of Analysis

Report Date: September 18, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 1
Sample ID: 519405001
Matrix: Water
Collect Date: 19-AUG-20 08:30
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | | 1090 | +/-263 | 413 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 1.03E+06 | +/-7530 | 459 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | | 6670 | +/-607 | 214 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 83800 | +/-890 | 107 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0702 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 801 | +/-29.1 | 12.9 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 68300 | +/-2160 | 534 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 4020 | +/-589 | 403 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 64600 | +/-2100 | 549 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 120 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 99.7 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 103 | (15%-125%) |

**Notes:**
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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

# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 1 | Project: | DNMI00107 |
| Sample ID: | 519405001 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

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

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

# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 1 | Project: | DNMI00107 |
| Sample ID: | 519405001 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 08:30 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.33 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-002
**Client Sample ID:** Cell 2 Slimes

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 08:50
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:21 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:21 / dmb |
| Chloride | 4080 | mg/L | D | 50 | | E300.0 | 08/24/20 20:08 / dmb |
| Fluoride | 130 | mg/L | D | 50 | | A4500-F C | 08/24/20 11:47 / dmb |
| Sulfate | 67000 | mg/L | D | 200 | | E300.0 | 08/24/20 20:08 / dmb |
| Calcium | 513 | mg/L | D | 30 | | E200.7 | 08/24/20 15:37 / meh |
| Magnesium | 3800 | mg/L | | 1 | | E200.7 | 08/24/20 15:37 / meh |
| Potassium | 735 | mg/L | D | 20 | | E200.7 | 08/24/20 15:37 / meh |
| Sodium | 4620 | mg/L | D | 50 | | E200.7 | 08/24/20 15:37 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 53900 | umhos/cm | E | 5 | | A2510 B | 08/21/20 13:59 / kjp |
| pH | 3.06 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 13:59 / kjp |
| pH Measurement Temp | 15 | °C | | | | A4500-H B | 08/21/20 13:59 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 89500 | mg/L | D | 1000 | | A2540 C | 08/21/20 12:15 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 21.6 | mg/L | D | 0.05 | | E353.2 | 08/24/20 16:22 / dmb |
| Nitrogen, Ammonia as N | 7150 | mg/L | D | 1000 | | E350.1 | 08/26/20 09:57 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 18000 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Beryllium | 284 | ug/L | D | 60 | | E200.7 | 08/24/20 15:37 / meh |
| Cadmium | 5220 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Chromium | 1860 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Cobalt | 40800 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Copper | 93900 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:00 / jcg |
| Iron | 2420000 | ug/L | D | 5000 | | E200.8 | 08/25/20 19:00 / jcg |
| Lead | 400 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Manganese | 133000 | ug/L | D | 100 | | E200.7 | 08/24/20 15:37 / meh |
| Mercury | 0.058 | ug/L | | 0.2 | | E245.1 | 09/03/20 15:58 / eet-d |
| Molybdenum | 2170 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Nickel | 104000 | ug/L | D | 300 | | E200.8 | 08/25/20 19:00 / jcg |
| Selenium | 585 | ug/L | D | 200 | | E200.8 | 08/25/20 19:00 / jcg |
| Silver | 6 | ug/L | D | 4 | | E200.8 | 08/28/20 15:47 / jcg |
| Thallium | 2190 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Tin | ND | ug/L | | 50 | | E200.8 | 08/28/20 15:47 / jcg |
| Uranium | 18600 | ug/L | D | 100 | | E200.8 | 08/25/20 19:00 / jcg |
| Vanadium | 345000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:00 / jcg |
| Zinc | 816000 | ug/L | D | 10000 | | E200.8 | 08/28/20 15:42 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 81000 | mg/L | | | | A1030 E | 08/28/20 16:10 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-002
**Client Sample ID:** Cell 2 Slimes

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 08:50
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | 4.04 | % | | | | A1030 E | 08/28/20 16:10 / jlw |
| Anions | 1520 | meq/L | | | | A1030 E | 08/28/20 16:10 / jlw |
| Cations | 1650 | meq/L | | | | A1030 E | 08/28/20 16:10 / jlw |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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

# Certificate of Analysis

Report Date: September 14, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 2 Slimes | Project: | DNMI00107 |
| Sample ID: | 519405002 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 08:50 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | | 74.0 | 8.34 | 25.0 | ug/L | | 5 | MXL2 | 08/26/20 | 0236 | 2033589 | 1 |
| Acetone | | 501 | 8.72 | 25.0 | ug/L | | 5 | | | | | |
| Benzene | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Carbon tetrachloride | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Chloroform | | 13.7 | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Chloromethane | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Methylene chloride | U | ND | 8.34 | 25.0 | ug/L | | 5 | | | | | |
| Naphthalene | | 7.65 | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Tetrahydrofuran | U | ND | 8.34 | 25.0 | ug/L | | 5 | | | | | |
| Toluene | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Xylenes (total) | U | ND | 5.00 | 15.0 | ug/L | | 5 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 249 ug/L | 50.0 | 99 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 238 ug/L | 50.0 | 95 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 257 ug/L | 50.0 | 103 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 2 Slimes
Sample ID: 519405002
Matrix: Water
Collect Date: 19-AUG-20 08:50
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/26/20 | 2321 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | | 11.9 | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | | 11.3 | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 2 Slimes
Sample ID: 519405002

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 2 Slimes
Sample ID: 519405002

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/26/20 23 21* |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 1120 ug/L | 1000 | 112 | (32%-122%) | | |
| Phenol-d5 | 341 ug/L | 1000 | 34 | (15%-91%) | | |
| 2-Fluorobiphenyl | 378 ug/L | 500 | 76 | (31%-107%) | | |
| Nitrobenzene-d5 | 404 ug/L | 500 | 81 | (35%-113%) | | |
| 2-Fluorophenol | 461 ug/L | 1000 | 46 | (15%-88%) | | |
| p-Terphenyl-d14 | 513 ug/L | 500 | 103 | (35%-134%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/26/20 23 21* |
|---|---|---|---|---|---|---|---|
| unknown | | 1.981 | 1370 ug/L | 0 | J | | |
| 3-Heptanone | 000106-35-4 | 4.003 | 48.8 ug/L | 91 | NJ | | |
| 2(3H)-Furanone, dihydro-5-methyl- | 000108-29-2 | 4.773 | 49.7 ug/L | 91 | NJ | | |
| unknown | | 5.126 | 98.7 ug/L | 0 | J | | |
| unknown | | 5.629 | 1300 ug/L | 0 | J | | |
| unknown | | 5.757 | 121 ug/L | 0 | J | | |
| unknown | | 6.099 | 190 ug/L | 0 | J | | |
| Hexanoic acid, 2-ethyl- | 000149-57-5 | 6.549 | 145 ug/L | 90 | NJ | | |
| unknown | | 6.912 | 42.3 ug/L | 0 | J | | |
| Octanoic Acid | 000124-07-2 | 7.057 | 127 ug/L | 91 | NJ | | |
| unknown | | 7.164 | 108 ug/L | 0 | J | | |
| unknown | | 7.201 | 44.9 ug/L | 0 | J | | |
| unknown | | 7.255 | 44.2 ug/L | 0 | J | | |
| unknown | | 7.661 | 48.8 ug/L | 0 | J | | |
| unknown | | 7.859 | 147 ug/L | 0 | J | | |
| unknown | | 7.95 | 44.4 ug/L | 0 | J | | |
| unknown | | 7.993 | 95.6 ug/L | 0 | J | | |
| 1,4-Benzenediamine, N,N-diethyl- | 000093-05-0 | 9.399 | 608 ug/L | 98 | NJ | | |
| unknown | | 9.522 | 43.1 ug/L | 0 | J | | |
| unknown | | 9.865 | 74.7 ug/L | 0 | J | | |
| unknown | | 11.892 | 45.2 ug/L | 0 | J | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 2 Slimes
Sample ID: 519405002

Project: DNMI00107
Client ID: DNMI001

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

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**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

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

# Certificate of Analysis

Report Date: September 18, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 2 Slimes
Sample ID: 519405002
Matrix: Water
Collect Date: 19-AUG-20 08:50
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | U | 62.9 | +/-137 | 529 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 5180 | +/-560 | 598 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | U | 226 | +/-155 | 460 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 1630 | +/-132 | 98.3 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0702 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 86.0 | +/-9.86 | 8.44 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 8680 | +/-711 | 476 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 917 | +/-275 | 463 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 8760 | +/-711 | 375 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 103 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 101 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 102 | (15%-125%) |

**Notes:**
Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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

# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 2 Slimes | Project: | DNMI00107 |
| Sample ID: | 519405002 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

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

**GEL LABORATORIES LLC**
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# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 2 Slimes | Project: | DNMI00107 |
| Sample ID: | 519405002 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 08:50 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.08 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-003
**Client Sample ID:** Cell 4A

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:15
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:23 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:23 / dmb |
| Chloride | 9120 | mg/L | D | 100 | | E300.0 | 08/24/20 20:27 / dmb |
| Fluoride | 1700 | mg/L | D | 50 | | A4500-F C | 08/24/20 11:52 / dmb |
| Sulfate | 85700 | mg/L | D | 400 | | E300.0 | 08/24/20 20:27 / dmb |
| Calcium | 641 | mg/L | D | 30 | | E200.7 | 08/24/20 15:49 / meh |
| Magnesium | 4700 | mg/L | | 1 | | E200.7 | 08/24/20 15:49 / meh |
| Potassium | 1660 | mg/L | D | 20 | | E200.7 | 08/24/20 15:49 / meh |
| Sodium | 17700 | mg/L | D | 50 | | E200.7 | 08/24/20 15:49 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 84000 | umhos/cm | E | 5 | | A2510 B | 08/21/20 14:11 / kjp |
| pH | 2.36 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 14:11 / kjp |
| pH Measurement Temp | 16 | °C | | | | A4500-H B | 08/21/20 14:11 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 139000 | mg/L | D | 2000 | | A2540 C | 08/21/20 12:15 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 84.8 | mg/L | D | 0.2 | | E353.2 | 08/24/20 16:23 / dmb |
| Nitrogen, Ammonia as N | 10000 | mg/L | D | 1000 | | E350.1 | 08/26/20 09:58 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 71300 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Beryllium | 485 | ug/L | D | 60 | | E200.7 | 08/24/20 15:49 / meh |
| Cadmium | 3490 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Chromium | 9050 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Cobalt | 32800 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Copper | 617000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:05 / jcg |
| Iron | 3690000 | ug/L | D | 5000 | | E200.8 | 08/25/20 19:05 / jcg |
| Lead | 8680 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Manganese | 211000 | ug/L | D | 100 | | E200.7 | 08/24/20 15:49 / meh |
| Mercury | 3.4 | ug/L | | 0.2 | | E245.1 | 09/03/20 16:00 / eet-d |
| Molybdenum | 25700 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Nickel | 58800 | ug/L | D | 300 | | E200.8 | 08/25/20 19:05 / jcg |
| Selenium | 3660 | ug/L | D | 200 | | E200.8 | 08/25/20 19:05 / jcg |
| Silver | 487 | ug/L | D | 40 | | E200.8 | 08/25/20 19:05 / jcg |
| Thallium | 524 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Tin | 181 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Uranium | 42600 | ug/L | D | 100 | | E200.8 | 08/25/20 19:05 / jcg |
| Vanadium | 205000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:05 / jcg |
| Zinc | 350000 | ug/L | D | 3000 | | E200.8 | 08/25/20 19:05 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 120000 | mg/L | | | | A1030 E | 08/26/20 10:09 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-003
**Client Sample ID:** Cell 4A

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:15
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | -5.12 | % | | | | A1030 E | 08/26/20 10:09 / jlw |
| Anions | 2140 | meq/L | | | | A1030 E | 08/26/20 10:09 / jlw |
| Cations | 1930 | meq/L | | | | A1030 E | 08/26/20 10:09 / jlw |
| Cation/Anion Balance includes selected metals | | | | | | | |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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# Certificate of Analysis

Report Date: September 14, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 4A
Sample ID: 519405003
Matrix: Water
Collect Date: 19-AUG-20 09:15
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | U | ND | 1.67 | 5.00 | ug/L | | 1 | MXL2 | 08/26/20 | 1142 | 2033589 | 1 |
| Acetone | | 16.2 | 1.74 | 5.00 | ug/L | | 1 | | | | | |
| Benzene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Chloroform | | 1.50 | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Chloromethane | | 1.90 | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Methylene chloride | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | | |
| Naphthalene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Tetrahydrofuran | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | | |
| Toluene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Xylenes (total) | U | ND | 1.00 | 3.00 | ug/L | | 1 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 55.0 ug/L | 50.0 | 110 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 48.3 ug/L | 50.0 | 97 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 51.1 ug/L | 50.0 | 102 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A
Sample ID: 519405003
Matrix: Water
Collect Date: 19-AUG-20 09:15
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/26/20 | 2349 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A
Sample ID: 519405003

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

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# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A
Sample ID: 519405003

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/26/20 23 49* |
|---|---|---|---|---|---|---|
| Phenol-d5 | 298 ug/L | 1000 | 30 | (15%-91%) | | |
| 2-Fluorophenol | 316 ug/L | 1000 | 32 | (15%-88%) | | |
| Nitrobenzene-d5 | 321 ug/L | 500 | 64 | (35%-113%) | | |
| 2-Fluorobiphenyl | 325 ug/L | 500 | 65 | (31%-107%) | | |
| 2,4,6-Tribromophenol | 384 ug/L | 1000 | 38 | (32%-122%) | | |
| p-Terphenyl-d14 | 457 ug/L | 500 | 91 | (35%-134%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/26/20 23 49* |
|---|---|---|---|---|---|---|---|
| unknown | | 1.981 | 717 ug/L | 0 | J | | |
| unknown | | 5.115 | 63.3 ug/L | 0 | J | | |
| unknown | | 5.698 | 40.5 ug/L | 0 | J | | |
| unknown | | 5.757 | 111 ug/L | 0 | J | | |
| unknown | | 5.826 | 728 ug/L | 0 | J | | |
| 2(3H)-Furanone, 5-ethyldihydro- | 000695-06-7 | 5.923 | 94.7 ug/L | 91 | NJ | | |
| unknown | | 5.998 | 139 ug/L | 0 | J | | |
| Heptanoic acid | 000111-14-8 | 6.254 | 333 ug/L | 90 | NJ | | |
| 2(3H)-Furanone, dihydro-5-propyl- | 000105-21-5 | 6.918 | 63.2 ug/L | 91 | NJ | | |
| Octanoic Acid | 000124-07-2 | 7.121 | 245 ug/L | 91 | NJ | | |
| 1(3H)-Isobenzofuranone | 000087-41-2 | 8.613 | 59.4 ug/L | 95 | NJ | | |
| unknown | | 9.1 | 41.3 ug/L | 0 | J | | |
| Formamide, N-octyl- | 006282-06-0 | 9.185 | 83.1 ug/L | 90 | NJ | | |
| Tributyl phosphate | 000126-73-8 | 10.448 | 140 ug/L | 91 | NJ | | |
| 1-Hexanamine, 2-ethyl-N-(2-ethylhe | 000106-20-7 | 11.132 | 62.5 ug/L | 90 | NJ | | |
| unknown | | 11.336 | 46.7 ug/L | 0 | J | | |
| unknown | | 12.197 | 42.6 ug/L | 0 | J | | |
| unknown | | 12.272 | 42.1 ug/L | 0 | J | | |
| unknown | | 12.32 | 42.2 ug/L | 0 | J | | |
| unknown | | 13.352 | 45.8 ug/L | 0 | J | | |
| unknown | | 14.235 | 75 ug/L | 0 | J | | |
| unknown | | 14.342 | 81 ug/L | 0 | J | | |
| unknown | | 16.16 | 223 ug/L | 0 | J | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A
Sample ID: 519405003

Project: DNMI00107
Client ID: DNMI001

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

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**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

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

# Certificate of Analysis

Report Date: September 18, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 4A
Sample ID: 519405003
Matrix: Water
Collect Date: 19-AUG-20 09:15
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | | 1040 | +/-263 | 466 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 5.21E+05 | +/-5340 | 543 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | | 4130 | +/-483 | 388 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 52400 | +/-755 | 79.9 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0737 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 395 | +/-23.5 | 10.7 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 17200 | +/-1040 | 478 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 991 | +/-292 | 372 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 13700 | +/-930 | 301 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 103 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 102 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 95 | (15%-125%) |

**Notes:**

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4A | Project: | DNMI00107 |
| Sample ID: | 519405003 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

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

**GEL LABORATORIES LLC**
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# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4A | Project: | DNMI00107 |
| Sample ID: | 519405003 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:15 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.10 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-004
**Client Sample ID:** Cell 4A LDS

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:35
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:26 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:26 / dmb |
| Chloride | 3860 | mg/L | D | 100 | | E300.0 | 08/24/20 20:47 / dmb |
| Fluoride | 500 | mg/L | D | 50 | | A4500-F C | 08/24/20 11:56 / dmb |
| Sulfate | 59900 | mg/L | D | 400 | | E300.0 | 08/24/20 20:47 / dmb |
| Calcium | 496 | mg/L | D | 30 | | E200.7 | 08/24/20 15:53 / meh |
| Magnesium | 3690 | mg/L | | 1 | | E200.7 | 08/24/20 15:53 / meh |
| Potassium | 334 | mg/L | D | 20 | | E200.7 | 08/24/20 15:53 / meh |
| Sodium | 5260 | mg/L | D | 50 | | E200.7 | 08/24/20 15:53 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 53200 | umhos/cm | E | 5 | | A2510 B | 08/21/20 14:18 / kjp |
| pH | 2.25 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 14:18 / kjp |
| pH Measurement Temp | 16 | °C | | | | A4500-H B | 08/21/20 14:18 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 83800 | mg/L | D | 1000 | | A2540 C | 08/21/20 12:15 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 60.2 | mg/L | D | 0.2 | | E353.2 | 08/24/20 16:24 / dmb |
| Nitrogen, Ammonia as N | 3050 | mg/L | D | 1000 | | E350.1 | 08/26/20 09:59 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 16600 | ug/L | D | 500 | | E200.8 | 08/28/20 16:00 / jcg |
| Beryllium | 317 | ug/L | D | 60 | | E200.7 | 08/24/20 15:53 / meh |
| Cadmium | 4410 | ug/L | D | 500 | | E200.8 | 08/28/20 16:00 / jcg |
| Chromium | 2820 | ug/L | D | 100 | | E200.8 | 08/25/20 19:32 / jcg |
| Cobalt | 45800 | ug/L | D | 100 | | E200.8 | 08/25/20 19:32 / jcg |
| Copper | 273000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:32 / jcg |
| Iron | 1440000 | ug/L | D | 6000 | | E200.7 | 08/24/20 15:53 / meh |
| Lead | 254 | ug/L | D | 100 | | E200.8 | 08/25/20 19:32 / jcg |
| Manganese | 137000 | ug/L | D | 100 | | E200.7 | 08/24/20 15:53 / meh |
| Mercury | 0.20 | ug/L | | 0.2 | | E245.1 | 09/03/20 16:02 / eet-d |
| Molybdenum | 2190 | ug/L | D | 500 | | E200.8 | 08/28/20 16:00 / jcg |
| Nickel | 110000 | ug/L | D | 300 | | E200.8 | 08/25/20 19:32 / jcg |
| Selenium | 1230 | ug/L | D | 1000 | | E200.8 | 08/28/20 16:00 / jcg |
| Silver | 150 | ug/L | DJ | 200 | | E200.8 | 08/28/20 16:00 / jcg |
| Thallium | 425 | ug/L | D | 100 | | E200.8 | 08/25/20 19:32 / jcg |
| Tin | ND | ug/L | D | 500 | | E200.8 | 08/28/20 16:00 / jcg |
| Uranium | 48000 | ug/L | D | 100 | | E200.8 | 08/25/20 19:32 / jcg |
| Vanadium | 374000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:32 / jcg |
| Zinc | 541000 | ug/L | D | 10000 | | E200.8 | 08/28/20 16:00 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 74000 | mg/L | | | | A1030 E | 08/26/20 10:12 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit
J - Estimated value - analyte was present but less than the Reporting Limit (RL)

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-004
**Client Sample ID:** Cell 4A LDS

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:35
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | -8.99 | % | | | | A1030 E | 08/26/20 10:12 / jlw |
| Anions | 1390 | meq/L | | | | A1030 E | 08/26/20 10:12 / jlw |
| Cations | 1160 | meq/L | | | | A1030 E | 08/26/20 10:12 / jlw |
| Cation/Anion Balance includes selected metals | | | | | | | |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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

# Certificate of Analysis

Report Date: September 14, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4A LDS | Project: | DNMI00107 |
| Sample ID: | 519405004 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:35 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | | 29.5 | 8.34 | 25.0 | ug/L | | 5 | MXL2 | 08/26/20 | 0327 | 2033589 | 1 |
| Acetone | | 90.3 | 8.72 | 25.0 | ug/L | | 5 | | | | | |
| Benzene | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Carbon tetrachloride | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Chloroform | | 120 | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Chloromethane | | 6.90 | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Methylene chloride | U | ND | 8.34 | 25.0 | ug/L | | 5 | | | | | |
| Naphthalene | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Tetrahydrofuran | U | ND | 8.34 | 25.0 | ug/L | | 5 | | | | | |
| Toluene | U | ND | 1.67 | 5.00 | ug/L | | 5 | | | | | |
| Xylenes (total) | U | ND | 5.00 | 15.0 | ug/L | | 5 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 257 ug/L | 50.0 | 103 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 241 ug/L | 50.0 | 96 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 249 ug/L | 50.0 | 99 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A LDS
Sample ID: 519405004
Matrix: Water
Collect Date: 19-AUG-20 09:35
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/27/20 | 0018 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A LDS
Sample ID: 519405004

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4A LDS
Sample ID: 519405004

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/27/20 00 18* |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 1090 ug/L | 1000 | 109 | (32%-122%) | | |
| Phenol-d5 | 321 ug/L | 1000 | 32 | (15%-91%) | | |
| 2-Fluorobiphenyl | 371 ug/L | 500 | 74 | (31%-107%) | | |
| Nitrobenzene-d5 | 393 ug/L | 500 | 79 | (35%-113%) | | |
| 2-Fluorophenol | 445 ug/L | 1000 | 44 | (15%-88%) | | |
| p-Terphenyl-d14 | 476 ug/L | 500 | 95 | (35%-134%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/27/20 00 18* |
|---|---|---|---|---|---|---|---|
| unknown | | 1.981 | 1370 ug/L | 0 | J | | |
| unknown | | 5.618 | 128 ug/L | 0 | J | | |
| unknown | | 9.859 | 41.7 ug/L | 0 | J | | |
| Tributyl phosphate | 000126-73-8 | 10.448 | 41 ug/L | 91 | NJ | | |
| 1-Hexanamine, 2-ethyl-N-(2-ethylhe | 000106-20-7 | 11.127 | 42 ug/L | 91 | NJ | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**Notes:**

Column headers are defined as follows:

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

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# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4A LDS | Project: | DNMI00107 |
| Sample ID: | 519405004 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:35 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | U | -27.1 | +/-158 | 696 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 39500 | +/-1680 | 652 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | U | 317 | +/-192 | 526 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 5450 | +/-227 | 80.0 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0737 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 18.6 | +/-5.64 | 12.7 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 19000 | +/-1110 | 658 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 711 | +/-251 | 237 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 16600 | +/-1030 | 421 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 91.9 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 102 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 96.7 | (15%-125%) |

**Notes:**

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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

# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4A LDS | Project: | DNMI00107 |
| Sample ID: | 519405004 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Column headers are defined as follows:

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

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# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4A LDS | Project: | DNMI00107 |
| Sample ID: | 519405004 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:35 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.07 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-005
**Client Sample ID:** Cell 4B

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 10:00
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:29 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:29 / dmb |
| Chloride | 10200 | mg/L | D | 100 | | E300.0 | 08/24/20 21:06 / dmb |
| Fluoride | 1730 | mg/L | D | 50 | | A4500-F C | 08/24/20 12:01 / dmb |
| Sulfate | 97200 | mg/L | D | 400 | | E300.0 | 08/24/20 21:06 / dmb |
| Calcium | 628 | mg/L | D | 30 | | E200.7 | 08/24/20 15:57 / meh |
| Magnesium | 4520 | mg/L | | 1 | | E200.7 | 08/24/20 15:57 / meh |
| Potassium | 1680 | mg/L | D | 20 | | E200.7 | 08/24/20 15:57 / meh |
| Sodium | 17100 | mg/L | D | 50 | | E200.7 | 08/24/20 15:57 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 87300 | umhos/cm | E | 5 | | A2510 B | 08/21/20 14:21 / kjp |
| pH | 2.24 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 14:21 / kjp |
| pH Measurement Temp | 16 | °C | | | | A4500-H B | 08/21/20 14:21 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 150000 | mg/L | D | 2000 | | A2540 C | 08/21/20 12:16 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 70.0 | mg/L | D | 0.2 | | E353.2 | 08/24/20 16:25 / dmb |
| Nitrogen, Ammonia as N | 6580 | mg/L | D | 1000 | | E350.1 | 08/26/20 10:00 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 67900 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Beryllium | 455 | ug/L | D | 60 | | E200.7 | 08/24/20 15:57 / meh |
| Cadmium | 1800 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Chromium | 9350 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Cobalt | 30900 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Copper | 602000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:38 / jcg |
| Iron | 3690000 | ug/L | D | 5000 | | E200.8 | 08/25/20 19:38 / jcg |
| Lead | 8150 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Manganese | 201000 | ug/L | D | 100 | | E200.7 | 08/24/20 15:57 / meh |
| Mercury | 0.40 | ug/L | | 0.2 | | E245.1 | 09/03/20 16:05 / eet-d |
| Molybdenum | 8110 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Nickel | 56400 | ug/L | D | 300 | | E200.8 | 08/25/20 19:38 / jcg |
| Selenium | 3540 | ug/L | D | 200 | | E200.8 | 08/25/20 19:38 / jcg |
| Silver | 76 | ug/L | D | 40 | | E200.8 | 08/25/20 19:38 / jcg |
| Thallium | 165 | ug/L | D | 10 | | E200.8 | 09/01/20 22:36 / jcg |
| Tin | 138 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Uranium | 47400 | ug/L | D | 100 | | E200.8 | 08/25/20 19:38 / jcg |
| Vanadium | 113000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:38 / jcg |
| Zinc | 334000 | ug/L | D | 3000 | | E200.8 | 08/25/20 19:38 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 130000 | mg/L | | | | A1030 E | 08/26/20 10:14 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-005
**Client Sample ID:** Cell 4B

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 10:00
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | -10.7 | % | | | | A1030 E | 08/26/20 10:14 / jlw |
| Anions | 2410 | meq/L | | | | A1030 E | 08/26/20 10:14 / jlw |
| Cations | 1950 | meq/L | | | | A1030 E | 08/26/20 10:14 / jlw |
| Cation/Anion Balance includes selected metals | | | | | | | |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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# Certificate of Analysis

Report Date: September 14, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 4B
Sample ID: 519405005
Matrix: Water
Collect Date: 19-AUG-20 10:00
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | |
| 2-Butanone | U | ND | 1.67 | 5.00 | ug/L | | 1 | MXL2 08/26/20 | 1207 | 2033589 | 1 |
| Acetone | | 12.7 | 1.74 | 5.00 | ug/L | | 1 | | | | |
| Benzene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | |
| Carbon tetrachloride | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | |
| Chloroform | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | |
| Chloromethane | | 1.28 | 0.333 | 1.00 | ug/L | | 1 | | | | |
| Methylene chloride | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | |
| Naphthalene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | |
| Tetrahydrofuran | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | |
| Toluene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | |
| Xylenes (total) | U | ND | 1.00 | 3.00 | ug/L | | 1 | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 56.4 ug/L | 50.0 | 113 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 45.1 ug/L | 50.0 | 90 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 50.5 ug/L | 50.0 | 101 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B
Sample ID: 519405005
Matrix: Water
Collect Date: 19-AUG-20 10:00
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/27/20 | 0046 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B
Sample ID: 519405005

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B
Sample ID: 519405005

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/27/20 00 46* |
|---|---|---|---|---|---|---|
| Phenol-d5 | 338 ug/L | 1000 | 34 | (15%-91%) | | |
| 2-Fluorobiphenyl | 362 ug/L | 500 | 72 | (31%-107%) | | |
| Nitrobenzene-d5 | 388 ug/L | 500 | 78 | (35%-113%) | | |
| 2-Fluorophenol | 427 ug/L | 1000 | 43 | (15%-88%) | | |
| p-Terphenyl-d14 | 458 ug/L | 500 | 92 | (35%-134%) | | |
| 2,4,6-Tribromophenol | 840 ug/L | 1000 | 84 | (32%-122%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/27/20 00 46* |
|---|---|---|---|---|---|---|---|
| Butane, 2-methoxy-2-methyl- | 000994-05-8 | 1.981 | 1320 ug/L | 74 | J | | |
| unknown | | 5.688 | 60.7 ug/L | 0 | J | | |
| unknown | | 5.752 | 95.3 ug/L | 0 | J | | |
| unknown | | 5.832 | 1180 ug/L | 0 | J | | |
| 2(3H)-Furanone, 5-ethyldihydro- | 000695-06-7 | 5.928 | 76.4 ug/L | 86 | NJ | | |
| unknown | | 6.089 | 64.5 ug/L | 0 | J | | |
| unknown | | 6.196 | 188 ug/L | 0 | J | | |
| Undecane | 001120-21-4 | 6.383 | 158 ug/L | 95 | NJ | | |
| unknown | | 6.42 | 114 ug/L | 0 | J | | |
| unknown | | 6.912 | 67.6 ug/L | 0 | J | | |
| Undecane, 3,6-dimethyl- | 017301-28-9 | 7.426 | 74.2 ug/L | 94 | NJ | | |
| unknown | | 7.757 | 89.7 ug/L | 0 | J | | |
| unknown | | 7.811 | 89.9 ug/L | 0 | J | | |
| Tridecane | 000629-50-5 | 8.143 | 243 ug/L | 96 | NJ | | |
| unknown | | 8.266 | 59.3 ug/L | 0 | J | | |
| unknown | | 8.517 | 165 ug/L | 0 | J | | |
| unknown | | 8.619 | 85.2 ug/L | 0 | J | | |
| unknown | | 8.672 | 59 ug/L | 0 | J | | |
| Tetradecane | 000629-59-4 | 8.886 | 202 ug/L | 98 | NJ | | |
| unknown | | 9.185 | 109 ug/L | 0 | J | | |
| unknown | | 9.292 | 97.3 ug/L | 0 | J | | |
| Pentadecane | 000629-62-9 | 9.56 | 135 ug/L | 95 | NJ | | |
| Hexadecane | 000544-76-3 | 10.196 | 146 ug/L | 98 | NJ | | |
| Tributyl phosphate | 000126-73-8 | 10.448 | 143 ug/L | 91 | NJ | | |
| Heptadecane | 000629-78-7 | 10.79 | 170 ug/L | 98 | NJ | | |

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# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B
Sample ID: 519405005

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1-Hexanamine, 2-ethyl-N-(2-ethylhe | | 000106-20-7 | 11.159 | 295 | ug/L | 90 | NJ | | | | | |
| unknown | | | 12.186 | 113 | ug/L | 0 | J | | | | | |
| 1-Octanamine, N,N-dioctyl- | | 001116-76-3 | 13.732 | 83.8 | ug/L | 87 | NJ | | | | | |
| unknown | | | 14.652 | 81.7 | ug/L | 0 | J | | | | | |
| unknown | | | 16.16 | 92.7 | ug/L | 0 | J | | | | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**Notes:**

Column headers are defined as follows:

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

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

# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B | Project: | DNMI00107 |
| Sample ID: | 519405005 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 10:00 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | | 1280 | +/-302 | 584 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 6.06E+05 | +/-5790 | 522 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | | 4320 | +/-498 | 432 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 54500 | +/-702 | 104 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0737 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 360 | +/-19.7 | 15.9 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 17000 | +/-1020 | 611 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 1080 | +/-300 | 413 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 17700 | +/-1040 | 289 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 99.2 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 104 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 99.6 | (15%-125%) |

**Notes:**

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B | Project: | DNMI00107 |
| Sample ID: | 519405005 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Column headers are defined as follows:

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

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# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B | Project: | DNMI00107 |
| Sample ID: | 519405005 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 10:00 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.11 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-006
**Client Sample ID:** Cell 4B LDS

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:45
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:34 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:34 / dmb |
| Chloride | 7630 | mg/L | D | 100 | | E300.0 | 08/24/20 21:25 / dmb |
| Fluoride | 1550 | mg/L | D | 50 | | A4500-F C | 08/24/20 12:29 / dmb |
| Sulfate | 88700 | mg/L | D | 400 | | E300.0 | 08/24/20 21:25 / dmb |
| Calcium | 555 | mg/L | D | 30 | | E200.7 | 08/24/20 16:01 / meh |
| Magnesium | 4830 | mg/L | | 1 | | E200.7 | 08/24/20 16:01 / meh |
| Potassium | 1350 | mg/L | D | 20 | | E200.7 | 08/24/20 16:01 / meh |
| Sodium | 12600 | mg/L | D | 50 | | E200.7 | 08/24/20 16:01 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 77600 | umhos/cm | E | 5 | | A2510 B | 08/21/20 14:24 / kjp |
| pH | 1.89 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 14:24 / kjp |
| pH Measurement Temp | 17 | °C | | | | A4500-H B | 08/21/20 14:24 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 134000 | mg/L | D | 1000 | | A2540 C | 08/21/20 12:16 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 39.5 | mg/L | D | 0.2 | | E353.2 | 08/24/20 16:29 / dmb |
| Nitrogen, Ammonia as N | 5080 | mg/L | D | 1000 | | E350.1 | 08/26/20 10:01 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 84900 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Beryllium | 483 | ug/L | D | 60 | | E200.7 | 08/24/20 16:01 / meh |
| Cadmium | 2060 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Chromium | 9620 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Cobalt | 32200 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Copper | 500000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:43 / jcg |
| Iron | 4180000 | ug/L | D | 5000 | | E200.8 | 08/25/20 19:43 / jcg |
| Lead | 5110 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Manganese | 221000 | ug/L | D | 100 | | E200.7 | 08/24/20 16:01 / meh |
| Mercury | 0.10 | ug/L | | 0.2 | | E245.1 | 09/03/20 16:07 / eet-d |
| Molybdenum | 19800 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Nickel | 57900 | ug/L | D | 300 | | E200.8 | 08/25/20 19:43 / jcg |
| Selenium | 3950 | ug/L | D | 200 | | E200.8 | 08/25/20 19:43 / jcg |
| Silver | 173 | ug/L | D | 40 | | E200.8 | 08/25/20 19:43 / jcg |
| Thallium | 98 | ug/L | D | 10 | | E200.8 | 09/01/20 22:58 / jcg |
| Tin | 258 | ug/L | D | 200 | | E200.8 | 08/25/20 19:43 / jcg |
| Uranium | 34600 | ug/L | D | 100 | | E200.8 | 08/25/20 19:43 / jcg |
| Vanadium | 743000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:43 / jcg |
| Zinc | 286000 | ug/L | D | 3000 | | E200.8 | 08/25/20 19:43 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 120000 | mg/L | | | | A1030 E | 08/26/20 10:17 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-006
**Client Sample ID:** Cell 4B LDS

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:45
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | -5.69 | % | | | | A1030 E | 08/26/20 10:17 / jlw |
| Anions | 2150 | meq/L | | | | A1030 E | 08/26/20 10:17 / jlw |
| Cations | 1920 | meq/L | | | | A1030 E | 08/26/20 10:17 / jlw |
| Cation/Anion Balance includes selected metals | | | | | | | |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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# Certificate of Analysis

Report Date: September 14, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B LDS | Project: | DNMI00107 |
| Sample ID: | 519405006 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:45 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | | 42.8 | 1.67 | 5.00 | ug/L | | 1 | MXL2 | 08/26/20 | 1233 | 2033589 | 1 |
| Acetone | | 68.5 | 1.74 | 5.00 | ug/L | | 1 | | | | | |
| Benzene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Chloroform | | 1.22 | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Chloromethane | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Methylene chloride | U | ND | 1.67 | 5.00 | ug/L | | 1 | | | | | |
| Naphthalene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Tetrahydrofuran | | 96.5 | 1.67 | 5.00 | ug/L | | 1 | | | | | |
| Toluene | U | ND | 0.333 | 1.00 | ug/L | | 1 | | | | | |
| Xylenes (total) | U | ND | 1.00 | 3.00 | ug/L | | 1 | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 54.1 ug/L | 50.0 | 108 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 49.8 ug/L | 50.0 | 100 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 50.1 ug/L | 50.0 | 100 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B LDS
Sample ID: 519405006
Matrix: Water
Collect Date: 19-AUG-20 09:45
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/27/20 | 0115 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B LDS
Sample ID: 519405006

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | | 30.4 | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B LDS
Sample ID: 519405006

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/27/20 01 15* |
|---|---|---|---|---|---|---|
| 2,4,6-Tribromophenol | 1050 ug/L | 1000 | 105 | (32%-122%) | | |
| Phenol-d5 | 305 ug/L | 1000 | 31 | (15%-91%) | | |
| 2-Fluorobiphenyl | 357 ug/L | 500 | 71 | (31%-107%) | | |
| Nitrobenzene-d5 | 378 ug/L | 500 | 76 | (35%-113%) | | |
| 2-Fluorophenol | 421 ug/L | 1000 | 42 | (15%-88%) | | |
| p-Terphenyl-d14 | 458 ug/L | 500 | 92 | (35%-134%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/27/20 01 15* |
|---|---|---|---|---|---|---|---|
| unknown | | 1.981 | 1190 ug/L | 0 | J | | |
| unknown | | 5.757 | 74.6 ug/L | 0 | J | | |
| unknown | | 5.816 | 300 ug/L | 0 | J | | |
| 1(3H)-Isobenzofuranone | 000087-41-2 | 8.613 | 60.8 ug/L | 97 | NJ | | |
| 1,4-Benzenediamine, N,N-diethyl- | 000093-05-0 | 9.389 | 276 ug/L | 98 | NJ | | |
| unknown | | 10.282 | 110 ug/L | 0 | J | | |
| unknown | | 11.057 | 43.8 ug/L | 0 | J | | |
| 1-Hexanamine, 2-ethyl-N-(2-ethylhe | 000106-20-7 | 11.132 | 104 ug/L | 90 | NJ | | |
| unknown | | 11.32 | 51 ug/L | 0 | J | | |
| unknown | | 11.737 | 58.2 ug/L | 0 | J | | |
| unknown | | 12.074 | 78.8 ug/L | 0 | J | | |
| unknown | | 13.02 | 40.5 ug/L | 0 | J | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**Notes:**

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 4B LDS
Sample ID: 519405006

Project: DNMI00107
Client ID: DNMI001

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

Column headers are defined as follows:

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

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# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B LDS | Project: | DNMI00107 |
| Sample ID: | 519405006 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:45 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | | 888 | +/-249 | 451 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 5.41E+05 | +/-5570 | 553 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | | 4070 | +/-493 | 447 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 54100 | +/-680 | 86.6 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0740 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 153 | +/-12.7 | 9.87 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 11700 | +/-861 | 582 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 749 | +/-256 | 368 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 14500 | +/-954 | 481 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 94 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 104 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 103 | (15%-125%) |

**Notes:**

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B LDS | Project: | DNMI00107 |
| Sample ID: | 519405006 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Column headers are defined as follows:

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

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# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 4B LDS | Project: | DNMI00107 |
| Sample ID: | 519405006 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:45 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.11 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-007
**Client Sample ID:** Cell 65

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:15
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **MAJOR IONS** | | | | | | | |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:37 / dmb |
| Bicarbonate as HCO3 | ND | mg/L | | 5 | | A2320 B | 08/24/20 20:37 / dmb |
| Chloride | 8670 | mg/L | D | 100 | | E300.0 | 08/24/20 21:44 / dmb |
| Fluoride | 1640 | mg/L | D | 50 | | A4500-F C | 08/24/20 12:34 / dmb |
| Sulfate | 81900 | mg/L | D | 400 | | E300.0 | 08/24/20 21:44 / dmb |
| Calcium | 594 | mg/L | D | 30 | | E200.7 | 08/24/20 16:05 / meh |
| Magnesium | 4330 | mg/L | | 1 | | E200.7 | 08/24/20 16:05 / meh |
| Potassium | 1540 | mg/L | D | 20 | | E200.7 | 08/24/20 16:05 / meh |
| Sodium | 16300 | mg/L | D | 50 | | E200.7 | 08/24/20 16:05 / meh |
| **PHYSICAL PROPERTIES** | | | | | | | |
| Conductivity @ 25 C | 83300 | umhos/cm | E | 5 | | A2510 B | 08/21/20 14:27 / kjp |
| pH | 2.28 | s.u. | H | 0.01 | | A4500-H B | 08/21/20 14:27 / kjp |
| pH Measurement Temp | 18 | °C | | | | A4500-H B | 08/21/20 14:27 / kjp |
| Solids, Total Dissolved TDS @ 180 C | 137000 | mg/L | D | 2000 | | A2540 C | 08/21/20 12:17 / kjp |
| **NUTRIENTS** | | | | | | | |
| Nitrogen, Nitrate+Nitrite as N | 81.0 | mg/L | D | 0.5 | | E353.2 | 08/24/20 16:32 / dmb |
| Nitrogen, Ammonia as N | 10800 | mg/L | D | 1000 | | E350.1 | 08/26/20 10:03 / hat |
| **METALS, DISSOLVED** | | | | | | | |
| Arsenic | 61900 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Beryllium | 441 | ug/L | D | 60 | | E200.7 | 08/24/20 16:05 / meh |
| Cadmium | 3060 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Chromium | 7990 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Cobalt | 28700 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Copper | 543000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:49 / jcg |
| Iron | 3250000 | ug/L | D | 5000 | | E200.8 | 08/25/20 19:49 / jcg |
| Lead | 7780 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Manganese | 193000 | ug/L | D | 100 | | E200.7 | 08/24/20 16:05 / meh |
| Mercury | 3.4 | ug/L | | 0.2 | | E245.1 | 09/03/20 16:14 / eet-d |
| Molybdenum | 26200 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Nickel | 51500 | ug/L | D | 300 | | E200.8 | 08/25/20 19:49 / jcg |
| Selenium | 3200 | ug/L | D | 200 | | E200.8 | 08/25/20 19:49 / jcg |
| Silver | 424 | ug/L | D | 40 | | E200.8 | 08/25/20 19:49 / jcg |
| Thallium | 104 | ug/L | D | 10 | | E200.8 | 09/01/20 23:02 / jcg |
| Tin | ND | ug/L | D | 200 | | E200.8 | 08/25/20 19:49 / jcg |
| Uranium | 38800 | ug/L | D | 100 | | E200.8 | 08/25/20 19:49 / jcg |
| Vanadium | 183000 | ug/L | D | 1000 | | E200.8 | 08/25/20 19:49 / jcg |
| Zinc | 310000 | ug/L | D | 3000 | | E200.8 | 08/25/20 19:49 / jcg |
| *** Dissolved Mercury subbed to Test America. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| Solids, Total Dissolved - Calculated | 120000 | mg/L | | | | A1030 E | 08/26/20 10:09 / jlw |

**Report Definitions:**

RL - Analyte Reporting Limit
QCL - Quality Control Limit
D - Reporting Limit (RL) increased due to sample matrix
H - Analysis performed past the method holding time
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)
E - Estimated value - result exceeds the instrument upper quantitation limit

# LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Lab ID:** C20080962-007
**Client Sample ID:** Cell 65

**Report Date:** 09/09/20
**Collection Date:** 08/19/20 09:15
**DateReceived:** 08/21/20
**Matrix:** Aqueous

| Analyses | Result | Units | Qualifiers | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **DATA QUALITY** | | | | | | | |
| A/C Balance | -5.94 | % | | | | A1030 E | 08/26/20 10:09 / jlw |
| Anions | 2040 | meq/L | | | | A1030 E | 08/26/20 10:09 / jlw |
| Cations | 1820 | meq/L | | | | A1030 E | 08/26/20 10:09 / jlw |
| Cation/Anion Balance includes selected metals | | | | | | | |

**Report Definitions:**
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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

# Certificate of Analysis

Report Date: September 14, 2020

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2020 Characterization

Client Sample ID: Cell 65
Sample ID: 519405007
Matrix: Water
Collect Date: 19-AUG-20 09:15
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | U | ND | 1.67 | 5.00 | ug/L | 1 | | MXL2 | 08/26/20 | 1259 | 2033589 | 1 |
| Acetone | | 14.7 | 1.74 | 5.00 | ug/L | 1 | | | | | | |
| Benzene | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Carbon tetrachloride | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Chloroform | | 1.53 | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Chloromethane | | 1.86 | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Methylene chloride | U | ND | 1.67 | 5.00 | ug/L | 1 | | | | | | |
| Naphthalene | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Tetrahydrofuran | U | ND | 1.67 | 5.00 | ug/L | 1 | | | | | | |
| Toluene | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Xylenes (total) | U | ND | 1.00 | 3.00 | ug/L | 1 | | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 54.0 ug/L | 50.0 | 108 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 48.9 ug/L | 50.0 | 98 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 49.5 ug/L | 50.0 | 99 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 65
Sample ID: 519405007
Matrix: Water
Collect Date: 19-AUG-20 09:15
Receive Date: 21-AUG-20
Collector: Client

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | AGS1 | 08/27/20 | 0144 | 2033648 | 1 |
| 1,2-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,2-Diphenylhydrazine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 1-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,5-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4,6-Trichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dichlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dimethylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrophenol | U | ND | 50.0 | 200 | ug/L | 0.0100 | 1 | | | | | |
| 2,4-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2,6-Dinitrotoluene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chloronaphthalene | U | ND | 4.10 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Chlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methyl-4,6-dinitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 2-Methylnaphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| 2-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 3,3'-Dimethylbenzidine | U | ND | 33.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Bromophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chloro-3-methylphenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Chlorophenylphenylether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| 4-Nitrophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Acenaphthylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzidine | U | ND | 39.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(a)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(b)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 65
Sample ID: 519405007

Project: DNMI00107
Client ID: DNMI001

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| *SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"* | | | | | | | | | | | | |
| Benzo(ghi)perylene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Benzo(k)fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Butylbenzylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Chrysene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-butylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Di-n-octylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dibenzo(a,h)anthracene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Diethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Dimethylphthalate | U | ND | 3.00 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Diphenylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Fluoranthene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Fluorene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorobutadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachlorocyclopentadiene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Hexachloroethane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Indeno(1,2,3-cd)pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Isophorone | U | ND | 35.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Methyl-N-nitrosomethylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| N-Nitrosodipropylamine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Naphthalene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Nitrobenzene | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pentachlorophenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Phenanthrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Phenol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| Pyrene | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| Pyridine | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloro-1-methylethyl)ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethoxy)methane | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Chloroethyl) ether | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| bis(2-Ethylhexyl)phthalate | U | ND | 3.00 | 10.0 | ug/L | 0.0100 | 1 | | | | | |
| m,p-Cresols | U | ND | 37.0 | 100 | ug/L | 0.0100 | 1 | | | | | |
| o-Cresol | U | ND | 30.0 | 100 | ug/L | 0.0100 | 1 | | | | | |

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 65
Sample ID: 519405007

Project: DNMI00107
Client ID: DNMI001

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

**Semi-Volatile-GC/MS**

*SW846 3510C/8270D SVOA (Separatory Funnel) "As Received"*

| *Surrogate/Tracer recovery* | *Result* | *Nominal* | *Recovery%* | *Acceptable Limits* | *Date Time:* | *08/27/20 01 44* |
|---|---|---|---|---|---|---|
| Phenol-d5 | 334 ug/L | 1000 | 33 | (15%-91%) | | |
| 2-Fluorobiphenyl | 360 ug/L | 500 | 72 | (31%-107%) | | |
| Nitrobenzene-d5 | 362 ug/L | 500 | 72 | (35%-113%) | | |
| 2-Fluorophenol | 400 ug/L | 1000 | 40 | (15%-88%) | | |
| 2,4,6-Tribromophenol | 424 ug/L | 1000 | 42 | (32%-122%) | | |
| p-Terphenyl-d14 | 482 ug/L | 500 | 96 | (35%-134%) | | |

| *Tentatively Identified Compound (TIC)* | *CAS No.* | *RT* | *Est. Concentration* | *Fit* | *Qual* | *Date Time:* | *08/27/20 01 44* |
|---|---|---|---|---|---|---|---|
| unknown | | 1.981 | 892 ug/L | 0 | J | | |
| unknown | | 5.693 | 49.8 ug/L | 0 | J | | |
| unknown | | 5.757 | 140 ug/L | 0 | J | | |
| unknown | | 5.826 | 874 ug/L | 0 | J | | |
| unknown | | 5.928 | 115 ug/L | 0 | J | | |
| unknown | | 6.008 | 166 ug/L | 0 | J | | |
| Heptanoic acid | 000111-14-8 | 6.26 | 454 ug/L | 90 | NJ | | |
| 2(3H)-Furanone, dihydro-5-propyl- | 000105-21-5 | 6.918 | 68.8 ug/L | 91 | NJ | | |
| Octanoic Acid | 000124-07-2 | 7.121 | 242 ug/L | 91 | NJ | | |
| 2(3H)-Furanone, 5-butyldihydro- | 000104-50-7 | 7.832 | 55.5 ug/L | 91 | NJ | | |
| 1(3H)-Isobenzofuranone | 000087-41-2 | 8.618 | 69.2 ug/L | 93 | NJ | | |
| unknown | | 9.1 | 40.4 ug/L | 0 | J | | |
| Formamide, N-octyl- | 006282-06-0 | 9.185 | 94.6 ug/L | 90 | NJ | | |
| Tributyl phosphate | 000126-73-8 | 10.448 | 150 ug/L | 91 | NJ | | |
| 1-Hexanamine,N-(2,2-dimethylhexyl) | 1000146-38-2 | 11.116 | 40.1 ug/L | 91 | NJ | | |
| unknown | | 12.272 | 50.3 ug/L | 0 | J | | |
| unknown | | 12.32 | 48.8 ug/L | 0 | J | | |
| unknown | | 13.261 | 48.8 ug/L | 0 | J | | |
| unknown | | 13.352 | 45.7 ug/L | 0 | J | | |
| unknown | | 13.694 | 72.2 ug/L | 0 | J | | |
| unknown | | 14.235 | 63.1 ug/L | 0 | J | | |
| unknown | | 14.342 | 55.9 ug/L | 0 | J | | |
| unknown | | 16.16 | 220 ug/L | 0 | J | | |

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|

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

# Certificate of Analysis

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: **Tailings 2020 Characterization**

Report Date: September 29, 2020

Client Sample ID: Cell 65
Sample ID: 519405007

Project: DNMI00107
Client ID: DNMI001

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

**The following Prep Methods were performed**

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| SW846 3510C | 3510C BNA Liq. Prep-8270 Analysis | AS2 | 08/26/20 | 0205 | 2033647 |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 3510C/8270D | |

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

**Notes:**

Column headers are defined as follows:

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

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

# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 65 | Project: | DNMI00107 |
| Sample ID: | 519405007 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:15 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Rad Testing | | | | | | | | | | | | | |
| Alphaspec Th, Liquid "As Received" | | | | | | | | | | | | | |
| Thorium-228 | U | 562 | +/-254 | 707 | 1.00 | pCi/L | | | JXB7 | 09/03/20 | 0717 | 2033149 | 1 |
| Thorium-230 | | 4.88E+05 | +/-5500 | 563 | 1.00 | pCi/L | | | | | | | |
| Thorium-232 | | 2200 | +/-390 | 541 | 1.00 | pCi/L | | | | | | | |
| GFPC,Total Alpha Radium, Liquid "As Received" | | | | | | | | | | | | | |
| Gross Radium Alpha | | 53700 | +/-713 | 69.7 | 1.00 | pCi/L | | | AXM6 | 09/10/20 | 0740 | 2033151 | 2 |
| Lucas Cell, Ra226, liquid "As Received" | | | | | | | | | | | | | |
| Radium-226 | | 372 | +/-23.0 | 10.8 | 1.00 | pCi/L | | | MXH8 | 09/10/20 | 0902 | 2033152 | 3 |
| U- 233/234,U-235/236 and U-238 "As Received" | | | | | | | | | | | | | |
| Uranium-233/234 | | 14100 | +/-880 | 527 | 1.00 | pCi/L | | | JXB7 | 09/02/20 | 1134 | 2033150 | 4 |
| Uranium-235/236 | | 1000 | +/-277 | 440 | 1.00 | pCi/L | | | | | | | |
| Uranium-238 | | 14300 | +/-887 | 483 | 1.00 | pCi/L | | | | | | | |

The following Prep Methods were performed:

| Method | Description | Analyst | Date | Time | Prep Batch |
|---|---|---|---|---|---|
| GL-RAD-A-026 | Laboratory Composite | | | | 2032694 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | DOE EML HASL-300, Th-01-RC Modified | |
| 2 | EPA 903.0 | |
| 3 | EPA 903.1 Modified | |
| 4 | DOE EML HASL-300, U-02-RC Modified | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| Thorium-229 Tracer | Alphaspec Th, Liquid "As Received" | | | 102 | (15%-125%) |
| Barium Carrier | GFPC,Total Alpha Radium, Liquid "As Received" | | | 104 | (25%-125%) |
| Uranium-232 Tracer | U- 233/234,U-235/236 and U-238 "As Received" | | | 102 | (15%-125%) |

**Notes:**

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

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# Certificate of Analysis

Report Date: September 18, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 65 | Project: | DNMI00107 |
| Sample ID: | 519405007 | Client ID: | DNMI001 |

| Parameter | Qualifier | Result | Uncertainty | MDC | RL | Units | PF | DF | Analyst Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Column headers are defined as follows:

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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

**GEL LABORATORIES LLC**
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# Certificate of Analysis

Report Date: September 15, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Cell 65 | Project: | DNMI00107 |
| Sample ID: | 519405007 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 09:15 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous Waste | | | | | | | | | | | | |
| ASTM D 5057 Specific Gravity "As Received" | | | | | | | | | | | | |
| Specific Gravity | | 1.11 | 0.0100 | 0.100 | none | | 1 | VH1 | 08/26/20 | 1015 | 2033728 | 1 |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | ASTM D 5057 | |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

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

# Certificate of Analysis

Report Date: September 14, 2020

| | |
|---|---|
| Company : | Energy Fuels Resources (USA), Inc. |
| Address : | 225 Union Boulevard<br>Suite 600<br>Lakewood, Colorado 80228 |
| Contact: | Ms. Kathy Weinel |
| Project: | Tailings 2020 Characterization |

| | | | |
|---|---|---|---|
| Client Sample ID: | Trip Blank | Project: | DNMI00107 |
| Sample ID: | 519405008 | Client ID: | DNMI001 |
| Matrix: | Water | | |
| Collect Date: | 19-AUG-20 08:30 | | |
| Receive Date: | 21-AUG-20 | | |
| Collector: | Client | | |

| Parameter | Qualifier | Result | DL | RL | Units | PF | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volatile Organics | | | | | | | | | | | | |
| SW846 8260B Volatiles "As Received" | | | | | | | | | | | | |
| 2-Butanone | U | ND | 1.67 | 5.00 | ug/L | 1 | | MXL2 | 08/26/20 | 0510 | 2033589 | 1 |
| Acetone | | 5.80 | 1.74 | 5.00 | ug/L | 1 | | | | | | |
| Benzene | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Carbon tetrachloride | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Chloroform | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Chloromethane | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Methylene chloride | U | ND | 1.67 | 5.00 | ug/L | 1 | | | | | | |
| Naphthalene | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Tetrahydrofuran | U | ND | 1.67 | 5.00 | ug/L | 1 | | | | | | |
| Toluene | U | ND | 0.333 | 1.00 | ug/L | 1 | | | | | | |
| Xylenes (total) | U | ND | 1.00 | 3.00 | ug/L | 1 | | | | | | |

The following Analytical Methods were performed:

| Method | Description | Analyst Comments |
|---|---|---|
| | SW846 8260B | |

| Surrogate/Tracer Recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | SW846 8260B Volatiles "As Received" | 50.6 ug/L | 50.0 | 101 | (71%-134%) |
| Bromofluorobenzene | SW846 8260B Volatiles "As Received" | 51.1 ug/L | 50.0 | 102 | (70%-131%) |
| Toluene-d8 | SW846 8260B Volatiles "As Received" | 50.7 ug/L | 50.0 | 101 | (74%-124%) |

**Notes:**

SRL = Sample Reporting Limit. For metals analysis only. When the sample is U qualified and ND, the SRL column reports the value which is the greater of either the adjusted MDL or the CRDL.

Column headers are defined as follows:

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

# ANALYTICAL SUMMARY REPORT

September 09, 2020

Energy Fuels Resources (USA) Inc
225 Union Blvd Ste 600
Lakewood, CO 80228-1826

Work Order: C20080962 Quote ID: C5645

Project Name: Annual Tailings 2020

Energy Laboratories, Inc. Casper WY received the following 7 samples for Energy Fuels Resources (USA) Inc on 8/21/2020 for analysis.

| Lab ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| C20080962-001 | Cell 1 | 08/19/20 08:30 | 08/21/20 | Aqueous | Metals by ICP/ICPMS, Dissolved<br>Acidity, Total as CaCO3<br>Alkalinity<br>Anion - Cation Balance<br>Conductivity<br>Mercury, Dissolved<br>Fluoride<br>Anions by Ion Chromatography<br>pH Check for H2SO4 Preserved Inorganics<br>Metals pH check by the Laboratory FIRST<br>Nitrogen, Ammonia<br>Nitrogen, Nitrate + Nitrite<br>pH<br>Sample Filtering, Metals<br>Digestion, Mercury by CVAA<br>Solids, Total Dissolved<br>Solids, Total Dissolved - Calculated |
| C20080962-002 | Cell 2 Slimes | 08/19/20 08:50 | 08/21/20 | Aqueous | Same As Above |
| C20080962-003 | Cell 4A | 08/19/20 09:15 | 08/21/20 | Aqueous | Same As Above |
| C20080962-004 | Cell 4A LDS | 08/19/20 09:35 | 08/21/20 | Aqueous | Same As Above |
| C20080962-005 | Cell 4B | 08/19/20 10:00 | 08/21/20 | Aqueous | Same As Above |
| C20080962-006 | Cell 4B LDS | 08/19/20 09:45 | 08/21/20 | Aqueous | Same As Above |
| C20080962-007 | Cell 65 | 08/19/20 09:15 | 08/21/20 | Aqueous | Same As Above |

The analyses presented in this report were performed by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager .

Report Approved By:

Tracy K. Archer
Project Manager

Digitally signed by
Tracey Archer
Date: 2020.09.09 09:51:48 -06:00

**CLIENT:** Energy Fuels Resources (USA) Inc
**Project:** Annual Tailings 2020
**Work Order:** C20080962

**Report Date:** 09/09/20

# CASE NARRATIVE

ORIGINAL SAMPLE SUBMITTAL(S)
All original sample submittals have been returned with the data package.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

GROSS ALPHA ANALYSIS
Method 900.0 for gross alpha and gross beta is intended as a drinking water method for low TDS waters. Data provided by this method for non potable waters should be viewed as inconsistent.

RADON IN AIR ANALYSIS
The desired exposure time is 48 hours (2 days). The time delay in returning the canister to the laboratory for processing should be as short as possible to avoid excessive decay. Maximum recommended delay between end of exposure to beginning of counting should not exceed 8 days.

SOIL/SOLID SAMPLES
All samples reported on an as received basis unless otherwise indicated.

ATRAZINE, SIMAZINE AND PCB ANALYSIS
Data for PCBs, Atrazine and Simazine are reported from EPA 525.2. PCB data reported by ELI reflects the results for seven individual Aroclors. When the results for all seven are ND (not detected), the sample meets EPA compliance criteria for PCB monitoring.

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories will be indicated within the Laboratory Analytical Report.

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT
eli-g - Energy Laboratories, Inc. - Gillette, WY
eli-h - Energy Laboratories, Inc. - Helena, MT

ISO 17025 DISCLAIMER:
The results of this Analytical Report relate only to the items submitted for analysis.

ENERGY LABORATORIES, INC. - CASPER,WY certifies that certain method selections contained in this report meet requirements as set forth by the above accrediting authorities. Some results requested by the client may not be covered under these certifications. All analysis data to be submitted for regulatory enforcement should be certified in the sample state of origin. Please verify ELI's certification coverage by visiting www.energylab.com

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page www.energylab.com.

All "J" qualified analyte concentrations are below the laboratory minimum recommended Reporting Limit (RL) and above the calculated method detection limit (MDL). Inorganic analytes reported with "J" qualifiers should be verified against the corresponding method blank and continuing calibration blanks. Inorganic "J" quantitations near the MDL may be suspect due to possible method background levels, sample matrix effects, and/or daily variability in instrument signal-to-noise levels.

eurofins | Environment Testing America

# ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-139789-1
Client Project/Site: 11(e) Byproduct Material

For:
Energy Laboratories, Inc.
400 W Boxelder Rd
Gillette, Wyoming 82718

Attn: Ms. Alyson Degnan

*Authorized for release by:*
*9/4/2020 2:18:24 PM*

Dylan Bieniulis, Project Manager I
(303)736-0138
Dylan.Bieniulis@Eurofinset.com

# Table of Contents

# Definitions/Glossary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

## Qualifiers

### Metals

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

## Job ID: 280-139789-1

### Laboratory: Eurofins TestAmerica, Denver

**Narrative**

## CASE NARRATIVE

## Client: Energy Laboratories, Inc.

## Project: 11(e) Byproduct Material

## Report Number: 280-139789-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

The samples were received on 08/25/2020; the samples arrived in good condition and properly preserved The temperature of the coolers at receipt was 27.0 C.

Each 250mL plastic bottle of nitric acid preserved volume for the following samples was only approximately 100mL full. Sufficient sample volume was received to perform the requested analysis and no corrective action was needed: C20080962-001D (280-139789-1), C20080962-002D (280-139789-2), C20080962-003D (280-139789-3), C20080962-004D (280-139789-4), C20080962-005D (280-139789-5), C20080962-006D (280-139789-6) and C20080962-007D (280-139789-7).

**DISSOLVED MERCURY (CVAA)**

Samples C20080962-001D (280-139789-1), C20080962-002D (280-139789-2), C20080962-003D (280-139789-3), C20080962-004D (280-139789-4), C20080962-005D (280-139789-5), C20080962-006D (280-139789-6) and C20080962-007D (280-139789-7) were analyzed for dissolved mercury (CVAA) in accordance with EPA Method 245.1. The samples were prepared and analyzed on 09/03/2020.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: Insufficient sample remained for a full preparation of C20080962-001D (280-139789-1), (280-139789-A-1 MS) and (280-139789-A-1 MSD) for method 245.1 (Hg). The remaining volume 6mL was poured, diluted to 30mL starting volume with 1% nitric acid, and will be prepared as normal.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Detection Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

## Client Sample ID: C20080962-001D — Lab Sample ID: 280-139789-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 14 | | 1.0 | 0.14 | ug/L | 1 | | 245.1 | Dissolved |

## Client Sample ID: C20080962-002D — Lab Sample ID: 280-139789-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.058 | J | 0.20 | 0.027 | ug/L | 1 | | 245.1 | Dissolved |

## Client Sample ID: C20080962-003D — Lab Sample ID: 280-139789-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 3.4 | | 0.20 | 0.027 | ug/L | 1 | | 245.1 | Dissolved |

## Client Sample ID: C20080962-004D — Lab Sample ID: 280-139789-4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.20 | | 0.20 | 0.027 | ug/L | 1 | | 245.1 | Dissolved |

## Client Sample ID: C20080962-005D — Lab Sample ID: 280-139789-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.40 | | 0.20 | 0.027 | ug/L | 1 | | 245.1 | Dissolved |

## Client Sample ID: C20080962-006D — Lab Sample ID: 280-139789-6

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.10 | J | 0.20 | 0.027 | ug/L | 1 | | 245.1 | Dissolved |

## Client Sample ID: C20080962-007D — Lab Sample ID: 280-139789-7

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 3.4 | | 0.20 | 0.027 | ug/L | 1 | | 245.1 | Dissolved |

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

# Method Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 245.1 | Mercury - Dissolved | EPA | TAL DEN |
| 245.1 | Preparation, Mercury | EPA | TAL DEN |

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

# Sample Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 280-139789-1 | C20080962-001D | Water | 08/19/20 08:30 | 08/25/20 09:45 | |
| 280-139789-2 | C20080962-002D | Water | 08/19/20 08:50 | 08/25/20 09:45 | |
| 280-139789-3 | C20080962-003D | Water | 08/19/20 09:15 | 08/25/20 09:45 | |
| 280-139789-4 | C20080962-004D | Water | 08/19/20 09:35 | 08/25/20 09:45 | |
| 280-139789-5 | C20080962-005D | Water | 08/19/20 10:00 | 08/25/20 09:45 | |
| 280-139789-6 | C20080962-006D | Water | 08/19/20 09:45 | 08/25/20 09:45 | |
| 280-139789-7 | C20080962-007D | Water | 08/19/20 09:15 | 08/25/20 09:45 | |

## Method: 245.1 - Mercury - Dissolved - Dissolved

**Client Sample ID: C20080962-001D**
**Date Collected: 08/19/20 08:30**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-1**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 14 | | 1.0 | 0.14 | ug/L | | 09/03/20 12:20 | 09/03/20 15:51 | 1 |

**Client Sample ID: C20080962-002D**
**Date Collected: 08/19/20 08:50**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-2**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.058 | J | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 15:58 | 1 |

**Client Sample ID: C20080962-003D**
**Date Collected: 08/19/20 09:15**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-3**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 3.4 | | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 16:00 | 1 |

**Client Sample ID: C20080962-004D**
**Date Collected: 08/19/20 09:35**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-4**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.20 | | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 16:02 | 1 |

**Client Sample ID: C20080962-005D**
**Date Collected: 08/19/20 10:00**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-5**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.40 | | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 16:05 | 1 |

**Client Sample ID: C20080962-006D**
**Date Collected: 08/19/20 09:45**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-6**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.10 | J | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 16:07 | 1 |

**Client Sample ID: C20080962-007D**
**Date Collected: 08/19/20 09:15**
**Date Received: 08/25/20 09:45**

**Lab Sample ID: 280-139789-7**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 3.4 | | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 16:14 | 1 |

## Method: 245.1 - Mercury - Dissolved

**Lab Sample ID: MB 280-507863/1-A**
**Matrix: Water**
**Analysis Batch: 507983**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 507863**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | | 0.20 | 0.027 | ug/L | | 09/03/20 12:20 | 09/03/20 15:47 | 1 |

**Lab Sample ID: LCS 280-507863/2-A**
**Matrix: Water**
**Analysis Batch: 507983**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 507863**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Mercury | 5.00 | 5.06 | | ug/L | | 101 | 90 - 110 |

**Lab Sample ID: 280-139789-1 MS**
**Matrix: Water**
**Analysis Batch: 507983**

**Client Sample ID: C20080962-001D**
**Prep Type: Dissolved**
**Prep Batch: 507863**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Mercury | 14 | | 25.0 | 38.7 | | ug/L | | 98 | 80 - 120 |

**Lab Sample ID: 280-139789-1 MSD**
**Matrix: Water**
**Analysis Batch: 507983**

**Client Sample ID: C20080962-001D**
**Prep Type: Dissolved**
**Prep Batch: 507863**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 14 | | 25.0 | 39.1 | | ug/L | | 99 | 80 - 120 | 1 | 10 |

# QC Association Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

## Metals

### Prep Batch: 507863

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-139789-1 | C20080962-001D | Dissolved | Water | 245.1 | |
| 280-139789-2 | C20080962-002D | Dissolved | Water | 245.1 | |
| 280-139789-3 | C20080962-003D | Dissolved | Water | 245.1 | |
| 280-139789-4 | C20080962-004D | Dissolved | Water | 245.1 | |
| 280-139789-5 | C20080962-005D | Dissolved | Water | 245.1 | |
| 280-139789-6 | C20080962-006D | Dissolved | Water | 245.1 | |
| 280-139789-7 | C20080962-007D | Dissolved | Water | 245.1 | |
| MB 280-507863/1-A | Method Blank | Total/NA | Water | 245.1 | |
| LCS 280-507863/2-A | Lab Control Sample | Total/NA | Water | 245.1 | |
| 280-139789-1 MS | C20080962-001D | Dissolved | Water | 245.1 | |
| 280-139789-1 MSD | C20080962-001D | Dissolved | Water | 245.1 | |

### Analysis Batch: 507983

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 280-139789-1 | C20080962-001D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-2 | C20080962-002D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-3 | C20080962-003D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-4 | C20080962-004D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-5 | C20080962-005D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-6 | C20080962-006D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-7 | C20080962-007D | Dissolved | Water | 245.1 | 507863 |
| MB 280-507863/1-A | Method Blank | Total/NA | Water | 245.1 | 507863 |
| LCS 280-507863/2-A | Lab Control Sample | Total/NA | Water | 245.1 | 507863 |
| 280-139789-1 MS | C20080962-001D | Dissolved | Water | 245.1 | 507863 |
| 280-139789-1 MSD | C20080962-001D | Dissolved | Water | 245.1 | 507863 |

# Lab Chronicle

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

## Client Sample ID: C20080962-001D
**Date Collected: 08/19/20 08:30**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-1
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 6 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 15:51 | AL | TAL DEN |

## Client Sample ID: C20080962-002D
**Date Collected: 08/19/20 08:50**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-2
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 30 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 15:58 | AL | TAL DEN |

## Client Sample ID: C20080962-003D
**Date Collected: 08/19/20 09:15**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-3
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 30 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 16:00 | AL | TAL DEN |

## Client Sample ID: C20080962-004D
**Date Collected: 08/19/20 09:35**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-4
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 30 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 16:02 | AL | TAL DEN |

## Client Sample ID: C20080962-005D
**Date Collected: 08/19/20 10:00**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-5
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 30 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 16:05 | AL | TAL DEN |

## Client Sample ID: C20080962-006D
**Date Collected: 08/19/20 09:45**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-6
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 30 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 16:07 | AL | TAL DEN |

# Lab Chronicle

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

## Client Sample ID: C20080962-007D

**Date Collected: 08/19/20 09:15**
**Date Received: 08/25/20 09:45**

## Lab Sample ID: 280-139789-7

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Dissolved | Prep | 245.1 | | | 30 mL | 50 mL | 507863 | 09/03/20 12:20 | AL | TAL DEN |
| Dissolved | Analysis | 245.1 | | 1 | | | 507983 | 09/03/20 16:14 | AL | TAL DEN |

**Laboratory References:**

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

# Accreditation/Certification Summary

Client: Energy Laboratories, Inc.
Project/Site: 11(e) Byproduct Material

Job ID: 280-139789-1

## Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| A2LA | Dept. of Defense ELAP | 2907.01 | 10-31-21 |
| A2LA | ISO/IEC 17025 | 2907.01 | 10-31-21 |
| Alabama | State Program | 40730 | 09-30-12 * |
| Alaska (UST) | State | 18-001 | 02-08-21 |
| Alaska (UST) | State | 18-001 | 02-08-21 |
| Arizona | State | AZ0713 | 12-20-20 |
| Arkansas DEQ | State | 19-047-0 | 06-01-21 |
| California | State | 2513 | 01-08-21 |
| Connecticut | State | PH-0686 | 09-30-20 |
| Florida | NELAP | E87667-57 | 07-01-21 |
| Georgia | State | 4025-011 | 01-09-21 |
| Illinois | NELAP | 2000172019-1 | 04-30-21 |
| Iowa | State | IA#370 | 12-01-20 |
| Kansas | NELAP | E-10166 | 04-30-21 |
| Louisiana | NELAP | 30785 | 06-30-14 * |
| Louisiana | NELAP | 30785 | 06-30-21 |
| Maine | State | 2019011 (231) | 03-03-21 |
| Minnesota | NELAP | 1788752 | 12-31-20 |
| New Hampshire | NELAP | 205319 | 04-29-21 |
| New Jersey | NELAP | 190002 | 06-30-21 |
| New York | NELAP | 59923 | 04-01-21 |
| North Carolina (WW/SW) | State | 358 | 12-31-20 |
| North Dakota | State | R-034 | 01-08-21 |
| Oklahoma | State | 2018-006 | 09-01-21 |
| Oregon | NELAP | 4025-011 | 01-08-21 |
| Pennsylvania | NELAP | 013 | 07-31-21 |
| South Carolina | State | 72002001 | 01-08-21 |
| Texas | NELAP | T104704183-19-17 | 09-30-20 |
| US Fish & Wildlife | US Federal Programs | 058448 | 08-01-21 |
| USDA | US Federal Programs | P330-18-00099 | 03-26-21 |
| Utah | NELAP | QUAN5 | 06-30-13 * |
| Utah | NELAP | CO000262019-11 | 07-31-21 |
| Virginia | NELAP | 10490 | 06-14-21 |
| Washington | State | C583-19 | 08-03-21 |
| West Virginia DEP | State | 354 | 11-30-20 |
| Wyoming (UST) | A2LA | 2907.01 | 10-31-21 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

**Energy Laboratories, Inc.**
2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515

C20080962

# CHAIN-OF-CUSTODY RECORD



PO:

**Earliest HT Expires:** Wed, 9/16/2020 0830
**Test Codes:** CVAA-HG-245-W-D, PRP-HG-245.1

**Earliest Due Date:** 9/28/2020
**# Bus. Days Until Due:** 25

**Subcontractor:**
Test America
4955 Yarrow St
Arvada. CO 80002
TEL: 3037360100
FAX:
Acct #: 3037360100

**Subcontractor's Client**

| | | | | | Requested Tests | |
|---|---|---|---|---|---|---|
| | | | | | CVAA-HG-245-W-D | PRP-HG-245.1 |
| | C20080962-001D | Aqueous | 08/19/20 08:30 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |
| | C20080962-002D | Aqueous | 08/19/20 08:50 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |
| | C20080962-003D | Aqueous | 08/19/20 09:15 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |
| | C20080962-004D | Aqueous | 08/19/20 09:35 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |
| | C20080962-005D | Aqueous | 08/19/20 10:00 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |
| | C20080962-006D | Aqueous | 08/19/20 09:45 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |
| | C20080962-007D | Aqueous | 08/19/20 09:15 A | 1 - 250ML-P-F-HNO3 | 1 | 1 |

280-139789 Chain of Custody

**Comments:**

QC Level:
**STD**

27.2 IR11 -0.2 RB 8/25/20

**Relinquished by:** [signature] **Date/Time** 8/21/20 1433 **Received by:** [signature] ETADen **Date/Time** 8/25/20 0945

**Relinquished by:** **Received by:**

| Shipped By: | Custody Seal | Intact | Receipt Temp: °C | Temp Blank | On Ice |
|---|---|---|---|---|---|
| | Y N | Y N | | Y N | Y (N) |

# PREP BATCH REPORT

Prep Batch **59035** | Prep Code: **PRP-FILT-MET** | Prep Temp **NA °C** | Technician: **Sheri R. Mathews** | Batch Units: **ML** | Prep Start Date: **8/21/2020 15:07:39** | Prep End Date: **8/21/2020 15:20:00**

| Sample ID | Matrix | pH | Initial Samp Amt | Sol Added | Sol Recovered | Final Vol (mL) | Factor | Balance | Prep Start Date | Prep End Date |
|---|---|---|---|---|---|---|---|---|---|---|
| MB-59035 | | 7 | 100 | 1 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| C20080962-001D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |
| C20080962-002D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |
| C20080962-003D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |
| C20080962-004D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |
| C20080962-005D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |
| C20080962-006D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |
| C20080962-007D | Aqueous | <2 | 100 | 0 | 0 | 100 | 1 | | 8/21/2020 | 8/21/2020 |
| - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered. | | | | | | | | | | |



| Number | Reagent Name | Exp Date |
|---|---|---|
| 10719 | pH Paper - 204518 | 2/15/2021 |
| 11191 | Nitric Acid 50% - J270-19 | 10/7/2021 |
| 11196 | FlipMate 50-90530751-9295-AM | 10/29/2029 |

| Spk ID | Spike Name | SampType | AmtAdd | Exp Date |
|---|---|---|---|---|
| SRM AQ PRP-FIL | SRM AQ PRP-FILT-MET DOC 0421 | DOC | 1 | 3/21/2021 |

# Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-139789-1

**Login Number: 139789**
**List Number: 1**
**Creator: Bentley, Beau J**

**List Source: Eurofins TestAmerica, Denver**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | False | Thermal preservation not required. |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | False | Limited volume received. |
| Sample Preservation Verified. | N/A | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** **A2320 B** | | | | | | | | | Analytical Run: MANTECH_200824B | |
| **Lab ID:** **ICV** | | Initial Calibration Verification Standard | | | | | | | 08/24/20 15:32 | |
| pH | | 6.90 | s.u. | 0.010 | 101 | 98 | 102 | | | |
| **Method:** **A2320 B** | | | | | | | | | Batch: R261826 | |
| **Lab ID:** **MBLK** | | Method Blank | | | | Run: MANTECH_200824B | | | 08/24/20 19:15 | |
| Alkalinity, Total as CaCO3 | | ND | mg/L | 5 | | | | | | |
| **Lab ID:** **LCS** | | Laboratory Control Sample | | | | Run: MANTECH_200824B | | | 08/24/20 19:22 | |
| Alkalinity, Total as CaCO3 | | 263 | mg/L | 5.0 | 105 | 90 | 110 | | | |
| **Lab ID:** **C20080962-005ADUP** | | Sample Duplicate | | | | Run: MANTECH_200824B | | | 08/24/20 20:32 | |
| Alkalinity, Total as CaCO3 | | ND | mg/L | 5.0 | | | | | 10 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: A2510 B** | | | | | | | | | Analytical Run: PHSC_101-C_200821A | |
| **Lab ID: SC 100** | | Initial Calibration Verification Standard | | | | | | | | 08/21/20 11:02 |
| Conductivity @ 25 C | | 100 | umhos/cm | 5.0 | 100 | 90 | 110 | | | |
| **Lab ID: SC 5000** | | Initial Calibration Verification Standard | | | | | | | | 08/21/20 11:06 |
| Conductivity @ 25 C | | 5000 | umhos/cm | 5.0 | 100 | 90 | 110 | | | |
| **Lab ID: SC 20000** | | Initial Calibration Verification Standard | | | | | | | | 08/21/20 11:09 |
| Conductivity @ 25 C | | 20200 | umhos/cm | 5.0 | 101 | 90 | 110 | | | |
| **Method: A2510 B** | | | | | | | | | | Batch: R261749 |
| **Lab ID: SC 50000** | | Initial Calibration Verification Standard | | | | Run: PHSC_101-C_200821A | | | | 08/21/20 11:12 |
| Conductivity @ 25 C | | 49200 | umhos/cm | 5.0 | 98 | 90 | 110 | | | |
| **Lab ID: MBLK** | | Method Blank | | | | Run: PHSC_101-C_200821A | | | | 08/21/20 14:08 |
| Conductivity @ 25 C | | 0.7 | umhos/cm | | | | | | | |
| **Lab ID: C20080962-003ADUP** | | Sample Duplicate | | | | Run: PHSC_101-C_200821A | | | | 08/21/20 14:15 |
| Conductivity @ 25 C | | 84200 | umhos/cm | 5.0 | | | | 0.2 | 10 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: A2540 C** | | | | | | | | | | Batch: TDS200821B |
| **Lab ID: MB-25_200821B** | | Method Blank | | | | Run: BAL-111_200821B | | | | 08/21/20 12:14 |
| Solids, Total Dissolved TDS @ 180 C | | ND | mg/L | 6 | | | | | | |
| **Lab ID: LCS-26_200821B** | | Laboratory Control Sample | | | | Run: BAL-111_200821B | | | | 08/21/20 12:14 |
| Solids, Total Dissolved TDS @ 180 C | | 998 | mg/L | 10 | 100 | 90 | 110 | | | |
| **Lab ID: C20080962-001A DUP** | | Sample Duplicate | | | | Run: BAL-111_200821B | | | | 08/21/20 12:15 |
| Solids, Total Dissolved TDS @ 180 C | | 405000 | mg/L | 2000 | | | | 0.3 | 5 | |
| **Method: A2540 C** | | | | | | | | | | Batch: TDS200824A |
| **Lab ID: MB-1_200824A** | | Method Blank | | | | Run: BAL-111_200824A | | | | 08/24/20 14:31 |
| Solids, Total Dissolved TDS @ 180 C | | ND | mg/L | 6 | | | | | | |
| **Lab ID: LCS-2_200824A** | | Laboratory Control Sample | | | | Run: BAL-111_200824A | | | | 08/24/20 14:31 |
| Solids, Total Dissolved TDS @ 180 C | | 999 | mg/L | 10 | 100 | 90 | 110 | | | |
| **Lab ID: C20080914-006A DUP** | | Sample Duplicate | | | | Run: BAL-111_200824A | | | | 08/24/20 14:32 |
| Solids, Total Dissolved TDS @ 180 C | | 2770 | mg/L | 20 | | | | 0.2 | 5 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** **A4500-F C** | | | | | | | | | | Batch: R261801 |
| **Lab ID:** **LCS** | | Laboratory Control Sample | | | | Run: MANTECH_200824A | | | | 08/24/20 10:53 |
| Fluoride | | 2.11 | mg/L | 0.10 | 106 | 90 | 110 | | | |
| **Lab ID:** **MBLK** | | Method Blank | | | | Run: MANTECH_200824A | | | | 08/24/20 11:00 |
| Fluoride | | ND | mg/L | 0.02 | | | | | | |
| **Lab ID:** **C20080889-001AMS** | | Sample Matrix Spike | | | | Run: MANTECH_200824A | | | | 08/24/20 11:18 |
| Fluoride | | 2.37 | mg/L | 0.10 | 112 | 90 | 110 | | | S |
| **Lab ID:** **C20080941-001ADUP** | | Sample Duplicate | | | | Run: MANTECH_200824A | | | | 08/24/20 11:24 |
| Fluoride | | 0.120 | mg/L | 0.10 | | | | 8.0 | 10 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: A4500-H B** | | | | | | | | | Analytical Run: PHSC_101-C_200821A | |
| **Lab ID: 6.86** | 2 | Initial Calibration Verification Standard | | | | | | | 08/21/20 10:59 | |
| pH | | 6.89 | s.u. | 0.010 | 100 | 98 | 102 | | | |
| pH Measurement Temp | | 21.1 | °C | | | 0 | 0 | | | |
| **Method: A4500-H B** | | | | | | | | | Batch: R261749 | |
| **Lab ID: C20080962-003ADUP** | 2 | Sample Duplicate | | | | Run: PHSC_101-C_200821A | | | 08/21/20 14:15 | |
| pH | | 2.30 | s.u. | 0.010 | | | | 2.6 | 1.5 | |
| pH Measurement Temp | | 15.7 | °C | | | | | | | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E300.0 | | | | | | | | | Analytical Run: IC3-C_200824A | |
| **Lab ID:** ICV | 2 | Initial Calibration Verification Standard | | | | | | | 08/24/20 13:26 | |
| Chloride | | 10.1 | mg/L | 1.0 | 101 | 90 | 110 | | | |
| Sulfate | | 42.5 | mg/L | 1.0 | 106 | 90 | 110 | | | |
| **Method:** E300.0 | | | | | | | | | Batch: R261829 | |
| **Lab ID:** ICB | 2 | Method Blank | | | | Run: IC3-C_200824A | | | 08/24/20 13:45 | |
| Chloride | | ND | mg/L | 0.06 | | | | | | |
| Sulfate | | ND | mg/L | 0.2 | | | | | | |
| **Lab ID:** LFB | 2 | Laboratory Fortified Blank | | | | Run: IC3-C_200824A | | | 08/24/20 14:04 | |
| Chloride | | 10.3 | mg/L | 1.0 | 103 | 90 | 110 | | | |
| Sulfate | | 43.5 | mg/L | 1.0 | 109 | 90 | 110 | | | |
| **Lab ID:** C20080965-001AMS | 2 | Sample Matrix Spike | | | | Run: IC3-C_200824A | | | 08/24/20 19:30 | |
| Chloride | | 12.8 | mg/L | 1.0 | 107 | 80 | 120 | | | |
| Sulfate | | 80.6 | mg/L | 1.0 | 112 | 80 | 120 | | | |
| **Lab ID:** C20080965-001AMSD | 2 | Sample Matrix Spike Duplicate | | | | Run: IC3-C_200824A | | | 08/24/20 19:49 | |
| Chloride | | 12.9 | mg/L | 1.0 | 108 | 80 | 120 | 0.2 | 20 | |
| Sulfate | | 80.8 | mg/L | 1.0 | 112 | 80 | 120 | 0.3 | 20 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E350.1** | | | | | | | | | Analytical Run: FIA201-C_200826A | |
| **Lab ID: ICV** | | Initial Calibration Verification Standard | | | | | | | 08/26/20 09:53 | |
| Nitrogen, Ammonia as N | | 1.04 | mg/L | 0.050 | 104 | 90 | 110 | | | |
| **Method: E350.1** | | | | | | | | | Batch: R261895 | |
| **Lab ID: MBLK** | | Method Blank | | | | Run: FIA201-C_200826A | | | 08/26/20 09:52 | |
| Nitrogen, Ammonia as N | | ND | mg/L | 0.02 | | | | | | |
| **Lab ID: LFB** | | Laboratory Fortified Blank | | | | Run: FIA201-C_200826A | | | 08/26/20 09:54 | |
| Nitrogen, Ammonia as N | | 1.03 | mg/L | 0.050 | 104 | 90 | 110 | | | |
| **Lab ID: C20080975-001CMS** | | Sample Matrix Spike | | | | Run: FIA201-C_200826A | | | 08/26/20 10:05 | |
| Nitrogen, Ammonia as N | | 0.958 | mg/L | 0.050 | 84 | 90 | 110 | | | S |
| **Lab ID: C20080975-001CMSD** | | Sample Matrix Spike Duplicate | | | | Run: FIA201-C_200826A | | | 08/26/20 10:06 | |
| Nitrogen, Ammonia as N | | 0.930 | mg/L | 0.050 | 82 | 90 | 110 | 3.0 | 10 | S |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 08/28/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E353.2 | | | | | | | | | Analytical Run: FIA201-C_200824B | |
| **Lab ID:** ICV | | Initial Calibration Verification Standard | | | | | | | 08/24/20 14:44 | |
| Nitrogen, Nitrate+Nitrite as N | | 1.02 | mg/L | 0.010 | 102 | 90 | 110 | | | |
| **Method:** E353.2 | | | | | | | | | Batch: R261816 | |
| **Lab ID:** MBLK | | Method Blank | | | | Run: FIA201-C_200824B | | | 08/24/20 14:45 | |
| Nitrogen, Nitrate+Nitrite as N | | ND | mg/L | 0.008 | | | | | | |
| **Lab ID:** LFB | | Laboratory Fortified Blank | | | | Run: FIA201-C_200824B | | | 08/24/20 14:46 | |
| Nitrogen, Nitrate+Nitrite as N | | 1.03 | mg/L | 0.010 | 104 | 90 | 110 | | | |
| **Lab ID:** C20080962-006CMS | | Sample Matrix Spike | | | | Run: FIA201-C_200824B | | | 08/24/20 16:30 | |
| Nitrogen, Nitrate+Nitrite as N | | 52.3 | mg/L | 0.25 | 51 | 90 | 110 | | | S |
| **Lab ID:** C20080962-006CMSD | | Sample Matrix Spike Duplicate | | | | Run: FIA201-C_200824B | | | 08/24/20 16:31 | |
| Nitrogen, Nitrate+Nitrite as N | | 51.5 | mg/L | 0.25 | 48 | 90 | 110 | 1.5 | 10 | S |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 09/04/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E200.7 | | | | | | | | | Analytical Run: ICP4-C_200824A | |
| **Lab ID:** QCS | 7 | Initial Calibration Verification Standard | | | | | | | 08/24/20 13:44 | |
| Beryllium | | 0.399 | mg/L | 0.010 | 100 | 90 | 110 | | | |
| Calcium | | 40.1 | mg/L | 0.50 | 100 | 90 | 110 | | | |
| Iron | | 4.11 | mg/L | 0.10 | 103 | 90 | 110 | | | |
| Magnesium | | 39.6 | mg/L | 0.50 | 99 | 90 | 110 | | | |
| Manganese | | 3.90 | mg/L | 0.010 | 98 | 90 | 110 | | | |
| Potassium | | 40.0 | mg/L | 0.50 | 100 | 90 | 110 | | | |
| Sodium | | 39.6 | mg/L | 0.53 | 99 | 90 | 110 | | | |
| **Method:** E200.7 | | | | | | | | | Batch: R261803 | |
| **Lab ID:** LFB-6300DIS200824A | 7 | Laboratory Fortified Blank | | | | Run: ICP4-C_200824A | | | 08/24/20 13:40 | |
| Beryllium | | 0.485 | mg/L | 0.010 | 97 | 85 | 115 | | | |
| Calcium | | 48.6 | mg/L | 0.50 | 97 | 85 | 115 | | | |
| Iron | | 5.00 | mg/L | 0.10 | 100 | 85 | 115 | | | |
| Magnesium | | 48.4 | mg/L | 0.50 | 97 | 85 | 115 | | | |
| Manganese | | 4.72 | mg/L | 0.010 | 94 | 85 | 115 | | | |
| Potassium | | 49.0 | mg/L | 0.50 | 98 | 85 | 115 | | | |
| Sodium | | 48.2 | mg/L | 0.54 | 96 | 85 | 115 | | | |
| **Lab ID:** MB-59028 | 7 | Method Blank | | | | Run: ICP4-C_200824A | | | 08/24/20 15:29 | |
| Beryllium | | ND | mg/L | 0.0001 | | | | | | |
| Calcium | | ND | mg/L | 0.3 | | | | | | |
| Iron | | ND | mg/L | 0.06 | | | | | | |
| Magnesium | | ND | mg/L | 0.03 | | | | | | |
| Manganese | | ND | mg/L | 0.001 | | | | | | |
| Potassium | | ND | mg/L | 0.2 | | | | | | |
| Sodium | | ND | mg/L | 0.5 | | | | | | |
| **Lab ID:** C20080962-007BDIL | 7 | Serial Dilution | | | | Run: ICP4-C_200824A | | | 08/24/20 16:09 | |
| Beryllium | | 0.403 | mg/L | 0.32 | | | | | 10 | N |
| Calcium | | 648 | mg/L | 130 | | | | | 10 | N |
| Iron | | 3550 | mg/L | 30 | | | | 2.6 | 10 | |
| Magnesium | | 4310 | mg/L | 6.2 | | | | 0.4 | 10 | |
| Manganese | | 196 | mg/L | 0.62 | | | | 1.6 | 10 | |
| Potassium | | 1590 | mg/L | 120 | | | | 3.1 | 10 | |
| Sodium | | 16400 | mg/L | 260 | | | | 0.9 | 10 | |
| **Lab ID:** C20080962-007BMS2 | 7 | Sample Matrix Spike | | | | Run: ICP4-C_200824A | | | 08/24/20 16:13 | |
| Beryllium | | 48.5 | mg/L | 0.065 | 96 | 70 | 130 | | | |
| Calcium | | 5410 | mg/L | 26 | 96 | 70 | 130 | | | |
| Iron | | 3750 | mg/L | 6.1 | | 70 | 130 | | | A |
| Magnesium | | 9000 | mg/L | 1.3 | 93 | 70 | 130 | | | |
| Manganese | | 649 | mg/L | 0.13 | 91 | 70 | 130 | | | |
| Potassium | | 6430 | mg/L | 26 | 98 | 70 | 130 | | | |
| Sodium | | 20400 | mg/L | 54 | 82 | 70 | 130 | | | |
| **Lab ID:** C20080962-007BMSD | 7 | Sample Matrix Spike Duplicate | | | | Run: ICP4-C_200824A | | | 08/24/20 16:16 | |
| Beryllium | | 48.1 | mg/L | 0.065 | 95 | 70 | 130 | 1.0 | 20 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

N - Analyte concentration was not sufficiently high to calculate a Relative Percent Difference (RPD) for the serial dilution test

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 09/04/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E200.7 | | | | | | | | | Batch: R261803 | |
| **Lab ID:** C20080962-007BMSD | 7 | Sample Matrix Spike Duplicate | | | | Run: ICP4-C_200824A | | | 08/24/20 16:16 | |
| Calcium | | 5420 | mg/L | 26 | 96 | 70 | 130 | 0.2 | 20 | |
| Iron | | 4060 | mg/L | 6.1 | | 70 | 130 | 8.0 | 20 | A |
| Magnesium | | 9370 | mg/L | 1.3 | 101 | 70 | 130 | 4.0 | 20 | |
| Manganese | | 662 | mg/L | 0.13 | 94 | 70 | 130 | 2.1 | 20 | |
| Potassium | | 6520 | mg/L | 26 | 100 | 70 | 130 | 1.4 | 20 | |
| Sodium | | 21900 | mg/L | 54 | 113 | 70 | 130 | 7.2 | 20 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 09/04/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E200.8 | | | | | | | | | Analytical Run: ICPMS5-C_200824A | |
| **Lab ID:** QCS | 16 | Initial Calibration Verification Standard | | | | | | | 08/25/20 12:12 | |
| Arsenic | | 0.0488 | mg/L | 0.0010 | 98 | 90 | 110 | | | |
| Cadmium | | 0.0251 | mg/L | 0.0010 | 100 | 90 | 110 | | | |
| Chromium | | 0.0483 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Cobalt | | 0.0510 | mg/L | 0.0050 | 102 | 90 | 110 | | | |
| Copper | | 0.0499 | mg/L | 0.0050 | 100 | 90 | 110 | | | |
| Iron | | 0.252 | mg/L | 0.020 | 101 | 90 | 110 | | | |
| Lead | | 0.0480 | mg/L | 0.0010 | 96 | 90 | 110 | | | |
| Molybdenum | | 0.0477 | mg/L | 0.0010 | 95 | 90 | 110 | | | |
| Nickel | | 0.0496 | mg/L | 0.0050 | 99 | 90 | 110 | | | |
| Selenium | | 0.0511 | mg/L | 0.0010 | 102 | 90 | 110 | | | |
| Silver | | 0.0253 | mg/L | 0.0010 | 101 | 90 | 110 | | | |
| Thallium | | 0.0525 | mg/L | 0.00050 | 105 | 90 | 110 | | | |
| Tin | | 0.0484 | mg/L | 0.050 | 97 | 90 | 110 | | | |
| Uranium | | 0.0192 | mg/L | 0.00030 | 96 | 90 | 110 | | | |
| Vanadium | | 0.0479 | mg/L | 0.010 | 96 | 90 | 110 | | | |
| Zinc | | 0.0513 | mg/L | 0.010 | 103 | 90 | 110 | | | |
| **Method:** E200.8 | | | | | | | | | Batch: R261804 | |
| **Lab ID:** LFB | 16 | Laboratory Fortified Blank | | | | Run: ICPMS5-C_200824A | | | 08/24/20 13:36 | |
| Arsenic | | 0.0501 | mg/L | 0.0010 | 100 | 85 | 115 | | | |
| Cadmium | | 0.0492 | mg/L | 0.0010 | 98 | 85 | 115 | | | |
| Chromium | | 0.0506 | mg/L | 0.0050 | 101 | 85 | 115 | | | |
| Cobalt | | 0.0511 | mg/L | 0.0050 | 102 | 85 | 115 | | | |
| Copper | | 0.0502 | mg/L | 0.0050 | 100 | 85 | 115 | | | |
| Iron | | 5.01 | mg/L | 0.020 | 100 | 85 | 115 | | | |
| Lead | | 0.0503 | mg/L | 0.0010 | 101 | 85 | 115 | | | |
| Molybdenum | | 0.0499 | mg/L | 0.0010 | 100 | 85 | 115 | | | |
| Nickel | | 0.0504 | mg/L | 0.0050 | 101 | 85 | 115 | | | |
| Selenium | | 0.0497 | mg/L | 0.0010 | 99 | 85 | 115 | | | |
| Silver | | 0.0202 | mg/L | 0.0010 | 101 | 85 | 115 | | | |
| Thallium | | 0.0502 | mg/L | 0.00050 | 100 | 85 | 115 | | | |
| Tin | | 0.0494 | mg/L | 0.050 | 99 | 85 | 115 | | | |
| Uranium | | 0.0518 | mg/L | 0.00030 | 104 | 85 | 115 | | | |
| Vanadium | | 0.0508 | mg/L | 0.010 | 102 | 85 | 115 | | | |
| Zinc | | 0.0492 | mg/L | 0.010 | 98 | 85 | 115 | | | |
| **Lab ID:** MB-59028 | 16 | Method Blank | | | | Run: ICPMS5-C_200824A | | | 08/25/20 12:32 | |
| Arsenic | | ND | mg/L | 8E-05 | | | | | | |
| Cadmium | | ND | mg/L | 2E-05 | | | | | | |
| Chromium | | ND | mg/L | 8E-05 | | | | | | |
| Cobalt | | ND | mg/L | 5E-05 | | | | | | |
| Copper | | ND | mg/L | 0.0010 | | | | | | |
| Iron | | ND | mg/L | 0.005 | | | | | | |
| Lead | | ND | mg/L | 7E-05 | | | | | | |
| Molybdenum | | ND | mg/L | 0.0001 | | | | | | |
| Nickel | | ND | mg/L | 0.0003 | | | | | | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 09/04/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E200.8 | | | | | | | | | | Batch: R261804 |
| **Lab ID:** MB-59028 | 16 | Method Blank | | | | Run: ICPMS5-C_200824A | | | | 08/25/20 12:32 |
| Selenium | | ND | mg/L | 0.0002 | | | | | | |
| Silver | | ND | mg/L | 2E-05 | | | | | | |
| Thallium | | 9E-05 | mg/L | 5E-05 | | | | | | |
| Tin | | ND | mg/L | 0.0002 | | | | | | |
| Uranium | | ND | mg/L | 3E-05 | | | | | | |
| Vanadium | | ND | mg/L | 0.0007 | | | | | | |
| Zinc | | ND | mg/L | 0.003 | | | | | | |
| **Lab ID:** C20080962-001BMS | 16 | Sample Matrix Spike | | | | Run: ICPMS5-C_200824A | | | | 08/25/20 18:49 |
| Arsenic | | 636 | mg/L | 0.10 | | 70 | 130 | | | A |
| Cadmium | | 56.5 | mg/L | 0.10 | 93 | 70 | 130 | | | |
| Chromium | | 75.6 | mg/L | 0.10 | 95 | 70 | 130 | | | |
| Cobalt | | 103 | mg/L | 0.10 | 88 | 70 | 130 | | | |
| Copper | | 2060 | mg/L | 0.98 | | 70 | 130 | | | AE |
| Iron | | 19500 | mg/L | 4.9 | 81 | 70 | 130 | | | |
| Lead | | 88.3 | mg/L | 0.10 | 92 | 70 | 130 | | | |
| Molybdenum | | 289 | mg/L | 0.11 | | 70 | 130 | | | A |
| Nickel | | 77.4 | mg/L | 0.26 | 95 | 70 | 130 | | | |
| Selenium | | 62.0 | mg/L | 0.22 | 92 | 70 | 130 | | | |
| Silver | | 20.5 | mg/L | 0.041 | 96 | 70 | 130 | | | |
| Thallium | | 41.6 | mg/L | 0.10 | 83 | 70 | 130 | | | |
| Tin | | 51.5 | mg/L | 0.25 | 101 | 70 | 130 | | | |
| Uranium | | 245 | mg/L | 0.10 | 90 | 70 | 130 | | | |
| Vanadium | | 2140 | mg/L | 1.0 | | 70 | 130 | | | AE |
| Zinc | | 410 | mg/L | 2.9 | | 70 | 130 | | | A |
| **Lab ID:** C20080962-001BMSD | 16 | Sample Matrix Spike Duplicate | | | | Run: ICPMS5-C_200824A | | | | 08/25/20 18:55 |
| Arsenic | | 631 | mg/L | 0.10 | | 70 | 130 | 0.8 | 20 | A |
| Cadmium | | 57.8 | mg/L | 0.10 | 96 | 70 | 130 | 2.4 | 20 | |
| Chromium | | 76.1 | mg/L | 0.10 | 97 | 70 | 130 | 0.7 | 20 | |
| Cobalt | | 104 | mg/L | 0.10 | 90 | 70 | 130 | 1.0 | 20 | |
| Copper | | 2050 | mg/L | 0.98 | | 70 | 130 | 0.5 | 20 | AE |
| Iron | | 19400 | mg/L | 4.9 | 78 | 70 | 130 | 0.7 | 20 | |
| Lead | | 89.2 | mg/L | 0.10 | 94 | 70 | 130 | 1.0 | 20 | |
| Molybdenum | | 291 | mg/L | 0.11 | | 70 | 130 | 0.6 | 20 | A |
| Nickel | | 77.3 | mg/L | 0.26 | 94 | 70 | 130 | 0.2 | 20 | |
| Selenium | | 62.7 | mg/L | 0.22 | 93 | 70 | 130 | 1.2 | 20 | |
| Silver | | 21.1 | mg/L | 0.041 | 99 | 70 | 130 | 2.8 | 20 | |
| Thallium | | 43.7 | mg/L | 0.10 | 87 | 70 | 130 | 4.9 | 20 | |
| Tin | | 52.3 | mg/L | 0.25 | 102 | 70 | 130 | 1.5 | 20 | |
| Uranium | | 248 | mg/L | 0.10 | 97 | 70 | 130 | 1.4 | 20 | |
| Vanadium | | 2120 | mg/L | 1.0 | | 70 | 130 | 0.8 | 20 | AE |
| Zinc | | 404 | mg/L | 2.9 | | 70 | 130 | 1.5 | 20 | A |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

E - Estimated value - result exceeds the instrument upper quantitation limit

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 09/04/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | | Analytical Run: ICPMS5-C_200827A | |
| **Lab ID: QCS** | 7 | Initial Calibration Verification Standard | | | | | | | 08/28/20 10:53 | |
| Arsenic | | 0.0497 | mg/L | 0.0010 | 99 | 90 | 110 | | | |
| Cadmium | | 0.0240 | mg/L | 0.0010 | 96 | 90 | 110 | | | |
| Molybdenum | | 0.0469 | mg/L | 0.0010 | 94 | 90 | 110 | | | |
| Selenium | | 0.0526 | mg/L | 0.0010 | 105 | 90 | 110 | | | |
| Silver | | 0.0244 | mg/L | 0.0010 | 98 | 90 | 110 | | | |
| Tin | | 0.0500 | mg/L | 0.050 | 100 | 90 | 110 | | | |
| Zinc | | 0.0525 | mg/L | 0.010 | 105 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | | Batch: R261951 | |
| **Lab ID: LFB** | 7 | Laboratory Fortified Blank | | | | Run: ICPMS5-C_200827A | | | 08/27/20 20:14 | |
| Arsenic | | 0.0525 | mg/L | 0.0010 | 105 | 85 | 115 | | | |
| Cadmium | | 0.0520 | mg/L | 0.0010 | 104 | 85 | 115 | | | |
| Molybdenum | | 0.0536 | mg/L | 0.0010 | 107 | 85 | 115 | | | |
| Selenium | | 0.0518 | mg/L | 0.0010 | 104 | 85 | 115 | | | |
| Silver | | 0.0212 | mg/L | 0.0010 | 106 | 85 | 115 | | | |
| Tin | | 0.0526 | mg/L | 0.050 | 105 | 85 | 115 | | | |
| Zinc | | 0.0529 | mg/L | 0.010 | 106 | 85 | 115 | | | |
| **Lab ID: MB-59028** | 7 | Method Blank | | | | Run: ICPMS5-C_200827A | | | 08/28/20 15:34 | |
| Arsenic | | ND | mg/L | 8E-05 | | | | | | |
| Cadmium | | ND | mg/L | 2E-05 | | | | | | |
| Molybdenum | | ND | mg/L | 0.0001 | | | | | | |
| Selenium | | ND | mg/L | 0.0002 | | | | | | |
| Silver | | ND | mg/L | 2E-05 | | | | | | |
| Tin | | ND | mg/L | 0.0002 | | | | | | |
| Zinc | | ND | mg/L | 0.003 | | | | | | |
| **Lab ID: C20080962-002BMS** | 7 | Sample Matrix Spike | | | | Run: ICPMS5-C_200827A | | | 08/28/20 15:51 | |
| Arsenic | | 26.6 | mg/L | 0.010 | | 70 | 130 | | | A |
| Cadmium | | 10.5 | mg/L | 0.010 | 85 | 70 | 130 | | | |
| Molybdenum | | 7.11 | mg/L | 0.011 | -212 | 70 | 130 | | | S |
| Selenium | | 5.76 | mg/L | 0.022 | 115 | 70 | 130 | | | |
| Silver | | 1.86 | mg/L | 0.0041 | 93 | 70 | 130 | | | |
| Tin | | 5.18 | mg/L | 0.050 | 104 | 70 | 130 | | | |
| Zinc | | 719 | mg/L | 0.29 | | 70 | 130 | | | AE |
| **Lab ID: C20080962-002BMSD** | 7 | Sample Matrix Spike Duplicate | | | | Run: ICPMS5-C_200827A | | | 08/28/20 15:56 | |
| Arsenic | | 27.2 | mg/L | 0.010 | | 70 | 130 | 2.0 | 20 | A |
| Cadmium | | 10.8 | mg/L | 0.010 | 91 | 70 | 130 | 2.9 | 20 | |
| Molybdenum | | 7.26 | mg/L | 0.011 | -209 | 70 | 130 | 2.1 | 20 | S |
| Selenium | | 5.77 | mg/L | 0.022 | 115 | 70 | 130 | 0.2 | 20 | |
| Silver | | 1.89 | mg/L | 0.0041 | 95 | 70 | 130 | 2.1 | 20 | |
| Tin | | 5.02 | mg/L | 0.050 | 100 | 70 | 130 | 3.2 | 20 | |
| Zinc | | 745 | mg/L | 0.29 | | 70 | 130 | 3.6 | 20 | AE |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

A - Analyte level was greater than four times the spike level - in accordance with the method, percent recovery is not calculated

E - Estimated value - result exceeds the instrument upper quantitation limit

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc **Work Order:** C20080962 **Report Date:** 09/04/20

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method:** E200.8 | | | | | | | | | Analytical Run: ICPMS5-C_200901A | |
| **Lab ID:** QCS | 2 | Initial Calibration Verification Standard | | | | | | | 09/01/20 21:36 | |
| Beryllium | | 0.0244 | mg/L | 0.0010 | 98 | 90 | 110 | | | |
| Thallium | | 0.0480 | mg/L | 0.00050 | 96 | 90 | 110 | | | |
| **Method:** E200.8 | | | | | | | | | Batch: R262093 | |
| **Lab ID:** LFB | 2 | Laboratory Fortified Blank | | | | Run: ICPMS5-C_200901A | | | 09/01/20 13:18 | |
| Beryllium | | 0.0485 | mg/L | 0.0010 | 97 | 85 | 115 | | | |
| Thallium | | 0.0479 | mg/L | 0.00050 | 96 | 85 | 115 | | | |
| **Lab ID:** MB-59028 | 2 | Method Blank | | | | Run: ICPMS5-C_200901A | | | 09/01/20 22:15 | |
| Beryllium | | ND | mg/L | 0.0002 | | | | | | |
| Thallium | | ND | mg/L | 5E-05 | | | | | | |
| **Lab ID:** C20080962-001BMS | 2 | Sample Matrix Spike | | | | Run: ICPMS5-C_200901A | | | 09/01/20 22:28 | |
| Beryllium | | 7.04 | mg/L | 0.032 | 57 | 70 | 130 | | | S |
| Thallium | | 5.64 | mg/L | 0.021 | 56 | 70 | 130 | | | S |
| **Lab ID:** C20080962-001BMSD | 2 | Sample Matrix Spike Duplicate | | | | Run: ICPMS5-C_200901A | | | 09/01/20 22:32 | |
| Beryllium | | 6.94 | mg/L | 0.032 | 56 | 70 | 130 | 1.4 | 20 | S |
| Thallium | | 5.59 | mg/L | 0.021 | 56 | 70 | 130 | 1.0 | 20 | S |
| **Method:** E200.8 | | | | | | | | | Analytical Run: ICPMS5-C_200902A | |
| **Lab ID:** QCS | | Initial Calibration Verification Standard | | | | | | | 09/02/20 11:37 | |
| Thallium | | 0.0498 | mg/L | 0.00050 | 100 | 90 | 110 | | | |
| **Method:** E200.8 | | | | | | | | | Batch: R262117 | |
| **Lab ID:** LFB | | Laboratory Fortified Blank | | | | Run: ICPMS5-C_200902A | | | 09/02/20 12:39 | |
| Thallium | | 0.0495 | mg/L | 0.00050 | 99 | 85 | 115 | | | |
| **Lab ID:** MB-59028 | | Method Blank | | | | Run: ICPMS5-C_200902A | | | 09/02/20 14:58 | |
| Thallium | | 6E-05 | mg/L | 5E-05 | | | | | | |
| **Lab ID:** C20080962-001BMS | | Sample Matrix Spike | | | | Run: ICPMS5-C_200902A | | | 09/02/20 15:11 | |
| Thallium | | 18.6 | mg/L | 0.052 | 74 | 70 | 130 | | | |
| **Lab ID:** C20080962-001BMSD | | Sample Matrix Spike Duplicate | | | | Run: ICPMS5-C_200902A | | | 09/02/20 15:15 | |
| Thallium | | 19.6 | mg/L | 0.052 | 78 | 70 | 130 | 5.0 | 20 | |

**Qualifiers:**

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

S - Spike recovery outside of advisory limits

# Work Order Receipt Checklist

## Energy Fuels Resources (USA) Inc C20080962

Login completed by: Tracy L. Baughman
Date Received: 8/21/2020

Reviewed by: Misty Stephens
Received by: kag

Reviewed Date: 8/21/2020
Carrier name: Next Day Air

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on all shipping container(s)/cooler(s)? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on all sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes ☑ | No ☐ | |
| Temp Blank received in all shipping container(s)/cooler(s)? | Yes ☑ | No ☐ | Not Applicable ☐ |
| Container/Temp Blank temperature: | 2.4°C Melted Ice | | |
| Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☑ | Not Applicable ☐ |

### Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

### Contact and Corrective Action Comments:

Dissolved Metals/Hardness were subsampled, filtered and preserved to pH <2 with 2 mL of nitric acid per 250 mL in the laboratory. According to 40CFR136, samples for Dissolved Metals should be filtered and preserved within 15 minutes of collection.

ENERGY LABORATORIES
Trust our People. Trust our Data.

# Chain of Custody & Analytical Request Record

www.energylab.com

Page 1 of 1

## Account Information (Billing information)

| | |
|---|---|
| Company/Name | Energy Fuels |
| Contact | Kathy Weinel |
| Phone | (303) 389-4134 |
| Mailing Address | 225 Union Blvd, Suite 600 |
| City, State, Zip | Lakewood, CO 80228 |
| Email | kweinel@energyfuels.com |
| Receive Invoice | ☐Hard Copy ■Email |
| Receive Report | ☐Hard Copy ■Email |
| Purchase Order | |
| Quote | C5645 |
| Bottle Order | |

## Report Information (if different than Account Information)

| | |
|---|---|
| Company/Name | Energy Fuels |
| Contact | Kathy Weinel |
| Phone | (303) 389-4134 |
| Mailing Address | 225 Union Blvd, Suite 600 |
| City, State, Zip | Lakewood, CO 80228 |
| Email | kweinel@energyfuels.com |
| Receive Report | ☐Hard Copy ☐Email |

Special Report/Formats:
☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other STD EFRI

## Comments

Samples HAVE NOT BEEN FILTERED or PRESERVED

## Project Information

| | |
|---|---|
| Project Name, PWSID, Permit, etc. | Annual Tailings 2020 |
| Sampler Name | Tanner Holliday |
| Sampler Phone | (435) 678-4115 |
| Sample Origin State | Utah |
| EPA/State Compliance | ■ Yes ☐ No |

**URANIUM MINING CLIENTS MUST indicate sample type.**
☐ NOT Source or Byproduct Material
☐ Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING
■ 11e.(2) Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

**Matrix Codes**
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

| | Sample Identification (Name, Location, Interval, etc.) | Collection Date | Collection Time | Number of Containers | Matrix (See Codes Above) | Quote C5645 (NO VOCs OR SVOCs) | See Attached | RUSH TAT | ELI LAB ID (Laboratory Use Only) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Cell 1 | 8/19/20 | 8:30 am | 3 | WW | X | | | C20080962 |
| 2 | Cell 2 Slimes | 8/19/20 | 8:50 am | 3 | WW | X | | | |
| 3 | Cell 4A | 8/19/20 | 9:15 am | 3 | WW | X | | | |
| 4 | Cell 4A LDS | 8/19/20 | 9:35 am | 3 | WW | X | | | |
| 5 | Cell 4B | 8/19/20 | 10:00 am | 3 | WW | X | | | |
| 6 | Cell 4B LDS | 8/19/20 | 9:45 am | 3 | WW | X | | | |
| 7 | Cell 65 | 8/19/20 | 9:15 am | 3 | WW | X | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

| Custody Record MUST be signed | Relinquished by (print) | Date/Time | Signature | Received by (print) | Date/Time | Signature |
|---|---|---|---|---|---|---|
| | Tanner Holliday | 8/20/2020 1100 | Tanner Holliday | | | |
| | Relinquished by (print) | Date/Time | Signature | Received by Laboratory (print) | Date/Time | Signature |
| | | | | Kylie Gilbert | 8/21/2020 1030 | Kylie Gilbert |

**LABORATORY USE ONLY**

| Shipped By | Cooler ID(s) | Custody Seals Y N C B | Intact Y N | Receipt Temp °C | Temp Blank Y N | On Ice Y N | Payment Type CC Cash Check | Amount $ | Receipt Number (cash/check only) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-10/18 v.3

**Quote #: C5645**
**Project Manager: Tessa Parke**
**Expires: 8/11/2020**

# Analytical Quote

TAT: 25 days
QC Level: STD

Energy Fuels Resources (USA) Inc
225 Union Blvd Ste 600
Lakewood, CO 80228-1826

## Project Name: Annual Tailings Program

**Schedule: Annual Tailings Samples**
Matrix: Aqueous
Comments:

| Analyses | Method | Reporting Limit | Analyte Price |
|---|---|---|---|
| **Major Ions** | | | |
| Alkalinity | | | $10.00 |
| Alkalinity, Total as CaCO3 | A2320 B | 5 mg/L | ** |
| Bicarbonate as HCO3 | A2320 B | 5 mg/L | ** |
| Carbonate as CO3 | A2320 B | 5 mg/L | ** |
| ** Included in Alkalinity Price | | | |
| Anions by Ion Chromatography | | | $20.00 |
| Chloride | E300.0 | 1 mg/L | ** |
| Sulfate | E300.0 | 1 mg/L | ** |
| ** Included in Anions by Ion Chromatography Price | | | |
| Fluoride | | | $15.00 |
| Fluoride | A4500-F C | 0.1 mg/L | ** |
| ** Included in Fluoride Price | | | |
| Metals by ICP/ICPMS, Dissolved | | | $220.00 |
| Calcium | E200.7_8 | 1 mg/L | ** |
| Magnesium | E200.7_8 | 1 mg/L | ** |
| Potassium | E200.7_8 | 1 mg/L | ** |
| Sodium | E200.7_8 | 1 mg/L | ** |
| ** Included in Metals by ICP/ICPMS, Dissolved Price | | | |
| **Physical Properties** | | | |
| Conductivity | | | $10.00 |
| Conductivity @ 25 C | A2510 B | 5 umhos/cm | ** |
| ** Included in Conductivity Price | | | |
| pH | | | $10.00 |
| pH | A4500-H B | 0.01 s.u. | ** |

| | | | |
|---|---|---|---|
| pH Measurement Temp | A4500-H B | 0 °C | ** |

** Included in pH Price

| | | | |
|---|---|---|---|
| Solids, Total Dissolved | | | $20.00 |
| Solids, Total Dissolved TDS @ 180 C | A2540 C | 10 mg/L | ** |

** Included in Solids, Total Dissolved Price

## Nutrients

| | | | |
|---|---|---|---|
| Nitrogen, Ammonia | | | $30.00 |
| Nitrogen, Ammonia as N | E350.1 | 0.05 mg/L | ** |

** Included in Nitrogen, Ammonia Price

| | | | |
|---|---|---|---|
| Nitrogen, Nitrate + Nitrite | | | $50.00 |
| Nitrogen, Nitrate+Nitrite as N | E353.2 | 0.01 mg/L | ** |

** Included in Nitrogen, Nitrate + Nitrite Price

## Metals, Dissolved

| | | | |
|---|---|---|---|
| Mercury, Dissolved | | | $25.00 |
| Mercury | E245.1 | 0.0001 mg/L | ** |

** Included in Mercury, Dissolved Price

| | | | |
|---|---|---|---|
| Metals by ICP/ICPMS, Dissolved | | | ~~ |
| Arsenic | E200.7_8 | 1 ug/L | ** |
| Beryllium | E200.7_8 | 1 ug/L | ** |
| Cadmium | E200.7_8 | 1 ug/L | ** |
| Chromium | E200.7_8 | 5 ug/L | ** |
| Cobalt | E200.7_8 | 5 ug/L | ** |
| Copper | E200.7_8 | 5 ug/L | ** |
| Iron | E200.7_8 | 20 ug/L | ** |
| Lead | E200.7_8 | 1 ug/L | ** |
| Manganese | E200.7_8 | 1 ug/L | ** |
| Molybdenum | E200.7_8 | 1 ug/L | ** |
| Nickel | E200.7_8 | 5 ug/L | ** |
| Selenium | E200.7_8 | 1 ug/L | ** |
| Silver | E200.7_8 | 1 ug/L | ** |
| Thallium | E200.7_8 | 0.5 ug/L | ** |
| Tin | E200.7_8 | 50 ug/L | ** |
| Uranium | E200.7_8 | 0.3 ug/L | ** |
| Vanadium | E200.7_8 | 10 ug/L | ** |
| Zinc | E200.7_8 | 10 ug/L | ** |

** Included in Metals by ICP/ICPMS, Dissolved Price

~~ Included in Major Ions Metals by ICP/ICPMS, Dissolved Price

## Data Quality

| | | | |
|---|---|---|---|
| Anion - Cation Balance | A1030 E | -250.01 | $0.00 |
| Solids, Total Dissolved - Calculated | A1030 E | -250.01 mg/L | $0.00 |

## Volatile Organic Compounds

| 8260-Volatile Organic Compounds-Extended List | | | $250.00 |
|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | SW8260B | 1 ug/L | ** |
| 1,1,1-Trichloroethane | SW8260B | 1 ug/L | ** |
| 1,1,2,2-Tetrachloroethane | SW8260B | 1 ug/L | ** |
| 1,1,2-Trichloroethane | SW8260B | 1 ug/L | ** |
| 1,1-Dichloroethane | SW8260B | 1 ug/L | ** |
| 1,1-Dichloroethene | SW8260B | 1 ug/L | ** |
| 1,1-Dichloropropene | SW8260B | 1 ug/L | ** |
| 1,2,3-Trichlorobenzene | SW8260B | 1 ug/L | ** |
| 1,2,3-Trichloropropane | SW8260B | 1 ug/L | ** |
| 1,2,4-Trichlorobenzene | SW8260B | 1 ug/L | ** |
| 1,2,4-Trimethylbenzene | SW8260B | 1 ug/L | ** |
| 1,2-Dibromo-3-chloropropane | SW8260B | 1 ug/L | ** |
| 1,2-Dibromoethane | SW8260B | 1 ug/L | ** |
| 1,2-Dichlorobenzene | SW8260B | 1 ug/L | ** |
| 1,2-Dichloroethane | SW8260B | 1 ug/L | ** |
| 1,2-Dichloropropane | SW8260B | 1 ug/L | ** |
| 1,3,5-Trimethylbenzene | SW8260B | 1 ug/L | ** |
| 1,3-Dichlorobenzene | SW8260B | 1 ug/L | ** |
| 1,3-Dichloropropane | SW8260B | 1 ug/L | ** |
| 1,4-Dichlorobenzene | SW8260B | 1 ug/L | ** |
| 2,2-Dichloropropane | SW8260B | 1 ug/L | ** |
| 2-Chloroethyl vinyl ether | SW8260B | 1 ug/L | ** |
| 2-Chlorotoluene | SW8260B | 1 ug/L | ** |
| 2-Hexanone | SW8260B | 20 ug/L | ** |
| 4-Chlorotoluene | SW8260B | 1 ug/L | ** |
| Acetone | SW8260B | 20 ug/L | ** |
| Acetonitrile | SW8260B | 20 ug/L | ** |
| Acrolein | SW8260B | 20 ug/L | ** |
| Acrylonitrile | SW8260B | 20 ug/L | ** |
| Benzene | SW8260B | 1 ug/L | ** |
| Bromobenzene | SW8260B | 1 ug/L | ** |
| Bromochloromethane | SW8260B | 1 ug/L | ** |
| Bromodichloromethane | SW8260B | 1 ug/L | ** |
| Bromoform | SW8260B | 1 ug/L | ** |
| Bromomethane | SW8260B | 1 ug/L | ** |
| Carbon disulfide | SW8260B | 1 ug/L | ** |
| Carbon tetrachloride | SW8260B | 1 ug/L | ** |
| Chlorobenzene | SW8260B | 1 ug/L | ** |
| Chlorodibromomethane | SW8260B | 1 ug/L | ** |
| Chloroethane | SW8260B | 1 ug/L | ** |
| Chloroform | SW8260B | 1 ug/L | ** |
| Chloromethane | SW8260B | 1 ug/L | ** |
| cis-1,2-Dichloroethene | SW8260B | 1 ug/L | ** |
| cis-1,3-Dichloropropene | SW8260B | 1 ug/L | ** |
| Dibromomethane | SW8260B | 1 ug/L | ** |
| Dichlorodifluoromethane | SW8260B | 1 ug/L | ** |
| Ethylbenzene | SW8260B | 1 ug/L | ** |
| Hexachlorobutadiene | SW8260B | 1 ug/L | ** |
| Iodomethane | SW8260B | 1 ug/L | ** |

| | | | |
|---|---|---|---|
| Isopropylbenzene | SW8260B | 1 ug/L | ** |
| m+p-Xylenes | SW8260B | 1 ug/L | ** |
| Methyl ethyl ketone | SW8260B | 20 ug/L | ** |
| Methyl isobutyl ketone | SW8260B | 20 ug/L | ** |
| Methyl tert-butyl ether (MTBE) | SW8260B | 1 ug/L | ** |
| Methylene chloride | SW8260B | 1 ug/L | ** |
| Naphthalene | SW8260B | 1 ug/L | ** |
| n-Butylbenzene | SW8260B | 1 ug/L | ** |
| n-Propylbenzene | SW8260B | 1 ug/L | ** |
| o-Xylene | SW8260B | 1 ug/L | ** |
| p-Isopropyltoluene | SW8260B | 1 ug/L | ** |
| sec-Butylbenzene | SW8260B | 1 ug/L | ** |
| Styrene | SW8260B | 1 ug/L | ** |
| tert-Butylbenzene | SW8260B | 1 ug/L | ** |
| Tetrachloroethene | SW8260B | 1 ug/L | ** |
| Toluene | SW8260B | 1 ug/L | ** |
| trans-1,2-Dichloroethene | SW8260B | 1 ug/L | ** |
| trans-1,3-Dichloropropene | SW8260B | 1 ug/L | ** |
| Trichloroethene | SW8260B | 1 ug/L | ** |
| Trichlorofluoromethane | SW8260B | 1 ug/L | ** |
| Vinyl acetate | SW8260B | 1 ug/L | ** |
| Vinyl chloride | SW8260B | 1 ug/L | ** |
| Xylenes, Total | SW8260B | 0 ug/L | ** |

** Included in 8260-Volatile Organic Compounds-Extended List Price

| | | | |
|---|---|---|---|
| 8260-Volatile Organic Compounds-Short List | | | $130.00 |
| Tetrahydrofuran | SW8260B | 10 ug/L | ** |

** Included in 8260-Volatile Organic Compounds-Short List Price

[redacted]

| | | | |
|---|---|---|---|
| Semi-Volatile Organic Compounds | | | $350.00 |
| 1,2,4-Trichlorobenzene | SW8270C | 10 ug/L | ** |
| 1,2-Dichlorobenzene | SW8270C | 10 ug/L | ** |
| 1,3-Dichlorobenzene | SW8270C | 10 ug/L | ** |
| 1,4-Dichlorobenzene | SW8270C | 10 ug/L | ** |
| 1-Methylnaphthalene | SW8270C | 10 ug/L | ** |
| 2,4,5-Trichlorophenol | SW8270C | 10 ug/L | ** |
| 2,4,6-Trichlorophenol | SW8270C | 10 ug/L | ** |
| 2,4-Dichlorophenol | SW8270C | 10 ug/L | ** |
| 2,4-Dimethylphenol | SW8270C | 10 ug/L | ** |
| 2,4-Dinitrophenol | SW8270C | 50 ug/L | ** |
| 2,4-Dinitrotoluene | SW8270C | 10 ug/L | ** |
| 2,6-Dinitrotoluene | SW8270C | 10 ug/L | ** |
| 2-Chloronaphthalene | SW8270C | 10 ug/L | ** |
| 2-Chlorophenol | SW8270C | 10 ug/L | ** |
| 2-Methylnaphthalene | SW8270C | 10 ug/L | ** |
| 2-Nitrophenol | SW8270C | 10 ug/L | ** |
| 3,3'-Dichlorobenzidine | SW8270C | 10 ug/L | ** |
| 4,6-Dinitro-2-methylphenol | SW8270C | 50 ug/L | ** |

| | | | |
|---|---|---|---|
| 4-Bromophenyl phenyl ether | SW8270C | 10 ug/L | ** |
| 4-Chloro-3-methylphenol | SW8270C | 10 ug/L | ** |
| 4-Chlorophenol | SW8270C | 10 ug/L | ** |
| 4-Chlorophenyl phenyl ether | SW8270C | 10 ug/L | ** |
| 4-Nitrophenol | SW8270C | 50 ug/L | ** |
| Acenaphthene | SW8270C | 10 ug/L | ** |
| Acenaphthylene | SW8270C | 10 ug/L | ** |
| Anthracene | SW8270C | 10 ug/L | ** |
| Azobenzene | SW8270C | 10 ug/L | ** |
| Benzidine | SW8270C | 10 ug/L | ** |
| Benzo(a)anthracene | SW8270C | 10 ug/L | ** |
| Benzo(a)pyrene | SW8270C | 10 ug/L | ** |
| Benzo(b)fluoranthene | SW8270C | 10 ug/L | ** |
| Benzo(g,h,i)perylene | SW8270C | 10 ug/L | ** |
| Benzo(k)fluoranthene | SW8270C | 10 ug/L | ** |
| bis(-2-chloroethoxy)Methane | SW8270C | 10 ug/L | ** |
| bis(-2-chloroethyl)Ether | SW8270C | 10 ug/L | ** |
| bis(2-chloroisopropyl)Ether | SW8270C | 10 ug/L | ** |
| bis(2-ethylhexyl)Phthalate | SW8270C | 10 ug/L | ** |
| Butylbenzylphthalate | SW8270C | 10 ug/L | ** |
| Chrysene | SW8270C | 10 ug/L | ** |
| Dibenzo(a,h)anthracene | SW8270C | 10 ug/L | ** |
| Diethyl phthalate | SW8270C | 10 ug/L | ** |
| Dimethyl phthalate | SW8270C | 10 ug/L | ** |
| Di-n-butyl phthalate | SW8270C | 10 ug/L | ** |
| Di-n-octyl phthalate | SW8270C | 10 ug/L | ** |
| Fluoranthene | SW8270C | 10 ug/L | ** |
| Fluorene | SW8270C | 10 ug/L | ** |
| Hexachlorobenzene | SW8270C | 10 ug/L | ** |
| Hexachlorobutadiene | SW8270C | 10 ug/L | ** |
| Hexachlorocyclopentadiene | SW8270C | 10 ug/L | ** |
| Hexachloroethane | SW8270C | 10 ug/L | ** |
| Indeno(1,2,3-cd)pyrene | SW8270C | 10 ug/L | ** |
| Isophorone | SW8270C | 10 ug/L | ** |
| m+p-Cresols | SW8270C | 10 ug/L | ** |
| Naphthalene | SW8270C | 10 ug/L | ** |
| Nitrobenzene | SW8270C | 10 ug/L | ** |
| n-Nitrosodimethylamine | SW8270C | 10 ug/L | ** |
| n-Nitroso-di-n-propylamine | SW8270C | 10 ug/L | ** |
| n-Nitrosodiphenylamine | SW8270C | 10 ug/L | ** |
| o-Cresol | SW8270C | 10 ug/L | ** |
| Pentachlorophenol | SW8270C | 50 ug/L | ** |
| Phenanthrene | SW8270C | 10 ug/L | ** |
| Phenol | SW8270C | 10 ug/L | ** |
| Pyrene | SW8270C | 10 ug/L | ** |
| Pyridine | SW8270C | 10 ug/L | ** |

** Included in Semi-Volatile Organic Compounds Price

**Preps For Annual Tailings Samples**

| | | |
|---|---|---|
| Digestion, Mercury by CVAA | E245.1 | $0.00 |
| Sample Filtering, Metals | - | $20.00 |
| Separatory Funnel Liquid-Liquid Ext. | SW3510C | $0.00 |

Schedule Price/Sample: $1160.00

| [redacted] | [redacted] |
|---|---|
| Annual Tailings Samples | $1160.00 |

| | |
|---|---|
| Quote Sub Total: | $1160.00 |
| Discount: | 0.00% |
| Misc Charges: | $0.00 |
| Quote Total: | $1160.00 |

Comments: As of January 1st, 2012 ELI will begin charging a $2.00 per sample surcharge for sample management. This fee will be applied to all solid and aqueous samples.

Quoted prices are based on net 30 days payment of invoices. Discounts will not apply if terms are not met.

Quoted prices reflect standard turn around time of ~25 working days. Additional charges may apply for accelerated TAT. Please advise ELI as to your project specific requirements.

SUBCONTRACT LABORATORY ANALYSIS
Any discounts would not apply for analysis that is subcontracted to a laboratory outside of an Energy Laboratories, Inc. facility. Subcontract laboratory prices are subject to change without prior notification.

URANIUM MINE SAMPLES
Any 11e(2) or source material samples are subject to a sample management/handling fee of $50 per work order.

SAMPLE CLEAN UP
Additional charges will apply for any sample with atypical clean up. This will include, but is not limited to additional filters and/or increased analyst time.

Shipping charges are subject to change based off current UPS prices.

**To assure that the quoted analysis and pricing specifications are provided, please include the Quote ID number referenced above on the Chain of Custody or sample submittal documents.**

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

September 30, 2020

Ms. Kathy Weinel
Energy Fuels Resources (USA), Inc.
225 Union Boulevard
Suite 600
Lakewood, Colorado 80228

Re: Tailings 2020 Characterization
Work Order: 519405

Dear Ms. Weinel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 21, 2020. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. This package was revised to include additional SVOC compounds.

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. 4289.

Sincerely,

Julie Robinson

Julie Robinson
Project Manager

Purchase Order: DW16138
Enclosures

**Energy Fuels Resources (USA), Inc.**
**Tailings 2020 Characterization**
**SDG: 519405**

This package was revised to include additional SVOC compounds.

**Receipt Narrative**
**for**
**Energy Fuels Resources (USA), Inc.**
**SDG: 519405**

**September 30, 2020**

**Laboratory Identification:**

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

**Summary:**

**Sample receipt:** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 21, 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.

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

| Laboratory ID | Client ID |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |
| 519405008 | Trip Blank |

**Case Narrative:**

Sample analyses were conducted using methodology as outlined in GEL's 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.

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile, GC/MS Volatile, General Chemistry and Radiochemistry.

Julie Robinson

Julie Robinson
Project Manager

Sheet 1 of 1

519405

# CHAIN OF CUSTODY

**Samples Shipped to:** Gel Laboratories
2040 Savage Road
Charleston, SC 29407

Contact: Tanner Holliday
Ph: 435 678 4115
tholliday@energyfuels.com

| Project | Samplers Name | Samplers Signature |
|---|---|---|
| Annual Tailings 2020 | Tanner Holliday | Tanner Holliday |

| Sample ID | Date Collected | Time Collected | Laboratory Analysis Requested |
|---|---|---|---|
| Cell 1 | 8/19/2020 | 830 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| Cell 2 Slimes | 8/19/2020 | 850 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| Cell 4A | 8/19/2020 | 915 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| Cell 4A LDS | 8/19/2020 | 935 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| Cell 4B | 8/19/2020 | 1000 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| Cell 4B LDS | 8/19/2020 | 945 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| Cell 65 | 8/19/2020 | 915 | Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity, VOCs, SVOCs |
| | | | |
| | | | |
| Specific gravity is to be run on UNFILTERED sample aliquot | | | |
| | | | |
| | | | |
| | | | |

Comments: SAMPLES ARE NOT FIELD FILTERED - PLEASE FILTER UPON RECEIPT! SAMPLES ARE NOT PRESERVED - pH is as collected! See Julie Robinson for technical questions. No LOCUS UPLOAD. *Methods used = same as 488668*

| Relinquished By:(Signature) | Date/Time | Received By:(Signature) | Date/Time |
|---|---|---|---|
| Tanner Holliday | 8/20/2020 1100 | | 8/21/20 950 |
| Relinquished By:(Signature) | Date/Time | Received By:(Signature) | Date/Time |
| | | | |

GEL Laboratories LLC

# SAMPLE RECEIPT & REVIEW FORM

| | |
|---|---|
| Client: DNMI | SDG/AR/COC/Work Order: 519405 |
| Received By: Stacy Boone | Date Received: August 21, 2020 |
| Carrier and Tracking Number | Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other<br>1Z 187 Y4Y 01 9546 6372 - 3c<br>1Z 187 Y4Y 01 9710 4982 - 3c |

| 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#:<br>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<br>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.<br>PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: |

| | Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
|---|---|---|---|---|---|
| 1 | Shipping containers received intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 | Chain of custody documents included with shipment? | ✓ | | | Circle Applicable: Client contacted and provided COC COC created upon receipt |
| 3 | Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | ✓ | | | Preservation Method: Wet Ice Ice Packs Dry ice None Other:<br>*all temperatures are recorded in Celsius TEMP:_____ |
| 4 | Daily check performed and passed on IR temperature gun? | ✓ | | | Temperature Device Serial #: IR1-20<br>Secondary Temperature Device Serial # (If Applicable): |
| 5 | Sample containers intact and sealed? | ✓ | | | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 6 | Samples requiring chemical preservation at proper pH? | ✓ | | | Sample ID's and Containers Affected:<br>If Preservation added, Lot#: |
| 7 | Do any samples require Volatile Analysis? | ✓ | | | If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer)<br>Do liquid VOA vials contain acid preservation? Yes___ No✓ NA___(If unknown, select No)<br>Are liquid VOA vials free of headspace? Yes✓ No___ NA___<br>Sample ID's and containers affected: |
| 8 | Samples received within holding time? | ✓ | | | ID's and tests affected: |
| 9 | Sample ID's on COC match ID's on bottles? | ✓ | | | ID's and containers affected: |
| 10 | Date & time on COC match date & time on bottles? | ✓ | | | 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? | ✓ | | | Circle Applicable: No container count on COC Other (describe) |
| 12 | Are sample containers identifiable as GEL provided by use of GEL labels? | ✓ | | | |
| 13 | COC form is properly signed in relinquished/received sections? | ✓ | | | Circle Applicable: Not relinquished Other (describe) |

Comments (Use Continuation Form if needed):

1Z 187 Y4Y 01 9257 4608 - 21c

PM (or PMA) review: Initials NRG Date 8/24/20 Page 1 of 1

GL-CHL-SR-001 Rev 7

# GEL Laboratories LLC – Login Review Report



**GEL Work Order/SDG:** 519405 Annual Tailings 2020
**Client SDG:** 519405
**Project Manager:** Julie Robinson
**Project Name:** DNMI00107 Tailings 2020 Characterization
**Purchase Order:** DW16138
**Package Level:** LEVEL3
**EDD Format:** EIM_DNMI

**Work Order Due Date:** 21-SEP-20
**Package Due Date:** 18-SEP-20
**EDD Due Date:** 21-SEP-20
**Due Date:** 21-SEP-20
JAR1

**Collector:** C
**Prelogin #:** 202008114643
**Project Workdef ID:** 1330584
**SDG Status:** Closed
**Logged by:**

| GEL ID | Client Sample ID | Client Sample Desc. | Collect Date & Time | Receive Date & Time | Time Zone | # of Cont. | Lab Matrix | Fax Due Date | Days to Process | CofC # | Prelog Group | Lab QC | Field QC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 519405001 | Cell 1 | | 19-AUG-20 08:30 | 21-AUG-20 09:50 | -2 | 7 | WATER | | 20 | | 1 | | |
| 519405002 | Cell 2 Slimes | | 19-AUG-20 08:50 | 21-AUG-20 09:50 | -2 | 6 | WATER | | 20 | | 1 | | |
| 519405003 | Cell 4A | | 19-AUG-20 09:15 | 21-AUG-20 09:50 | -2 | 7 | WATER | | 20 | | 1 | | |
| 519405004 | Cell 4A LDS | | 19-AUG-20 09:35 | 21-AUG-20 09:50 | -2 | 7 | WATER | | 20 | | 1 | | |
| 519405005 | Cell 4B | | 19-AUG-20 10:00 | 21-AUG-20 09:50 | -2 | 7 | WATER | | 20 | | 1 | | |
| 519405006 | Cell 4B LDS | | 19-AUG-20 09:45 | 21-AUG-20 09:50 | -2 | 7 | WATER | | 20 | | 1 | | |
| 519405007 | Cell 65 | | 19-AUG-20 09:15 | 21-AUG-20 09:50 | -2 | 7 | WATER | | 20 | | 1 | | |
| 519405008 | Trip Blank | | 19-AUG-20 08:30 | 21-AUG-20 09:50 | -2 | 3 | WATER | | 20 | | 2 | | Y |

| Client Sample ID | Status | Tests/Methods | Product Reference | Fax Date | PM Comments | Aux Data | Receive Codes |
|---|---|---|---|---|---|---|---|
| -001 Cell 1 | REVW | ASTM D 5057 Specific Gravity | | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | | | |
| | REVW | Alphaspec Th, Liquid | | | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | | | |
| | REVW | Lucas Cell, Ra226, liquid | | | | | |
| | REVW | Laboratory Composite | RAD2 | | | | |
| | REVW | SW846 8260B Volatiles | | | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | | | |
| -002 Cell 2 Slimes | REVW | ASTM D 5057 Specific Gravity | | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | | | |
| | REVW | Alphaspec Th, Liquid | | | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | | | |
| | REVW | Lucas Cell, Ra226, liquid | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | REVW | Laboratory Composite | RAD2 | | |
| | REVW | SW846 8260B Volatiles | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | |
| -003 Cell 4A | REVW | ASTM D 5057 Specific Gravity | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | |
| | REVW | Alphaspec Th, Liquid | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | |
| | REVW | Lucas Cell, Ra226, liquid | | | |
| | REVW | Laboratory Composite | RAD2 | | |
| | REVW | SW846 8260B Volatiles | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | |
| -004 Cell 4A LDS | REVW | ASTM D 5057 Specific Gravity | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | |
| | REVW | Alphaspec Th, Liquid | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | |
| | REVW | Lucas Cell, Ra226, liquid | | | |
| | REVW | Laboratory Composite | RAD2 | | |
| | REVW | SW846 8260B Volatiles | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | |
| -005 Cell 4B | REVW | ASTM D 5057 Specific Gravity | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | |
| | REVW | Alphaspec Th, Liquid | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | |
| | REVW | Lucas Cell, Ra226, liquid | | | |
| | REVW | Laboratory Composite | RAD2 | | |
| | REVW | SW846 8260B Volatiles | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | |

| | | | | | |
|---|---|---|---|---|---|
| -006 Cell 4B LDS | REVW | ASTM D 5057 Specific Gravity | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | |
| | REVW | Alphaspec Th, Liquid | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | |
| | REVW | Lucas Cell, Ra226, liquid | | | |
| | REVW | Laboratory Composite | RAD2 | | |
| | REVW | SW846 8260B Volatiles | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | |
| -007 Cell 65 | REVW | ASTM D 5057 Specific Gravity | | Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse | RAD2 |
| | REVW | Rad 2 Aliquot for distribution throughout the lab | | | |
| | REVW | Alphaspec Th, Liquid | | | |
| | REVW | U- 233/234,U-235/236 and U-238 | U-233/234,U-235/236 | | |
| | REVW | GFPC,Total Alpha Radium, Liquid | Gross Alpha | | |
| | REVW | Lucas Cell, Ra226, liquid | | | |
| | REVW | Laboratory Composite | RAD2 | | |
| | REVW | SW846 8260B Volatiles | | | |
| | REVW | BNA Tentatively Identified Compound (TIC) Search | | | |
| | REVW | SW846 3510C/8270D SVOA (Separatory Funnel) | | | |
| -008 Trip Blank | REVW | SW846 8260B Volatiles | | | |

**Product:** MSDTIC_L **Workdef ID:** 1508377 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** **Path:** 8270D

**Product Description:** BNA Tentatively Identified Compound (TIC) Search **Product Reference:**

**Samples:** 001, 002, 003, 004, 005, 006, 007 **Moisture Correction:** "As Received"

**Parmname Check:** All parmnames scheduled properly

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| | TIC | | ug/L | IS | Y | Y | No |

**Product:** ASP__THL **Workdef ID:** 1371096 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** DOE EML HASL-300, Th-01-RC Modified
**Product Description:** Alphaspec Th, Liquid
**Samples:** 001, 002, 003, 004, 005, 006, 007
**Parmname Check:** All parmnames scheduled properly

**Path:** High Rad
**Product Reference:**
**Moisture Correction:** "As Received"

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| 14274-82-9 | Thorium-228 | 1 | pCi/L | REG | Y | Y | No |
| 14269-63-7 | Thorium-230 | 1 | pCi/L | REG | Y | Y | |
| 7440-29-1 | Thorium-232 | 1 | pCi/L | REG | Y | Y | |

**Product:** ASP__UUL **Workdef ID:** 1371097 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** DOE EML HASL-300, U-02-RC Modified
**Product Description:** U- 233/234,U-235/236 and U-238
**Samples:** 001, 002, 003, 004, 005, 006, 007
**Parmname Check:** All parmnames scheduled properly

**Path:** High Rad
**Product Reference:** U-233/234,U-235/236
**Moisture Correction:** "As Received"

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| 13968-55-3/13966- | Uranium-233/234 | 1 | pCi/L | REG | Y | Y | No |
| 15117-96-1/13982- | Uranium-235/236 | 1 | pCi/L | REG | Y | Y | |
| 7440-61-1 | Uranium-238 | 1 | pCi/L | REG | Y | Y | |

**Product:** GFCTORAL **Workdef ID:** 1371098 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** EPA 903.0
**Product Description:** GFPC,Total Alpha Radium, Liquid
**Samples:** 001, 002, 003, 004, 005, 006, 007
**Parmname Check:** All parmnames scheduled properly

**Path:** High Rad
**Product Reference:** Gross Alpha
**Moisture Correction:** "As Received"

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| | Gross Radium Alpha | 1 | pCi/L | REG | Y | Y | No |

**Product:** LUC26RAL **Workdef ID:** 1371099 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** EPA 903.1 Modified
**Product Description:** Lucas Cell, Ra226, liquid
**Samples:** 001, 002, 003, 004, 005, 006, 007
**Parmname Check:** All parmnames scheduled properly

**Path:** High Rad
**Product Reference:**
**Moisture Correction:** "As Received"

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| 13982-63-3 | Radium-226 | 1 | pCi/L | REG | Y | Y | No |

**Product:** LABCOMP_L **Workdef ID:** 1371213 **In Product Group?** No **Group Name:** **Group Reference:**
**Method:** **Path:** High Rad
**Product Description:** Laboratory Composite **Product Reference:** RAD2
**Samples:** 001, 002, 003, 004, 005, 006, 007 **Moisture Correction:** "As Received"
**Parmname Check:** All parmnames scheduled properly

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| | | | | | | | No |

**Product:** MSD10C70DL **Workdef ID:** 1508378 **In Product Group?** No **Group Name:** **Group Reference:**
**Method:** SW846 3510C/8270D **Path:** SW846 3510C/8270D
**Product Description:** SW846 3510C/8270D SVOA (Separatory Funnel) **Product Reference:**
**Samples:** 001, 002, 003, 004, 005, 006, 007 **Moisture Correction:** "As Received"
**Parmname Check:** All parmnames scheduled properly

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 ug/L | ug/L | REG | Y | Y | No |
| 95-50-1 | 1,2-Dichlorobenzene | 10 ug/L | ug/L | REG | Y | Y | |
| 122-66-7 | 1,2-Diphenylhydrazine | 10 ug/L | ug/L | REG | Y | Y | |
| 541-73-1 | 1,3-Dichlorobenzene | 10 ug/L | ug/L | REG | Y | Y | |
| 106-46-7 | 1,4-Dichlorobenzene | 10 ug/L | ug/L | REG | Y | Y | |
| 3855-82-1 | 1,4-Dichlorobenzene-d4 | | ug/L | IS | Y | Y | |
| 90-12-0 | 1-Methylnaphthalene | 1 ug/L | ug/L | REG | Y | Y | |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 ug/L | ug/L | REG | Y | Y | |
| 118-79-6 | 2,4,6-Tribromophenol | 10 ug/L | ug/L | SURR | Y | Y | |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 ug/L | ug/L | REG | Y | Y | |
| 120-83-2 | 2,4-Dichlorophenol | 10 ug/L | ug/L | REG | Y | Y | |
| 105-67-9 | 2,4-Dimethylphenol | 10 ug/L | ug/L | REG | Y | Y | |
| 51-28-5 | 2,4-Dinitrophenol | 20 ug/L | ug/L | REG | Y | Y | |
| 121-14-2 | 2,4-Dinitrotoluene | 10 ug/L | ug/L | REG | Y | Y | |
| 606-20-2 | 2,6-Dinitrotoluene | 10 ug/L | ug/L | REG | Y | Y | |
| 91-58-7 | 2-Chloronaphthalene | 1 ug/L | ug/L | REG | Y | Y | |
| 95-57-8 | 2-Chlorophenol | 10 ug/L | ug/L | REG | Y | Y | |
| 321-60-8 | 2-Fluorobiphenyl | 10 ug/L | ug/L | SURR | Y | Y | |
| 367-12-4 | 2-Fluorophenol | 10 ug/L | ug/L | SURR | Y | Y | |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | 10 ug/L | ug/L | REG | Y | Y | |
| 91-57-6 | 2-Methylnaphthalene | 1 ug/L | ug/L | REG | Y | Y | |
| 88-75-5 | 2-Nitrophenol | 10 ug/L | ug/L | REG | Y | Y | |
| 119-93-7 | 3,3'-Dimethylbenzidine | 10 ug/L | ug/L | REG | Y | Y | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 101-55-3 | 4-Bromophenylphenylether | 10 ug/L | ug/L | REG | Y | Y |
| 59-50-7 | 4-Chloro-3-methylphenol | 10 ug/L | ug/L | REG | Y | Y |
| 7005-72-3 | 4-Chlorophenylphenylether | 10 ug/L | ug/L | REG | Y | Y |
| 100-02-7 | 4-Nitrophenol | 10 ug/L | ug/L | REG | Y | Y |
| 83-32-9 | Acenaphthene | 1 ug/L | ug/L | REG | Y | Y |
| 15067-26-2 | Acenaphthene-d10 | | ug/L | IS | Y | Y |
| 208-96-8 | Acenaphthylene | 1 ug/L | ug/L | REG | Y | Y |
| 120-12-7 | Anthracene | 1 ug/L | ug/L | REG | Y | Y |
| 92-87-5 | Benzidine | 10 ug/L | ug/L | REG | Y | Y |
| 56-55-3 | Benzo(a)anthracene | 1 ug/L | ug/L | REG | Y | Y |
| 50-32-8 | Benzo(a)pyrene | 1 ug/L | ug/L | REG | Y | Y |
| 205-99-2 | Benzo(b)fluoranthene | 1 ug/L | ug/L | REG | Y | Y |
| 191-24-2 | Benzo(ghi)perylene | 1 ug/L | ug/L | REG | Y | Y |
| 207-08-9 | Benzo(k)fluoranthene | 1 ug/L | ug/L | REG | Y | Y |
| 85-68-7 | Butylbenzylphthalate | 10 ug/L | ug/L | REG | Y | Y |
| 218-01-9 | Chrysene | 1 ug/L | ug/L | REG | Y | Y |
| 1719-03-5 | Chrysene-d12 | | ug/L | IS | Y | Y |
| 84-74-2 | Di-n-butylphthalate | 10 ug/L | ug/L | REG | Y | Y |
| 117-84-0 | Di-n-octylphthalate | 10 ug/L | ug/L | REG | Y | Y |
| 53-70-3 | Dibenzo(a,h)anthracene | 1 ug/L | ug/L | REG | Y | Y |
| 84-66-2 | Diethylphthalate | 10 ug/L | ug/L | REG | Y | Y |
| 131-11-3 | Dimethylphthalate | 10 ug/L | ug/L | REG | Y | Y |
| 122-39-4 | Diphenylamine | 10 ug/L | ug/L | REG | Y | Y |
| 206-44-0 | Fluoranthene | 1 ug/L | ug/L | REG | Y | Y |
| 86-73-7 | Fluorene | 1 ug/L | ug/L | REG | Y | Y |
| 118-74-1 | Hexachlorobenzene | 10 ug/L | ug/L | REG | Y | Y |
| 87-68-3 | Hexachlorobutadiene | 10 ug/L | ug/L | REG | Y | Y |
| 77-47-4 | Hexachlorocyclopentadiene | 10 ug/L | ug/L | REG | Y | Y |
| 67-72-1 | Hexachloroethane | 10 ug/L | ug/L | REG | Y | Y |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 1 ug/L | ug/L | REG | Y | Y |
| 78-59-1 | Isophorone | 10 ug/L | ug/L | REG | Y | Y |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | 10 ug/L | ug/L | REG | Y | Y |
| 621-64-7 | N-Nitrosodipropylamine | 10 ug/L | ug/L | REG | Y | Y |
| 91-20-3 | Naphthalene | 1 ug/L | ug/L | REG | Y | Y |
| 1146-65-2 | Naphthalene-d8 | | ug/L | IS | Y | Y |
| 98-95-3 | Nitrobenzene | 10 ug/L | ug/L | REG | Y | Y |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 10 ug/L | ug/L | SURR | Y | Y |
| 87-86-5 | Pentachlorophenol | 10 ug/L | ug/L | REG | Y | Y |
| 1520-96-3 | Perylene-d12 | | ug/L | IS | Y | Y |
| 85-01-8 | Phenanthrene | 1 ug/L | ug/L | REG | Y | Y |
| 1517-22-2 | Phenanthrene-d10 | | ug/L | IS | Y | Y |
| 108-95-2 | Phenol | 10 ug/L | ug/L | REG | Y | Y |
| 4165-62-2 | Phenol-d5 | 10 ug/L | ug/L | SURR | Y | Y |
| 129-00-0 | Pyrene | 1 ug/L | ug/L | REG | Y | Y |
| 110-86-1 | Pyridine | 10 ug/L | ug/L | REG | Y | Y |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | 10 ug/L | ug/L | REG | Y | Y |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10 ug/L | ug/L | REG | Y | Y |
| 111-44-4 | bis(2-Chloroethyl) ether | 10 ug/L | ug/L | REG | Y | Y |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 1 ug/L | ug/L | REG | Y | Y |
| 65794-96-9 | m,p-Cresols | 10 ug/L | ug/L | REG | Y | Y |
| 95-48-7 | o-Cresol | 10 ug/L | ug/L | REG | Y | Y |
| 1718-51-0 | p-Terphenyl-d14 | 10 ug/L | ug/L | SURR | Y | Y |

**Product:** MISSGAS_L **Workdef ID:** 1370067 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** ASTM D 5057
**Product Description:** ASTM D 5057 Specific Gravity
**Samples:** 001, 002, 003, 004, 005, 006, 007
**Parmname Check:** All parmnames scheduled properly

**Path:** Standard
**Product Reference:**
**Moisture Correction:** "As Received"

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| | Specific Gravity | .1 none | none | REG | Y | Y | No |

**Product:** RADALQT_L **Workdef ID:** 1371095 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:**
**Product Description:** Rad 2 Aliquot for distribution throughout the lab
**Samples:** 001, 002, 003, 004, 005, 006, 007
**Parmname Check:** All parmnames scheduled properly

**Path:** Standard
**Product Reference:**
**Moisture Correction:** "As Received"

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| | | | | | | | No |

# GEL Laboratories LLC – Login Review Report



**Product:** VOA8260BL **Workdef ID:** 1508375 **In Product Group?** No **Group Name:** **Group Reference:**

**Method:** SW846 8260B
**Path:** Unpreserved
**Product Description:** SW846 8260B Volatiles
**Product Reference:**
**Samples:** 001, 002, 003, 004, 005, 006, 007, 008
**Moisture Correction:** "As Received"
**Parmname Check:** All parmnames scheduled properly

| CAS # | Parmname | Client RDL or PQL & Unit | Reporting Units | Parm Function | Included in Sample? | Included in QC? | Custom List? |
|---|---|---|---|---|---|---|---|
| 17060-07-0 | 1,2-Dichloroethane-d4 | 50 ug/L | ug/L | SURR | Y | Y | No |
| 3855-82-1 | 1,4-Dichlorobenzene-d4 | | ug/L | IS | Y | Y | |
| 78-93-3 | 2-Butanone | 4000 | ug/L | REG | Y | Y | |
| 67-64-1 | Acetone | 700 | ug/L | REG | Y | Y | |
| 71-43-2 | Benzene | 5 | ug/L | REG | Y | Y | |
| 460-00-4 | Bromofluorobenzene | 50 ug/L | ug/L | SURR | Y | Y | |
| 56-23-5 | Carbon tetrachloride | 5 | ug/L | REG | Y | Y | |
| 3114-55-4 | Chlorobenzene-d5 | | ug/L | IS | Y | Y | |
| 67-66-3 | Chloroform | 70 | ug/L | REG | Y | Y | |
| 74-87-3 | Chloromethane | 30 | ug/L | REG | Y | Y | |
| 462-06-6 | Fluorobenzene | | ug/L | IS | Y | Y | |
| 75-09-2 | Methylene chloride | 5 | ug/L | REG | Y | Y | |
| 91-20-3 | Naphthalene | 100 | ug/L | REG | Y | Y | |
| 109-99-9 | Tetrahydrofuran | 46 | ug/L | REG | Y | Y | |
| 108-88-3 | Toluene | 1000 | ug/L | REG | Y | Y | |
| 2037-26-5 | Toluene-d8 | 50 ug/L | ug/L | SURR | Y | Y | |
| 1330-20-7 | Xylenes (total) | 10000 | ug/L | REG | Y | Y | |

**Contingent Tests**

| Action | Product Name | Description | Samples |
|---|---|---|---|

**Login Requirements:**

| Requirement | Include? | Comments |
|---|---|---|

Peer Review by:_____ Work Order (SDG#), PO# Checked?_____ C of C signed in receiver location? _____

**List of current GEL Certifications as of 30 September 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 | SC000122020-1 |
| 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 | SC000122020-32 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |

**GC/MS Volatile**
**Technical Case Narrative**
**Energy Fuels Resources**
**SDG #: 519405**

**Product:** **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
**Analytical Method:** SW846 8260B
**Analytical Procedure:** GL-OA-E-038 REV# 28
**Analytical Batch:** 2033589

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |
| 519405008 | Trip Blank |
| 1204627897 | Method Blank (MB) |
| 1204627898 | Laboratory Control Sample (LCS) |
| 1204627899 | 518889001(NonSDG) Post Spike (PS) |
| 1204627900 | 518889001(NonSDG) Post Spike Duplicate (PSD) |
| 1204631025 | Method Blank (MB) |
| 1204631026 | Laboratory Control Sample (LCS) |
| 1204631037 | Method Blank (MB) |
| 1204631038 | Laboratory Control Sample (LCS) |

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

**Data Summary:**

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

**Technical Information**

**Sample Dilutions/Methanol Dilutions**
Samples 519405002 (Cell 2 Slimes) and 519405004 (Cell 4A LDS) in this SDG were analyzed at a dilution. The samples were not analyzed at a lower dilution. There were positive results for target analytes within the middle to upper range of the calibration curve.

| Analyte | 519405 | |
|---|---|---|
| | 002 | 004 |
| 1,4-Dichlorobenzene-d4 | 5X | 5X |
| 2-Butanone | 5X | 5X |
| Acetone | 5X | 5X |
| Benzene | 5X | 5X |
| Carbon tetrachloride | 5X | 5X |
| Chlorobenzene-d5 | 5X | 5X |

| | | |
|---|---|---|
| Chloroform | 5X | 5X |
| Chloromethane | 5X | 5X |
| Fluorobenzene | 5X | 5X |
| Methylene chloride | 5X | 5X |
| Naphthalene | 5X | 5X |
| Tetrahydrofuran | 5X | 5X |
| Toluene | 5X | 5X |
| Xylenes (total) | 5X | 5X |

**Sample Re-extraction/Re-analysis**
Samples 519405001 (Cell 1), 519405003 (Cell 4A), 519405005 (Cell 4B), 519405006 (Cell 4B LDS) and 519405007 (Cell 65) were re-analyzed and reported because they were over diluted in the initial analysis.

**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

DNMI001 Energy Fuels Resources (USA), Inc.

Client SDG: 519405 GEL Work Order: 519405

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

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the CRDL.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

**Review/Validation**

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

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

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

**Date: 15 SEP 2020** **Title: Data Validator**

# QC Summary

Report Date: September 14, 2020



Energy Fuels Resources (USA), Inc.
225 Union Boulevard
Suite 600
Lakewood, Colorado

**Contact:** Ms. Kathy Weinel

**Workorder:** 519405

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | | |
| QC1204627898 LCS | | | | | | | | | | | |
| 2-Butanone | 250 | | | 212 | ug/L | | 85 | (55%-141%) | MXL2 | 08/25/20 | 09:3 |
| Acetone | 250 | | | 222 | ug/L | | 89 | (43%-164%) | | | |
| Benzene | 50.0 | | | 45.1 | ug/L | | 90 | (73%-120%) | | | |
| Carbon tetrachloride | 50.0 | | | 44.8 | ug/L | | 90 | (74%-145%) | | | |
| Chloroform | 50.0 | | | 46.8 | ug/L | | 94 | (76%-126%) | | | |
| Chloromethane | 50.0 | | | 41.1 | ug/L | | 82 | (62%-131%) | | | |
| Methylene chloride | 50.0 | | | 43.5 | ug/L | | 87 | (68%-123%) | | | |
| Naphthalene | 50.0 | | | 51.9 | ug/L | | 104 | (71%-132%) | | | |
| Toluene | 50.0 | | | 44.4 | ug/L | | 89 | (74%-120%) | | | |
| Xylenes (total) | 150 | | | 137 | ug/L | | 91 | (66%-128%) | | | |
| 1,2-Dichloroethane-d4 | 50.0 | | | 47.7 | ug/L | | 95 | (71%-134%) | | | |
| Bromofluorobenzene | 50.0 | | | 47.3 | ug/L | | 95 | (70%-131%) | | | |
| Toluene-d8 | 50.0 | | | 48.9 | ug/L | | 98 | (74%-124%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | |
| QC1204631026 LCS | | | | | | | | | | |
| 2-Butanone | 250 | | | 236 | ug/L | | 94 | (55%-141%) | MXL2 | 08/25/20 21:2 |
| Acetone | 250 | | | 239 | ug/L | | 96 | (43%-164%) | | |
| Benzene | 50.0 | | | 51.4 | ug/L | | 103 | (73%-120%) | | |
| Carbon tetrachloride | 50.0 | | | 51.0 | ug/L | | 102 | (74%-145%) | | |
| Chloroform | 50.0 | | | 53.4 | ug/L | | 107 | (76%-126%) | | |
| Chloromethane | 50.0 | | | 51.0 | ug/L | | 102 | (62%-131%) | | |
| Methylene chloride | 50.0 | | | 50.9 | ug/L | | 102 | (68%-123%) | | |
| Naphthalene | 50.0 | | | 55.2 | ug/L | | 110 | (71%-132%) | | |
| Toluene | 50.0 | | | 50.9 | ug/L | | 102 | (74%-120%) | | |
| Xylenes (total) | 150 | | | 156 | ug/L | | 104 | (66%-128%) | | |
| 1,2-Dichloroethane-d4 | 50.0 | | | 46.2 | ug/L | | 92 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | | | 48.3 | ug/L | | 97 | (70%-131%) | | |
| Toluene-d8 | 50.0 | | | 48.5 | ug/L | | 97 | (74%-124%) | | |
| QC1204631038 LCS | | | | | | | | | | |
| 2-Butanone | 250 | | | 246 | ug/L | | 99 | (55%-141%) | | 08/26/20 08:4 |
| Acetone | 250 | | | 251 | ug/L | | 100 | (43%-164%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | |
| Benzene | 50.0 | | | 51.2 | ug/L | | 102 | (73%-120%) | MXL2 | 08/26/20 08:4 |
| Carbon tetrachloride | 50.0 | | | 47.9 | ug/L | | 96 | (74%-145%) | | |
| Chloroform | 50.0 | | | 51.9 | ug/L | | 104 | (76%-126%) | | |
| Chloromethane | 50.0 | | | 55.3 | ug/L | | 111 | (62%-131%) | | |
| Methylene chloride | 50.0 | | | 48.4 | ug/L | | 97 | (68%-123%) | | |
| Naphthalene | 50.0 | | | 55.0 | ug/L | | 110 | (71%-132%) | | |
| Toluene | 50.0 | | | 50.6 | ug/L | | 101 | (74%-120%) | | |
| Xylenes (total) | 150 | | | 157 | ug/L | | 104 | (66%-128%) | | |
| 1,2-Dichloroethane-d4 | 50.0 | | | 48.0 | ug/L | | 96 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | | | 49.0 | ug/L | | 98 | (70%-131%) | | |
| Toluene-d8 | 50.0 | | | 49.8 | ug/L | | 100 | (74%-124%) | | |
| QC1204627897 MB | | | | | | | | | | |
| 2-Butanone | | | U | ND | ug/L | | | | | 08/25/20 11:3 |
| Acetone | | | U | ND | ug/L | | | | | |
| Benzene | | | U | ND | ug/L | | | | | |
| Carbon tetrachloride | | | U | ND | ug/L | | | | | |

# QC Summary

**Workorder:** 519405 

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | |
| Chloroform | | | U | ND | ug/L | | | | MXL2 | 08/25/20 11:3 |
| Chloromethane | | | U | ND | ug/L | | | | | |
| Methylene chloride | | | U | ND | ug/L | | | | | |
| Naphthalene | | | U | ND | ug/L | | | | | |
| Tetrahydrofuran | | | U | ND | ug/L | | | | | |
| Toluene | | | U | ND | ug/L | | | | | |
| Xylenes (total) | | | U | ND | ug/L | | | | | |
| 1,2-Dichloroethane-d4 | 50.0 | | | 49.1 | ug/L | | 98 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | | | 49.6 | ug/L | | 99 | (70%-131%) | | |
| Toluene-d8 | 50.0 | | | 49.7 | ug/L | | 99 | (74%-124%) | | |
| QC1204631025 MB | | | | | | | | | | |
| 2-Butanone | | | U | ND | ug/L | | | | | 08/25/20 22:4 |
| Acetone | | | U | ND | ug/L | | | | | |
| Benzene | | | U | ND | ug/L | | | | | |
| Carbon tetrachloride | | | U | ND | ug/L | | | | | |
| Chloroform | | | U | ND | ug/L | | | | | |

# QC Summary

**Workorder:** 519405 

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | |
| Chloromethane | | | U | ND | ug/L | | | | MXL2 | 08/25/20 22:4 |
| Methylene chloride | | | U | ND | ug/L | | | | | |
| Naphthalene | | | U | ND | ug/L | | | | | |
| Tetrahydrofuran | | | U | ND | ug/L | | | | | |
| Toluene | | | U | ND | ug/L | | | | | |
| Xylenes (total) | | | U | ND | ug/L | | | | | |
| 1,2-Dichloroethane-d4 | 50.0 | | | 47.7 | ug/L | | 95 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | | | 48.7 | ug/L | | 97 | (70%-131%) | | |
| Toluene-d8 | 50.0 | | | 49.8 | ug/L | | 100 | (74%-124%) | | |
| QC1204631037 MB | | | | | | | | | | |
| 2-Butanone | | | U | ND | ug/L | | | | | 08/26/20 10:5 |
| Acetone | | | U | ND | ug/L | | | | | |
| Benzene | | | U | ND | ug/L | | | | | |
| Carbon tetrachloride | | | U | ND | ug/L | | | | | |
| Chloroform | | | U | ND | ug/L | | | | | |
| Chloromethane | | | U | ND | ug/L | | | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | | |
| Methylene chloride | | | | U | ND | ug/L | | | | MXL2 | 08/26/20 10:5 |
| Naphthalene | | | | U | ND | ug/L | | | | | |
| Tetrahydrofuran | | | | U | ND | ug/L | | | | | |
| Toluene | | | | U | ND | ug/L | | | | | |
| Xylenes (total) | | | | U | ND | ug/L | | | | | |
| 1,2-Dichloroethane-d4 | 50.0 | | | | 49.9 | ug/L | | 100 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | | | | 50.4 | ug/L | | 101 | (70%-131%) | | |
| Toluene-d8 | 50.0 | | | | 50.6 | ug/L | | 101 | (74%-124%) | | |
| QC1204627899 518889001 PS | | | | | | | | | | | |
| 2-Butanone | 250 | U | 4000 | | 236 | ug/L | | 94 | (25%-143%) | | 08/25/20 19:4 |
| Acetone | 250 | U | 700 | | 246 | ug/L | | 98 | (35%-148%) | | |
| Benzene | 50.0 | U | 5.00 | | 50.9 | ug/L | | 102 | (63%-124%) | | |
| Carbon tetrachloride | 50.0 | U | 5.00 | | 50.4 | ug/L | | 101 | (63%-146%) | | |
| Chloroform | 50.0 | U | 70.0 | | 53.3 | ug/L | | 107 | (66%-133%) | | |
| Chloromethane | 50.0 | U | 30.0 | | 54.6 | ug/L | | 109 | (50%-138%) | | |
| Methylene chloride | 50.0 | U | 5.00 | | 50.9 | ug/L | | 102 | (62%-129%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | | |
| Naphthalene | 50.0 | U | 100 | | 54.4 | ug/L | | 109 | (57%-137%) | MXL2 | 08/25/20 19:4 |
| Toluene | 50.0 | U | 1000 | | 50.7 | ug/L | | 101 | (60%-122%) | | |
| Xylenes (total) | 150 | | | | 154 | ug/L | | 103 | (48%-137%) | | |
| 1,2-Dichloroethane-d4 | 50.0 | | 48.3 | | 47.2 | ug/L | | 94 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | | 47.3 | | 48.1 | ug/L | | 96 | (70%-131%) | | |
| Toluene-d8 | 50.0 | | 49.0 | | 49.3 | ug/L | | 99 | (74%-124%) | | |
| QC1204627900 518889001 PSD | | | | | | | | | | | |
| 2-Butanone | 250 | U | 4000 | | 214 | ug/L | 9 | 86 | (0%-20%) | | 08/25/20 20:1 |
| Acetone | 250 | U | 700 | | 227 | ug/L | 8 | 91 | (0%-20%) | | |
| Benzene | 50.0 | U | 5.00 | | 49.3 | ug/L | 3 | 99 | (0%-20%) | | |
| Carbon tetrachloride | 50.0 | U | 5.00 | | 49.0 | ug/L | 3 | 98 | (0%-20%) | | |
| Chloroform | 50.0 | U | 70.0 | | 51.3 | ug/L | 4 | 103 | (0%-20%) | | |
| Chloromethane | 50.0 | U | 30.0 | | 52.7 | ug/L | 4 | 105 | (0%-20%) | | |
| Methylene chloride | 50.0 | U | 5.00 | | 48.1 | ug/L | 6 | 96 | (0%-20%) | | |
| Naphthalene | 50.0 | U | 100 | | 55.5 | ug/L | 2 | 111 | (0%-20%) | | |
| Toluene | 50.0 | U | 1000 | | 49.1 | ug/L | 3 | 98 | (0%-20%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033589 | | | | | | | | | | |
| Xylenes (total) | 150 | | | 151 | ug/L | 2 | 100 | (0%-20%) | MXL2 | 08/25/20 20:1 |
| 1,2-Dichloroethane-d4 | 50.0 | 48.3 | | 46.1 | ug/L | | 92 | (71%-134%) | | |
| Bromofluorobenzene | 50.0 | 47.3 | | 48.7 | ug/L | | 97 | (70%-131%) | | |
| Toluene-d8 | 50.0 | 49.0 | | 49.5 | ug/L | | 99 | (74%-124%) | | |

**Notes:**

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | For General Chemistry and Organic analysis the target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | Organics--Concentration of the target analyte exceeds the instrument calibration range |
| F | Estimated Value |
| H | Analytical holding time was exceeded |
| JNX | Non Calibrated Compound |
| M | Matrix Related Failure |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the CRDL. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |

# QC Summary

**Workorder:** 519405



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

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

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.

**GC/MS Semivolatile**
**Technical Case Narrative**
**Energy Fuels Resources**
**SDG #: 519405**

**Product:** **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
**Analytical Method:** SW846 3510C/8270D
**Analytical Procedure:** GL-OA-E-009 REV# 45
**Analytical Batch:** 2033648

**Preparation Method:** SW846 3510C
**Preparation Procedure:** GL-OA-E-013 REV# 34
**Preparation Batch:** 2033647

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |
| 1204628037 | Method Blank (MB) |
| 1204628038 | Laboratory Control Sample (LCS) |
| 1204628039 | 519544004(NonSDG) Matrix Spike (MS) |
| 1204628040 | 519544004(NonSDG) Matrix Spike Duplicate (MSD) |

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

**Data Summary:**

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

**Miscellaneous Information**

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

| Sample | Analyte | Value |
|---|---|---|
| 1204628038 (LCS) | 4-Nitrophenol | Result 12.5ug/L |
| 519405001 (Cell 1) | 2-Fluorophenol | Result 533ug/L |
| | Phenol-d5 | Result 399ug/L |
| 519405003 (Cell 4A) | Phenol-d5 | Result 298ug/L |
| 519405005 (Cell 4B) | 2-Fluorophenol | Result 427ug/L |

| | | |
|---|---|---|
| | Phenol-d5 | Result 338ug/L |
| 519405007 (Cell 65) | 2-Fluorophenol | Result 400ug/L |
| | Phenol-d5 | Result 334ug/L |

**TIC Comment**

TIC searches were performed on samples 519405001 (Cell 1), 519405002 (Cell 2 Slimes), 519405003 (Cell 4A), 519405004 (Cell 4A LDS), 519405005 (Cell 4B), 519405006 (Cell 4B LDS) and 519405007 (Cell 65) in this SDG. The software searches the 30 most abundant unidentified peaks and searches a NIST library in order to try and identify them. Peaks with quality matches above 80% are reported.

**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

DNMI001 Energy Fuels Resources (USA), Inc.

Client SDG: 519405 GEL Work Order: 519405

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

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the CRDL.

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:** Barbara Bailey **Name: Barbara Bailey**

**Date: 29 SEP 2020** **Title: Data Validator**

## QC Summary

Report Date: September 29, 2020



**Energy Fuels Resources (USA), Inc.**
**225 Union Boulevard**
**Suite 600**
**Lakewood, Colorado**

**Contact:** **Ms. Kathy Weinel**

**Workorder:** **519405**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | |
| QC1204628038 LCS | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 50.0 | | | 34.6 | ug/L | | 69 | (39%-94%) | AGS1 | 08/26/20 22:2 |
| 1,2-Dichlorobenzene | 50.0 | | | 31.9 | ug/L | | 64 | (37%-94%) | | |
| 1,2-Diphenylhydrazine | 50.0 | | | 35.7 | ug/L | | 71 | (51%-108%) | | |
| 1,3-Dichlorobenzene | 50.0 | | | 30.1 | ug/L | | 60 | (35%-90%) | | |
| 1,4-Dichlorobenzene | 50.0 | | | 29.9 | ug/L | | 60 | (35%-91%) | | |
| 1-Methylnaphthalene | 50.0 | | | 40.0 | ug/L | | 80 | (45%-100%) | | |
| 2,4,5-Trichlorophenol | 50.0 | | | 41.4 | ug/L | | 83 | (58%-115%) | | |
| 2,4,6-Trichlorophenol | 50.0 | | | 39.0 | ug/L | | 78 | (53%-111%) | | |
| 2,4-Dichlorophenol | 50.0 | | | 38.8 | ug/L | | 78 | (56%-112%) | | |
| 2,4-Dimethylphenol | 50.0 | | | 33.3 | ug/L | | 67 | (44%-99%) | | |
| 2,4-Dinitrophenol | 50.0 | | | 28.7 | ug/L | | 57 | (30%-126%) | | |
| 2,4-Dinitrotoluene | 50.0 | | | 50.3 | ug/L | | 101 | (54%-119%) | | |
| 2,6-Dinitrotoluene | 50.0 | | | 46.2 | ug/L | | 92 | (55%-118%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| 2-Chloronaphthalene | 50.0 | | | 35.5 | ug/L | | 71 | (43%-103%) | AGS1 | 08/26/20 | 22:2 |
| 2-Chlorophenol | 50.0 | | | 34.2 | ug/L | | 68 | (51%-101%) | | | |
| 2-Methyl-4,6-dinitrophenol | 50.0 | | | 37.5 | ug/L | | 75 | (43%-127%) | | | |
| 2-Methylnaphthalene | 50.0 | | | 38.4 | ug/L | | 77 | (43%-97%) | | | |
| 2-Nitrophenol | 50.0 | | | 38.2 | ug/L | | 76 | (54%-105%) | | | |
| 4-Bromophenylphenylether | 50.0 | | | 43.0 | ug/L | | 86 | (52%-106%) | | | |
| 4-Chloro-3-methylphenol | 50.0 | | | 42.5 | ug/L | | 85 | (55%-107%) | | | |
| 4-Chlorophenylphenylether | 50.0 | | | 41.7 | ug/L | | 83 | (56%-115%) | | | |
| 4-Nitrophenol | 50.0 | | | 12.5 | ug/L | | 25 | (21%-110%) | | | |
| Acenaphthene | 50.0 | | | 38.0 | ug/L | | 76 | (52%-103%) | | | |
| Acenaphthylene | 50.0 | | | 38.1 | ug/L | | 76 | (51%-101%) | | | |
| Anthracene | 50.0 | | | 40.8 | ug/L | | 82 | (54%-107%) | | | |
| Benzidine | 100 | | | 50.8 | ug/L | | 51 | (16%-139%) | | | |
| Benzo(a)anthracene | 50.0 | | | 42.8 | ug/L | | 86 | (56%-107%) | | | |
| Benzo(a)pyrene | 50.0 | | | 45.1 | ug/L | | 90 | (47%-110%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Benzo(b)fluoranthene | 50.0 | | | 43.2 | ug/L | | 86 | (52%-106%) | AGS1 | 08/26/20 | 22:2 |
| Benzo(ghi)perylene | 50.0 | | | 37.4 | ug/L | | 75 | (38%-126%) | | | |
| Benzo(k)fluoranthene | 50.0 | | | 41.8 | ug/L | | 84 | (48%-115%) | | | |
| Butylbenzylphthalate | 50.0 | | | 49.4 | ug/L | | 99 | (50%-118%) | | | |
| Chrysene | 50.0 | | | 40.5 | ug/L | | 81 | (57%-112%) | | | |
| Di-n-butylphthalate | 50.0 | | | 49.8 | ug/L | | 100 | (56%-120%) | | | |
| Di-n-octylphthalate | 50.0 | | | 41.9 | ug/L | | 84 | (44%-124%) | | | |
| Dibenzo(a,h)anthracene | 50.0 | | | 39.9 | ug/L | | 80 | (47%-119%) | | | |
| Diethylphthalate | 50.0 | | | 49.5 | ug/L | | 99 | (59%-113%) | | | |
| Dimethylphthalate | 50.0 | | | 46.8 | ug/L | | 94 | (61%-118%) | | | |
| Diphenylamine | 50.0 | | | 39.0 | ug/L | | 78 | (51%-107%) | | | |
| Fluoranthene | 50.0 | | | 47.4 | ug/L | | 95 | (52%-112%) | | | |
| Fluorene | 50.0 | | | 41.4 | ug/L | | 83 | (54%-101%) | | | |
| Hexachlorobenzene | 50.0 | | | 44.1 | ug/L | | 88 | (52%-108%) | | | |
| Hexachlorobutadiene | 50.0 | | | 33.4 | ug/L | | 67 | (33%-91%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Hexachlorocyclopentadiene | 50.0 | | | 19.5 | ug/L | | 39 | (22%-85%) | AGS1 | 08/26/20 | 22:2 |
| Hexachloroethane | 50.0 | | | 27.3 | ug/L | | 55 | (33%-91%) | | | |
| Indeno(1,2,3-cd)pyrene | 50.0 | | | 38.2 | ug/L | | 76 | (40%-117%) | | | |
| Isophorone | 50.0 | | | 41.6 | ug/L | | 83 | (50%-110%) | | | |
| N-Methyl-N-nitrosomethylamine | 50.0 | | | 24.1 | ug/L | | 48 | (28%-78%) | | | |
| N-Nitrosodipropylamine | 50.0 | | | 38.8 | ug/L | | 78 | (54%-110%) | | | |
| Naphthalene | 50.0 | | | 34.4 | ug/L | | 69 | (44%-98%) | | | |
| Nitrobenzene | 50.0 | | | 35.9 | ug/L | | 72 | (51%-110%) | | | |
| Pentachlorophenol | 50.0 | | | 34.7 | ug/L | | 69 | (48%-121%) | | | |
| Phenanthrene | 50.0 | | | 41.5 | ug/L | | 83 | (55%-102%) | | | |
| Phenol | 50.0 | | | 17.4 | ug/L | | 35 | (12%-90%) | | | |
| Pyrene | 50.0 | | | 45.7 | ug/L | | 91 | (45%-126%) | | | |
| Pyridine | 50.0 | | | 21.0 | ug/L | | 42 | (25%-81%) | | | |
| bis(2-Chloro-1-methylethyl)ether | 50.0 | | | 34.5 | ug/L | | 69 | (45%-113%) | | | |
| bis(2-Chloroethoxy)methane | 50.0 | | | 35.2 | ug/L | | 70 | (50%-110%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | |
| bis(2-Chloroethyl) ether | 50.0 | | | 33.4 | ug/L | | 67 | (52%-109%) | AGS1 | 08/26/20 22:2 |
| bis(2-Ethylhexyl)phthalate | 50.0 | | | 44.2 | ug/L | | 88 | (46%-121%) | | |
| m,p-Cresols | 50.0 | | | 31.0 | ug/L | | 62 | (42%-96%) | | |
| o-Cresol | 50.0 | | | 32.0 | ug/L | | 64 | (44%-97%) | | |
| 2,4,6-Tribromophenol | 100 | | | 99.5 | ug/L | | 100 | (32%-122%) | | |
| 2-Fluorobiphenyl | 50.0 | | | 36.8 | ug/L | | 74 | (31%-107%) | | |
| 2-Fluorophenol | 100 | | | 45.6 | ug/L | | 46 | (15%-88%) | | |
| Nitrobenzene-d5 | 50.0 | | | 36.5 | ug/L | | 73 | (35%-113%) | | |
| Phenol-d5 | 100 | | | 39.1 | ug/L | | 39 | (15%-91%) | | |
| p-Terphenyl-d14 | 50.0 | | | 48.5 | ug/L | | 97 | (35%-134%) | | |
| QC1204628037 MB | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | | | U | ND | ug/L | | | | | 08/26/20 21:5 |
| 1,2-Dichlorobenzene | | | U | ND | ug/L | | | | | |
| 1,2-Diphenylhydrazine | | | U | ND | ug/L | | | | | |
| 1,3-Dichlorobenzene | | | U | ND | ug/L | | | | | |
| 1,4-Dichlorobenzene | | | U | ND | ug/L | | | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | |
| 1-Methylnaphthalene | | | U | ND | ug/L | | | | AGS1 | 08/26/20 21:5 |
| 2,4,5-Trichlorophenol | | | U | ND | ug/L | | | | | |
| 2,4,6-Trichlorophenol | | | U | ND | ug/L | | | | | |
| 2,4-Dichlorophenol | | | U | ND | ug/L | | | | | |
| 2,4-Dimethylphenol | | | U | ND | ug/L | | | | | |
| 2,4-Dinitrophenol | | | U | ND | ug/L | | | | | |
| 2,4-Dinitrotoluene | | | U | ND | ug/L | | | | | |
| 2,6-Dinitrotoluene | | | U | ND | ug/L | | | | | |
| 2-Chloronaphthalene | | | U | ND | ug/L | | | | | |
| 2-Chlorophenol | | | U | ND | ug/L | | | | | |
| 2-Methyl-4,6-dinitrophenol | | | U | ND | ug/L | | | | | |
| 2-Methylnaphthalene | | | U | ND | ug/L | | | | | |
| 2-Nitrophenol | | | U | ND | ug/L | | | | | |
| 3,3'-Dimethylbenzidine | | | U | ND | ug/L | | | | | |
| 4-Bromophenylphenylether | | | U | ND | ug/L | | | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| 4-Chloro-3-methylphenol | | | U | ND | ug/L | | | | AGS1 | 08/26/20 | 21:5 |
| 4-Chlorophenylphenylether | | | U | ND | ug/L | | | | | | |
| 4-Nitrophenol | | | U | ND | ug/L | | | | | | |
| Acenaphthene | | | U | ND | ug/L | | | | | | |
| Acenaphthylene | | | U | ND | ug/L | | | | | | |
| Anthracene | | | U | ND | ug/L | | | | | | |
| Benzidine | | | U | ND | ug/L | | | | | | |
| Benzo(a)anthracene | | | U | ND | ug/L | | | | | | |
| Benzo(a)pyrene | | | U | ND | ug/L | | | | | | |
| Benzo(b)fluoranthene | | | U | ND | ug/L | | | | | | |
| Benzo(ghi)perylene | | | U | ND | ug/L | | | | | | |
| Benzo(k)fluoranthene | | | U | ND | ug/L | | | | | | |
| Butylbenzylphthalate | | | U | ND | ug/L | | | | | | |
| Chrysene | | | U | ND | ug/L | | | | | | |
| Di-n-butylphthalate | | | U | ND | ug/L | | | | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | |
| Di-n-octylphthalate | | | U | ND | ug/L | | | | AGS1 | 08/26/20 21:5 |
| Dibenzo(a,h)anthracene | | | U | ND | ug/L | | | | | |
| Diethylphthalate | | | U | ND | ug/L | | | | | |
| Dimethylphthalate | | | U | ND | ug/L | | | | | |
| Diphenylamine | | | U | ND | ug/L | | | | | |
| Fluoranthene | | | U | ND | ug/L | | | | | |
| Fluorene | | | U | ND | ug/L | | | | | |
| Hexachlorobenzene | | | U | ND | ug/L | | | | | |
| Hexachlorobutadiene | | | U | ND | ug/L | | | | | |
| Hexachlorocyclopentadiene | | | U | ND | ug/L | | | | | |
| Hexachloroethane | | | U | ND | ug/L | | | | | |
| Indeno(1,2,3-cd)pyrene | | | U | ND | ug/L | | | | | |
| Isophorone | | | U | ND | ug/L | | | | | |
| N-Methyl-N-nitrosomethylamine | | | U | ND | ug/L | | | | | |
| N-Nitrosodipropylamine | | | U | ND | ug/L | | | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile-GC/MS | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Naphthalene | | | U | ND | ug/L | | | | AGS1 | 08/26/20 | 21:5 |
| Nitrobenzene | | | U | ND | ug/L | | | | | | |
| Pentachlorophenol | | | U | ND | ug/L | | | | | | |
| Phenanthrene | | | U | ND | ug/L | | | | | | |
| Phenol | | | U | ND | ug/L | | | | | | |
| Pyrene | | | U | ND | ug/L | | | | | | |
| Pyridine | | | U | ND | ug/L | | | | | | |
| bis(2-Chloro-1-methylethyl)ether | | | U | ND | ug/L | | | | | | |
| bis(2-Chloroethoxy)methane | | | U | ND | ug/L | | | | | | |
| bis(2-Chloroethyl) ether | | | U | ND | ug/L | | | | | | |
| bis(2-Ethylhexyl)phthalate | | | U | ND | ug/L | | | | | | |
| m,p-Cresols | | | U | ND | ug/L | | | | | | |
| o-Cresol | | | U | ND | ug/L | | | | | | |
| 2,4,6-Tribromophenol | 100 | | | 97.8 | ug/L | | 98 | (32%-122%) | | | |
| 2-Fluorobiphenyl | 50.0 | | | 36.9 | ug/L | | 74 | (31%-107%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-Volatile-GC/MS | | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | | |
| 2-Fluorophenol | 100 | | | | 40.9 | ug/L | | 41 | (15%-88%) | AGS1 | 08/26/20 | 21:5 |
| Nitrobenzene-d5 | 50.0 | | | | 37.6 | ug/L | | 75 | (35%-113%) | | | |
| Phenol-d5 | 100 | | | | 28.4 | ug/L | | 28 | (15%-91%) | | | |
| p-Terphenyl-d14 | 50.0 | | | | 47.6 | ug/L | | 95 | (35%-134%) | | | |
| QC1204628039 519544004 MS | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 100 | U | 20.0 | | 74.7 | ug/L | | 75 | (32%-87%) | | 08/27/20 | 02:4 |
| 1,2-Dichlorobenzene | 100 | U | 20.0 | | 73.1 | ug/L | | 73 | (29%-90%) | | | |
| 1,2-Diphenylhydrazine | 100 | U | 20.0 | | 73.2 | ug/L | | 73 | (38%-113%) | | | |
| 1,3-Dichlorobenzene | 100 | U | 20.0 | | 68.7 | ug/L | | 69 | (31%-82%) | | | |
| 1,4-Dichlorobenzene | 100 | U | 20.0 | | 68.4 | ug/L | | 68 | (31%-84%) | | | |
| 1-Methylnaphthalene | 100 | U | 2.00 | | 85.9 | ug/L | | 86 | (31%-99%) | | | |
| 2,4,5-Trichlorophenol | 100 | U | 20.0 | | 86.6 | ug/L | | 87 | (37%-114%) | | | |
| 2,4,6-Trichlorophenol | 100 | U | 20.0 | | 83.9 | ug/L | | 84 | (38%-113%) | | | |
| 2,4-Dichlorophenol | 100 | U | 20.0 | | 87.8 | ug/L | | 88 | (40%-109%) | | | |
| 2,4-Dimethylphenol | 100 | U | 20.0 | | 75.6 | ug/L | | 76 | (35%-100%) | | | |
| 2,4-Dinitrophenol | 100 | U | 40.0 | | 61.9 | ug/L | | 62 | (20%-131%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| 2,4-Dinitrotoluene | 100 | U | 20.0 | | 104 | ug/L | | 104 | (43%-116%) | AGS1 | 08/27/20 02:4 |
| 2,6-Dinitrotoluene | 100 | U | 20.0 | | 95.5 | ug/L | | 96 | (43%-112%) | | |
| 2-Chloronaphthalene | 100 | U | 2.00 | | 74.3 | ug/L | | 74 | (34%-105%) | | |
| 2-Chlorophenol | 100 | U | 20.0 | | 83.2 | ug/L | | 83 | (37%-104%) | | |
| 2-Methyl-4,6-dinitrophenol | 100 | U | 20.0 | | 71.9 | ug/L | | 72 | (30%-128%) | | |
| 2-Methylnaphthalene | 100 | U | 2.00 | | 82.9 | ug/L | | 83 | (30%-101%) | | |
| 2-Nitrophenol | 100 | U | 20.0 | | 91.4 | ug/L | | 91 | (38%-113%) | | |
| 4-Bromophenylphenylether | 100 | U | 20.0 | | 87.1 | ug/L | | 87 | (39%-116%) | | |
| 4-Chloro-3-methylphenol | 100 | U | 20.0 | | 92.8 | ug/L | | 93 | (38%-115%) | | |
| 4-Chlorophenylphenylether | 100 | U | 20.0 | | 86.4 | ug/L | | 86 | (41%-116%) | | |
| 4-Nitrophenol | 100 | U | 20.0 | | 38.8 | ug/L | | 39 | (16%-83%) | | |
| Acenaphthene | 100 | U | 2.00 | | 79.1 | ug/L | | 79 | (39%-112%) | | |
| Acenaphthylene | 100 | U | 2.00 | | 80.6 | ug/L | | 81 | (37%-111%) | | |
| Anthracene | 100 | U | 2.00 | | 82.7 | ug/L | | 83 | (39%-112%) | | |
| Benzo(a)anthracene | 100 | U | 2.00 | | 86.3 | ug/L | | 86 | (42%-114%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Benzo(a)pyrene | 100 | U | 2.00 | | 92.2 | ug/L | | 92 | (41%-109%) | AGS1 | 08/27/20 02:4 |
| Benzo(b)fluoranthene | 100 | U | 2.00 | | 88.6 | ug/L | | 89 | (41%-109%) | | |
| Benzo(ghi)perylene | 100 | U | 2.00 | | 71.8 | ug/L | | 72 | (31%-118%) | | |
| Benzo(k)fluoranthene | 100 | U | 2.00 | | 85.7 | ug/L | | 86 | (41%-113%) | | |
| Butylbenzylphthalate | 100 | U | 20.0 | | 98.7 | ug/L | | 99 | (40%-121%) | | |
| Chrysene | 100 | U | 2.00 | | 81.3 | ug/L | | 81 | (42%-118%) | | |
| Di-n-butylphthalate | 100 | U | 20.0 | | 102 | ug/L | | 102 | (44%-119%) | | |
| Di-n-octylphthalate | 100 | U | 20.0 | | 91.5 | ug/L | | 92 | (31%-129%) | | |
| Dibenzo(a,h)anthracene | 100 | U | 2.00 | | 77.8 | ug/L | | 78 | (33%-122%) | | |
| Diethylphthalate | 100 | U | 20.0 | | 102 | ug/L | | 102 | (46%-117%) | | |
| Dimethylphthalate | 100 | U | 20.0 | | 96.4 | ug/L | | 96 | (45%-123%) | | |
| Diphenylamine | 100 | U | 20.0 | | 72.4 | ug/L | | 72 | (37%-109%) | | |
| Fluoranthene | 100 | U | 2.00 | | 95.0 | ug/L | | 95 | (42%-113%) | | |
| Fluorene | 100 | U | 2.00 | | 86.0 | ug/L | | 86 | (39%-108%) | | |
| Hexachlorobenzene | 100 | U | 20.0 | | 90.2 | ug/L | | 90 | (40%-111%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Hexachlorobutadiene | 100 | U | 20.0 | | 70.0 | ug/L | | 70 | (24%-92%) | AGS1 | 08/27/20 02:4 |
| Hexachlorocyclopentadiene | 100 | U | 20.0 | | 32.3 | ug/L | | 32 | (19%-77%) | | |
| Hexachloroethane | 100 | U | 20.0 | | 61.3 | ug/L | | 61 | (29%-88%) | | |
| Indeno(1,2,3-cd)pyrene | 100 | U | 2.00 | | 74.1 | ug/L | | 74 | (34%-121%) | | |
| Isophorone | 100 | U | 20.0 | | 91.0 | ug/L | | 91 | (38%-110%) | | |
| N-Methyl-N-nitrosomethylamine | 100 | U | 20.0 | | 67.6 | ug/L | | 68 | (24%-96%) | | |
| N-Nitrosodipropylamine | 100 | U | 20.0 | | 90.3 | ug/L | | 90 | (38%-119%) | | |
| Naphthalene | 100 | U | 2.00 | | 77.3 | ug/L | | 77 | (32%-98%) | | |
| Nitrobenzene | 100 | U | 20.0 | | 84.3 | ug/L | | 84 | (37%-115%) | | |
| Pentachlorophenol | 100 | U | 20.0 | | 64.5 | ug/L | | 65 | (33%-130%) | | |
| Phenanthrene | 100 | U | 2.00 | | 84.3 | ug/L | | 84 | (41%-108%) | | |
| Phenol | 100 | U | 20.0 | | 52.9 | ug/L | | 53 | (19%-78%) | | |
| Pyrene | 100 | U | 2.00 | | 87.0 | ug/L | | 87 | (33%-121%) | | |
| Pyridine | 100 | U | 20.0 | | 60.3 | ug/L | | 60 | (22%-88%) | | |
| bis(2-Chloro-1-methylethyl)ether | 100 | U | 20.0 | | 84.0 | ug/L | | 84 | (35%-121%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| bis(2-Chloroethoxy)methane | 100 | U | 20.0 | | 79.2 | ug/L | | 79 | (41%-110%) | AGS1 | 08/27/20 02:4 |
| bis(2-Chloroethyl) ether | 100 | U | 20.0 | | 81.7 | ug/L | | 82 | (41%-112%) | | |
| bis(2-Ethylhexyl)phthalate | 100 | U | 2.00 | | 92.2 | ug/L | | 92 | (33%-126%) | | |
| m,p-Cresols | 100 | U | 20.0 | | 77.8 | ug/L | | 78 | (30%-113%) | | |
| o-Cresol | 100 | U | 20.0 | | 79.2 | ug/L | | 79 | (32%-102%) | | |
| 2,4,6-Tribromophenol | 200 | | 78.5 | | 202 | ug/L | | 101 | (32%-122%) | | |
| 2-Fluorobiphenyl | 100 | | 32.3 | | 77.9 | ug/L | | 78 | (31%-107%) | | |
| 2-Fluorophenol | 200 | | 36.5 | | 125 | ug/L | | 62 | (15%-88%) | | |
| Nitrobenzene-d5 | 100 | | 35.2 | | 87.0 | ug/L | | 87 | (35%-113%) | | |
| Phenol-d5 | 200 | | 24.8 | | 109 | ug/L | | 55 | (15%-91%) | | |
| p-Terphenyl-d14 | 100 | | 45.2 | | 96.4 | ug/L | | 96 | (35%-134%) | | |
| QC1204628040 519544004 MSD | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 100 | U | 20.0 | | 75.9 | ug/L | 2 | 76 | (0%-30%) | | 08/27/20 03:0 |
| 1,2-Dichlorobenzene | 100 | U | 20.0 | | 72.2 | ug/L | 1 | 72 | (0%-30%) | | |
| 1,2-Diphenylhydrazine | 100 | U | 20.0 | | 80.7 | ug/L | 10 | 81 | (0%-30%) | | |
| 1,3-Dichlorobenzene | 100 | U | 20.0 | | 67.6 | ug/L | 2 | 68 | (0%-30%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | | |
| 1,4-Dichlorobenzene | 100 | U | 20.0 | | 68.2 | ug/L | 0 | 68 | (0%-30%) | AGS1 | 08/27/20 | 03:0 |
| 1-Methylnaphthalene | 100 | U | 2.00 | | 85.8 | ug/L | 0 | 86 | (0%-30%) | | | |
| 2,4,5-Trichlorophenol | 100 | U | 20.0 | | 86.4 | ug/L | 0 | 86 | (0%-30%) | | | |
| 2,4,6-Trichlorophenol | 100 | U | 20.0 | | 85.9 | ug/L | 2 | 86 | (0%-30%) | | | |
| 2,4-Dichlorophenol | 100 | U | 20.0 | | 89.7 | ug/L | 2 | 90 | (0%-30%) | | | |
| 2,4-Dimethylphenol | 100 | U | 20.0 | | 78.7 | ug/L | 4 | 79 | (0%-30%) | | | |
| 2,4-Dinitrophenol | 100 | U | 40.0 | | 57.0 | ug/L | 8 | 57 | (0%-30%) | | | |
| 2,4-Dinitrotoluene | 100 | U | 20.0 | | 94.7 | ug/L | 9 | 95 | (0%-30%) | | | |
| 2,6-Dinitrotoluene | 100 | U | 20.0 | | 92.6 | ug/L | 3 | 93 | (0%-30%) | | | |
| 2-Chloronaphthalene | 100 | U | 2.00 | | 76.6 | ug/L | 3 | 77 | (0%-30%) | | | |
| 2-Chlorophenol | 100 | U | 20.0 | | 83.3 | ug/L | 0 | 83 | (0%-30%) | | | |
| 2-Methyl-4,6-dinitrophenol | 100 | U | 20.0 | | 76.6 | ug/L | 6 | 77 | (0%-30%) | | | |
| 2-Methylnaphthalene | 100 | U | 2.00 | | 83.5 | ug/L | 1 | 84 | (0%-30%) | | | |
| 2-Nitrophenol | 100 | U | 20.0 | | 92.9 | ug/L | 2 | 93 | (0%-30%) | | | |
| 4-Bromophenylphenylether | 100 | U | 20.0 | | 92.8 | ug/L | 6 | 93 | (0%-30%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | | |
| 4-Chloro-3-methylphenol | 100 | U | 20.0 | | 92.2 | ug/L | 1 | 92 | (0%-30%) | AGS1 | 08/27/20 | 03:0 |
| 4-Chlorophenylphenylether | 100 | U | 20.0 | | 82.4 | ug/L | 5 | 82 | (0%-30%) | | | |
| 4-Nitrophenol | 100 | U | 20.0 | | 31.1 | ug/L | 22 | 31 | (0%-30%) | | | |
| Acenaphthene | 100 | U | 2.00 | | 79.2 | ug/L | 0 | 79 | (0%-30%) | | | |
| Acenaphthylene | 100 | U | 2.00 | | 81.1 | ug/L | 1 | 81 | (0%-30%) | | | |
| Anthracene | 100 | U | 2.00 | | 84.7 | ug/L | 2 | 85 | (0%-30%) | | | |
| Benzidine | 200 | U | 20.0 | | 121 | ug/L | 26 | 60 | (0%-30%) | | | |
| Benzo(a)anthracene | 100 | U | 2.00 | | 87.4 | ug/L | 1 | 87 | (0%-30%) | | | |
| Benzo(a)pyrene | 100 | U | 2.00 | | 94.9 | ug/L | 3 | 95 | (0%-30%) | | | |
| Benzo(b)fluoranthene | 100 | U | 2.00 | | 90.1 | ug/L | 2 | 90 | (0%-30%) | | | |
| Benzo(ghi)perylene | 100 | U | 2.00 | | 78.7 | ug/L | 9 | 79 | (0%-30%) | | | |
| Benzo(k)fluoranthene | 100 | U | 2.00 | | 87.3 | ug/L | 2 | 87 | (0%-30%) | | | |
| Butylbenzylphthalate | 100 | U | 20.0 | | 93.5 | ug/L | 5 | 94 | (0%-30%) | | | |
| Chrysene | 100 | U | 2.00 | | 84.6 | ug/L | 4 | 85 | (0%-30%) | | | |
| Di-n-butylphthalate | 100 | U | 20.0 | | 98.3 | ug/L | 4 | 98 | (0%-30%) | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Di-n-octylphthalate | 100 | U | 20.0 | | 93.2 | ug/L | 2 | 93 | (0%-30%) | AGS1 | 08/27/20 03:0 |
| Dibenzo(a,h)anthracene | 100 | U | 2.00 | | 83.2 | ug/L | 7 | 83 | (0%-30%) | | |
| Diethylphthalate | 100 | U | 20.0 | | 95.7 | ug/L | 6 | 96 | (0%-30%) | | |
| Dimethylphthalate | 100 | U | 20.0 | | 95.0 | ug/L | 1 | 95 | (0%-30%) | | |
| Diphenylamine | 100 | U | 20.0 | | 84.0 | ug/L | 15 | 84 | (0%-30%) | | |
| Fluoranthene | 100 | U | 2.00 | | 91.5 | ug/L | 4 | 91 | (0%-30%) | | |
| Fluorene | 100 | U | 2.00 | | 82.2 | ug/L | 4 | 82 | (0%-30%) | | |
| Hexachlorobenzene | 100 | U | 20.0 | | 95.9 | ug/L | 6 | 96 | (0%-30%) | | |
| Hexachlorobutadiene | 100 | U | 20.0 | | 71.1 | ug/L | 1 | 71 | (0%-30%) | | |
| Hexachlorocyclopentadiene | 100 | U | 20.0 | | 34.7 | ug/L | 7 | 35 | (0%-30%) | | |
| Hexachloroethane | 100 | U | 20.0 | | 60.0 | ug/L | 2 | 60 | (0%-30%) | | |
| Indeno(1,2,3-cd)pyrene | 100 | U | 2.00 | | 80.7 | ug/L | 9 | 81 | (0%-30%) | | |
| Isophorone | 100 | U | 20.0 | | 93.5 | ug/L | 3 | 94 | (0%-30%) | | |
| N-Methyl-N-nitrosomethylamine | 100 | U | 20.0 | | 65.8 | ug/L | 3 | 66 | (0%-30%) | | |
| N-Nitrosodipropylamine | 100 | U | 20.0 | | 90.4 | ug/L | 0 | 90 | (0%-30%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| Naphthalene | 100 | U | 2.00 | | 79.1 | ug/L | 2 | 79 | (0%-30%) | AGS1 | 08/27/20 03:0 |
| Nitrobenzene | 100 | U | 20.0 | | 86.3 | ug/L | 2 | 86 | (0%-30%) | | |
| Pentachlorophenol | 100 | U | 20.0 | | 65.8 | ug/L | 2 | 66 | (0%-30%) | | |
| Phenanthrene | 100 | U | 2.00 | | 86.4 | ug/L | 2 | 86 | (0%-30%) | | |
| Phenol | 100 | U | 20.0 | | 51.0 | ug/L | 4 | 51 | (0%-30%) | | |
| Pyrene | 100 | U | 2.00 | | 81.4 | ug/L | 7 | 81 | (0%-30%) | | |
| Pyridine | 100 | U | 20.0 | | 60.7 | ug/L | 1 | 61 | (0%-30%) | | |
| bis(2-Chloro-1-methylethyl)ether | 100 | U | 20.0 | | 83.2 | ug/L | 1 | 83 | (0%-30%) | | |
| bis(2-Chloroethoxy)methane | 100 | U | 20.0 | | 81.3 | ug/L | 3 | 81 | (0%-30%) | | |
| bis(2-Chloroethyl) ether | 100 | U | 20.0 | | 81.9 | ug/L | 0 | 82 | (0%-30%) | | |
| bis(2-Ethylhexyl)phthalate | 100 | U | 2.00 | | 86.9 | ug/L | 6 | 87 | (0%-30%) | | |
| m,p-Cresols | 100 | U | 20.0 | | 77.7 | ug/L | 0 | 78 | (0%-30%) | | |
| o-Cresol | 100 | U | 20.0 | | 79.5 | ug/L | 0 | 79 | (0%-30%) | | |
| 2,4,6-Tribromophenol | 200 | | 78.5 | | 181 | ug/L | | 91 | (32%-122%) | | |
| 2-Fluorobiphenyl | 100 | | 32.3 | | 81.1 | ug/L | | 81 | (31%-107%) | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Semi-Volatile-GC/MS** | | | | | | | | | | | |
| Batch 2033648 | | | | | | | | | | | |
| 2-Fluorophenol | 200 | 36.5 | | 120 | ug/L | | 60 | (15%-88%) | AGS1 | 08/27/20 | 03:0 |
| Nitrobenzene-d5 | 100 | 35.2 | | 88.9 | ug/L | | 89 | (35%-113%) | | | |
| Phenol-d5 | 200 | 24.8 | | 107 | ug/L | | 53 | (15%-91%) | | | |
| p-Terphenyl-d14 | 100 | 45.2 | | 86.4 | ug/L | | 86 | (35%-134%) | | | |

**Notes:**

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | For General Chemistry and Organic analysis the target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | Organics--Concentration of the target analyte exceeds the instrument calibration range |
| F | Estimated Value |
| H | Analytical holding time was exceeded |
| JNX | Non Calibrated Compound |
| M | Matrix Related Failure |
| N | Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| P | Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70% |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the CRDL. |
| UJ | Compound cannot be extracted |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |

# QC Summary

**Workorder:** 519405



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

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

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

**General Chemistry**
**Technical Case Narrative**
**Energy Fuels Resources**
**SDG #: 519405**

**Product:** **Specific Gravity**
**Analytical Method:** ASTM D 5057
**Analytical Procedure:** GL-GC-E-065 REV# 7
**Analytical Batch:** 2033728

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |

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

**Data Summary:**

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

**Certification Statement**

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

# GEL LABORATORIES LLC

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

## Qualifier Definition Report
## for

DNMI001 Energy Fuels Resources (USA), Inc.

Client SDG: 519405 GEL Work Order: 519405

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

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

**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:** Kristen Mizzell **Name: Kristen Mizzell**

**Date: 15 SEP 2020** **Title: Team Leader**

## QC Summary

Report Date: September 15, 2020



Energy Fuels Resources (USA), Inc.
225 Union Boulevard
Suite 600
Lakewood, Colorado

**Contact:** Ms. Kathy Weinel

**Workorder:** 519405

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

**Notes:**

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | For General Chemistry and Organic analysis the target analyte was detected in the associated blank. |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| E | General Chemistry--Concentration of the target analyte exceeds the instrument calibration range |
| F | Estimated Value |
| H | Analytical holding time was exceeded |
| M | Matrix Related Failure |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the CRDL. |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. |
| d | 5-day BOD--The 2:1 depletion requirement was not met for this sample |
| h | Preparation or preservation holding time was exceeded |

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.

**Radiochemistry**
**Technical Case Narrative**
**Energy Fuels Resources**
**SDG #: 519405**

**Product:** **Alphaspec Th, Liquid**
**Analytical Method:** DOE EML HASL-300, Th-01-RC Modified
**Analytical Procedure:** GL-RAD-A-038 REV# 18
**Analytical Batch:** 2033149

**Composite Preparation Method:** GL-RAD-A-026
**Composite Preparation Procedure:** GL-RAD-A-026 REV# 18
**Composite Preparation Batch:** 2032694

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |
| 1204626950 | Method Blank (MB) |
| 1204626951 | 519405001(Cell 1) Sample Duplicate (DUP) |
| 1204626952 | Laboratory Control Sample (LCS) |

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

**Data Summary:**

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

**Quality Control (QC) Information**

**Duplication Criteria between QC Sample and Duplicate Sample**
The Sample and the Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

| Sample | Analyte | Value |
|---|---|---|
| 1204626951 (Cell 1DUP) | Thorium-230 | RPD 24* (0.00%-20.00%) RER 2.03 (0-3) |

**RDL Met**
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

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

| | | |
|---|---|---|
| 1204626950 (MB) | Thorium-228 | Result -102 < MDA 553 > RDL 1 pCi/L |
| | Thorium-230 | Result 143 < MDA 606 > RDL 1 pCi/L |
| | Thorium-232 | Result -31.3 < MDA 460 > RDL 1 pCi/L |

Samples (See Below) did not meet the detection limits due to the small sample aliquots used. The aliquots were reduced due to the high activity of other isotopes and in attempt to minimize interference.

| Sample | Analyte | Value |
|---|---|---|
| 519405002 (Cell 2 Slimes) | Thorium-228 | Result 62.9 < MDA 529 > RDL 1 pCi/L |
| | Thorium-232 | Result 226 < MDA 460 > RDL 1 pCi/L |
| 519405004 (Cell 4A LDS) | Thorium-228 | Result -27.1 < MDA 696 > RDL 1 pCi/L |
| | Thorium-232 | Result 317 < MDA 526 > RDL 1 pCi/L |
| 519405007 (Cell 65) | Thorium-228 | Result 562 < MDA 707 > RDL 1 pCi/L |

**Technical Information**

**Recounts**
Sample 1204626952 (LCS) was recounted due to high carrier/tracer yield. The recount is reported.

**Miscellaneous Information**

**Manual Integration**
Manual integrations of alpha spectroscopy spectra 1204626951 (Cell 1DUP), 519405001 (Cell 1), 519405005 (Cell 4B) and 519405006 (Cell 4B LDS) were performed to fully separate counts in Regions of Interest which would have been biased.

**Product:** **U- 233/234,U-235/236 and U-238**
**Analytical Method:** DOE EML HASL-300, U-02-RC Modified
**Analytical Procedure:** GL-RAD-A-011 REV# 28
**Analytical Batch:** 2033150

**Composite Preparation Method:** GL-RAD-A-026
**Composite Preparation Procedure:** GL-RAD-A-026 REV# 18
**Composite Preparation Batch:** 2032694

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |

| | |
|---|---|
| 1204626953 | Method Blank (MB) |
| 1204626954 | 519405001(Cell 1) Sample Duplicate (DUP) |
| 1204626955 | Laboratory Control Sample (LCS) |

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

**Data Summary:**

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

**Quality Control (QC) Information**

**RDL Met**
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

| Sample | Analyte | Value |
|---|---|---|
| 1204626953 (MB) | Uranium-233/234 | Result 177 < MDA 482 > RDL 1 pCi/L |
| | Uranium-235/236 | Result -14.9 < MDA 523 > RDL 1 pCi/L |
| | Uranium-238 | Result 319 < MDA 369 > RDL 1 pCi/L |

**Product:** **GFPC,Total Alpha Radium, Liquid**
**Analytical Method:** EPA 903.0
**Analytical Procedure:** GL-RAD-A-010 REV# 20
**Analytical Batch:** 2033151

**Composite Preparation Method:** GL-RAD-A-026
**Composite Preparation Procedure:** GL-RAD-A-026 REV# 18
**Composite Preparation Batch:** 2032694

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |
| 1204626956 | Method Blank (MB) |
| 1204626957 | 519405002(Cell 2 Slimes) Sample Duplicate (DUP) |
| 1204626958 | 519405002(Cell 2 Slimes) Matrix Spike (MS) |
| 1204626959 | 519405002(Cell 2 Slimes) Matrix Spike Duplicate (MSD) |
| 1204626960 | Laboratory Control Sample (LCS) |

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

**Data Summary:**

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

**Quality Control (QC) Information**

**RDL Met**
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

| Sample | Analyte | Value |
|---|---|---|
| 1204626956 (MB) | Gross Radium Alpha | Result 26.4 < MDA 104 > RDL 1 pCi/L |

**Technical Information**

**Recounts**
Samples were recounted to verify sample results. Recounts are reported.

**Product:** **Lucas Cell, Ra226, liquid**
**Analytical Method:** EPA 903.1 Modified
**Analytical Procedure:** GL-RAD-A-008 REV# 15
**Analytical Batch:** 2033152

**Composite Preparation Method:** GL-RAD-A-026
**Composite Preparation Procedure:** GL-RAD-A-026 REV# 18
**Composite Preparation Batch:** 2032694

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |
| 1204626961 | Method Blank (MB) |
| 1204626962 | 519405001(Cell 1) Sample Duplicate (DUP) |
| 1204626963 | 519405001(Cell 1) Matrix Spike (MS) |
| 1204626964 | Laboratory Control Sample (LCS) |

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

**Data Summary:**

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

**Quality Control (QC) Information**

**RDL Met**
The blank (See Below) did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots.

| Sample | Analyte | Value |
|---|---|---|
| 1204626961 (MB) | Radium-226 | Result 4.96 < MDA 12.2 > RDL 1 pCi/L |

**Product:** **Laboratory Composite**
**Composite Preparation Method:** GL-RAD-A-026
**Composite Preparation Procedure:** GL-RAD-A-026 REV# 18
**Composite Preparation Batch:** 2032694

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

| GEL Sample ID# | Client Sample Identification |
|---|---|
| 519405001 | Cell 1 |
| 519405002 | Cell 2 Slimes |
| 519405003 | Cell 4A |
| 519405004 | Cell 4A LDS |
| 519405005 | Cell 4B |
| 519405006 | Cell 4B LDS |
| 519405007 | Cell 65 |

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

**Data Summary:**

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

**Certification Statement**

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

# GEL LABORATORIES LLC

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

## Qualifier Definition Report
## for

DNMI001 Energy Fuels Resources (USA), Inc.

Client SDG: 519405 GEL Work Order: 519405

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

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the CRDL.

**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: 18 SEP 2020** **Title: Analyst I**

## QC Summary

Report Date: September 18, 2020



**Energy Fuels Resources (USA), Inc.**
**225 Union Boulevard**
**Suite 600**
**Lakewood, Colorado**

**Contact:** **Ms. Kathy Weinel**

**Workorder:** **519405**

| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **High Rad Testing** | | | | | | | | | | |
| Batch 2033149 | | | | | | | | | | |
| QC1204626951 519405001 DUP | | | | | | | | | | |
| Thorium-228 | | 1090 | | 1990 | pCi/L | 58.8 | | (0% - 100%) | JXB7 | 09/03/20 07:1 |
| | Uncertainty | +/-263 | | +/-370 | | | | | | |
| Thorium-230 | | 1.03E+06 | | 1.32E+06 | pCi/L | 24* | | (0%-20%) | | |
| | Uncertainty | +/-7530 | | +/-8980 | | | | | | |
| Thorium-232 | | 6670 | | 7290 | pCi/L | 8.89 | | (0%-20%) | | |
| | Uncertainty | +/-607 | | +/-677 | | | | | | |
| QC1204626952 LCS | | | | | | | | | | |
| Thorium-228 | | | | 20400 | pCi/L | | | | | 09/03/20 15:3 |
| | Uncertainty | | | +/-1310 | | | | | | |
| Thorium-230 | | | | 3580 | pCi/L | | | (75%-125%) | | |
| | Uncertainty | | | +/-560 | | | | | | |
| Thorium-232 | 19900 | | | 20500 | pCi/L | | 103 | (75%-125%) | | |
| | Uncertainty | | | +/-1300 | | | | | | |
| QC1204626950 MB | | | | | | | | | | |
| Thorium-228 | | | U | -102 | pCi/L | | | | | 09/03/20 07:1 |
| | Uncertainty | | | +/-101 | | | | | | |
| Thorium-230 | | | U | 143 | pCi/L | | | | | |
| | Uncertainty | | | +/-171 | | | | | | |
| Thorium-232 | | | U | -31.3 | pCi/L | | | | | |
| | Uncertainty | | | +/-95.3 | | | | | | |
| Batch 2033150 | | | | | | | | | | |
| QC1204626954 519405001 DUP | | | | | | | | | | |
| Uranium-233/234 | | 68300 | | 63200 | pCi/L | 7.79 | | (0%-20%) | JXB7 | 09/02/20 11:3 |
| | Uncertainty | +/-2160 | | +/-1850 | | | | | | |
| Uranium-235/236 | | 4020 | | 3490 | pCi/L | 13.9 | | (0%-20%) | | |
| | Uncertainty | +/-589 | | +/-492 | | | | | | |
| Uranium-238 | | 64600 | | 67100 | pCi/L | 3.72 | | (0%-20%) | | |
| | Uncertainty | +/-2100 | | +/-1910 | | | | | | |

# QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **High Rad Testing** | | | | | | | | | | |
| Batch 2033150 | | | | | | | | | | |
| QC1204626955 LCS | | | | | | | | | | |
| Uranium-233/234 | | | | 25100 | pCi/L | | | | JXB7 | 09/02/20 11:3 |
| | Uncertainty | | | +/-1240 | | | | | | |
| Uranium-235/236 | | | | 1360 | pCi/L | | | | | |
| | Uncertainty | | | +/-330 | | | | | | |
| Uranium-238 | 27300 | | | 26900 | pCi/L | | 98.5 | (75%-125%) | | |
| | Uncertainty | | | +/-1280 | | | | | | |
| QC1204626953 MB | | | | | | | | | | |
| Uranium-233/234 | | | U | 177 | pCi/L | | | | | 09/02/20 11:3 |
| | Uncertainty | | | +/-151 | | | | | | |
| Uranium-235/236 | | | U | -14.9 | pCi/L | | | | | |
| | Uncertainty | | | +/-114 | | | | | | |
| Uranium-238 | | | U | 319 | pCi/L | | | | | |
| | Uncertainty | | | +/-162 | | | | | | |
| Batch 2033151 | | | | | | | | | | |
| QC1204626957 519405002 DUP | | | | | | | | | | |
| Gross Radium Alpha | | 1630 | | 1940 | pCi/L | 17.5 | | (0%-20%) | AXM6 | 09/10/20 07:3 |
| | Uncertainty | +/-132 | | +/-149 | | | | | | |
| QC1204626960 LCS | | | | | | | | | | |
| Gross Radium Alpha | 1.14E+05 | | | 1.12E+05 | pCi/L | | 97.9 | (75%-125%) | | 09/10/20 07:5 |
| | Uncertainty | | | +/-1010 | | | | | | |
| QC1204626956 MB | | | | | | | | | | |
| Gross Radium Alpha | | | U | 26.4 | pCi/L | | | | | 09/10/20 07:3 |
| | Uncertainty | | | +/-27.4 | | | | | | |
| QC1204626958 519405002 MS | | | | | | | | | | |
| Gross Radium Alpha | 1.15E+05 | 1630 | | 1.15E+05 | pCi/L | | 98.6 | (75%-125%) | | 09/10/20 07:3 |
| | Uncertainty | +/-132 | | +/-1120 | | | | | | |
| QC1204626959 519405002 MSD | | | | | | | | | | |
| Gross Radium Alpha | 1.15E+05 | 1630 | | 1.17E+05 | pCi/L | 1.82 | 100 | (0%-20%) | | 09/10/20 07:3 |
| | Uncertainty | +/-132 | | +/-1120 | | | | | | |
| Batch 2033152 | | | | | | | | | | |
| QC1204626962 519405001 DUP | | | | | | | | | | |
| Radium-226 | | 801 | | 841 | pCi/L | 4.86 | | (0%-20%) | MXH8 | 09/10/20 09:3 |
| | Uncertainty | +/-29.1 | | +/-30.4 | | | | | | |

## QC Summary

**Workorder:** 519405



| Parmname | NOM | Sample | Qual | QC | Units | RPD% | REC% | Range | Anlst | Date Time |
|---|---|---|---|---|---|---|---|---|---|---|
| **High Rad Testing** | | | | | | | | | | |
| Batch 2033152 | | | | | | | | | | |
| QC1204626964 LCS | | | | | | | | | | |
| Radium-226 | 1350 | | | 1330 | pCi/L | | 98.6 | (75%-125%) | MXH8 | 09/10/20 09:3 |
| | Uncertainty | | | +/-40.4 | | | | | | |
| QC1204626961 MB | | | | | | | | | | |
| Radium-226 | | | U | 4.96 | pCi/L | | | | | 09/10/20 09:3 |
| | Uncertainty | | | +/-3.58 | | | | | | |
| QC1204626963 519405001 MS | | | | | | | | | | |
| Radium-226 | 1350 | 801 | | 2460 | pCi/L | | 123 | (75%-125%) | | 09/10/20 09:3 |
| | Uncertainty | +/-29.1 | | +/-59.2 | | | | | | |

**Notes:**

Counting Uncertainty is calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

| | |
|---|---|
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| A | The TIC is a suspected aldol-condensation product |
| B | For General Chemistry and Organic analysis the target analyte was detected in the associated blank. |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| F | Estimated Value |
| H | Analytical holding time was exceeded |
| K | Analyte present. Reported value may be biased high. Actual value is expected to be lower. |
| L | Analyte present. Reported value may be biased low. Actual value is expected to be higher. |
| M | M if above MDC and less than LLD |
| M | Matrix Related Failure |
| N/A | RPD or %Recovery limits do not apply. |
| N1 | See case narrative |
| ND | Analyte concentration is not detected above the detection limit |
| NJ | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Q | One or more quality control criteria have not been met. Refer to the applicable narrative or DER. |
| R | Sample results are rejected |
| U | Analyte was analyzed for, but not detected above the CRDL. |
| UI | Gamma Spectroscopy--Uncertain identification |
| UJ | Gamma Spectroscopy--Uncertain identification |

# QC Summary

**Workorder:** 519405



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

UL Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.

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

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

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.

Tab D

Chemical and Radiological Summary Tables

**Cell 1**

**Chemical and Radiological Characteristics**

| Constituent | 1987 | 2003 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2013 Resample | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 Resample | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | | | | | | | | | |
| Carbonate | <5 | <1 | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <1 | <1 | <1 | <1 | <1 | NS | <5 | <5 |
| Bicarbonate | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <1 | <1 | <1 | <1 | <1 | NS | <5 | <5 |
| Calcium | 630 | 307 | 483.8 | 604 | 635 | 711 | 577 | 426 | 768 | NS | 404 | 573 | 647 | 581 | 518 | NS | 720 | 618 |
| Chloride | 8000 | 6728 | 37340 | 9830 | 20700 | 7440 | 33800 | 78000 | 9900 | NS | 11600 | 25500 | 19200 | 19900 | 39300 | NS | 19800 | 40000 |
| Fluoride | <100 | 3005 | 31.72 | 0.3 | 0.4 | 28.4 | 69.2 | 62.9 | 4130 | NS | 2380 | 5880 | 2980 | 4290 | 5020 | NS | 3480 | 7460 |
| Magnesium | 7900 | 5988 | 21220 | 6550 | 16200 | 5410 | 14300 | 16000 | 4470 | NS | 5530 | 12400 | 9210 | 9380 | 20800 | NS | 9200 | 12300 |
| Nitrogen-Ammonia | 7800 | 3353 | 10628 | 5250 | 15200 | 8120 | 12900 | 9750 | 3900 | NS | 5700 | 5.4 | 7090 | 1040 | 9810 | NS | 10400 | 10600 |
| Nitrogen-Nitrate | <100 | 41.8 | 269.4 | 64.9 | 142 | 58 | 212 | 556 | 128 | NS | 53 | 192 | 124 | 152 | 328 | NS | 118 | 191 |
| Potassium | NA | 647 | 5698 | 1880 | 4140 | 1840 | 4510 | 9750 | 6580 | NS | 3010 | 7330 | 1970 | 2700 | 4790 | NS | 2600 | 4580 |
| Sodium | 10000 | 8638 | 62600 | 13200 | 39000 | 16700 | 29500 | 41700 | 15900 | NS | 12200 | 32100 | 18900 | 23900 | 53500 | NS | 28000 | 62900 |
| Sulfate | 190000 | 63667 | 287600 | 118000 | 232000 | 107000 | 182000 | 158000 | 100000 | NS | 124000 | 204000 | 212000 | 165000 | 253000 | NS | 169000 | 222000 |
| pH (s.u.) | 0.70 | 1.88 | 0.80 | 1.53 | 1.15 | 2.73 | 2.23 | 1.90 | 2.74 | NS | 1.30 | 1.01 | <1.00 | <1.00 | <1.00 | NS | 1.14 | 0.92 |
| TDS | 120000 | 94700 | 357400 | 131000 | 140000 | 130000 | 216000 | 342000 | 149000 | NS | 159000 | 334000 | 242000 | 231000 | 361000 | NS | 257000 | 422000 |
| Conductivity (umhos/cm) | NA | NA | NA | NA | 365000 | 110000 | 112000 | 136000 | 94200 | NS | 113000 | 131000 | 123000 | 57600 | 110000 | NS | 119000 | 81500 |
| **Metals (ug/L)** | | | | | | | | | | | | | | | | | | |
| Arsenic | 440000 | 121267 | 849000 | 271000 | 436000 | 74400 | 299000 | 25500 | 9800 | NS | 249000 | 377000 | 407000 | 391000 | 641000 | NS | 270000 | 599000 |
| Beryllium | 780 | 475 | 2262 | 500 | 410 | 338 | 1270 | 3180 | 415 | NS | 448 | 1290 | 1030 | 749 | 1510 | NS | 930 | 1330 |
| Cadmium | 6600 | 3990 | 29320 | 8790 | 9120 | 2940 | 13700 | 30700 | 2380 | NS | 3060 | 7710 | 6320 | 6730 | 14000 | NS | 5400 | 9070 |
| Chromium | 13000 | 6365 | 29940 | 6760 | 18700 | 5620 | 22700 | 12100 | 8350 | NS | 13200 | 19600 | 14000 | 15900 | 21100 | NS | 15000 | 25700 |
| Cobalt | 120000 | NA | 88240 | 23500 | 97500 | 16200 | 56000 | 53100 | 25500 | NS | 56500 | 82000 | 77200 | 91400 | 113000 | NS | 66000 | 51400 |
| Copper | 740000 | 196667 | 881000 | 360000 | 168000 | 125000 | 483000 | 885000 | 544000 | NS | 3420000 | 3560000 | 4730000 | 3440000 | 4550000 | NS | 1700000 | 2110000 |
| Iron | 3400000 | 2820000 | 13480000 | 3280000 | 2390000 | 3400000 | 8940000 | 840000 | 1420000 | NS | 2520000 | 6680000 | 5650000 | 2300000 | 12200000 | NS | 9100000 | 15400000 |
| Lead | <20000 | 3393 | 27420 | 11200 | 10600 | 9240 | 23600 | 17000 | 2810 | NS | 13500 | 16800 | 22500 | 23000 | 41000 | NS | 22000 | 42400 |
| Manganese | 140000 | 162500 | 990200 | 206000 | 723000 | 173000 | 735000 | 1560000 | 188000 | NS | 162000 | 515000 | 713000 | 510000 | 936000 | NS | 540000 | 833000 |
| Mercury | NA | NA | ND | ND | 7.61 | 7.2 | 61.4 | 117 | 6.16 | NS | 12.5 | 24.6 | 8.59 | 7.86 | 16.8 | NS | 3.7 | 14 |
| Molybdenum | 240000 | 50550 | 415600 | 106000 | 142000 | 35300 | 235000 | 434000 | 16800 | NS | 68800 | 127000 | 97100 | 128000 | 239000 | NS | 120000 | 247000 |
| Nickel | 370000 | 36950 | 40860 | 32000 | 156000 | 27500 | 43700 | 15000 | 39100 | NS | 129000 | 130000 | 170000 | 183000 | 167000 | NS | 110000 | 27100 |
| Selenium | <20000 | 1862 | 15420 | 13000 | 14800 | 5220 | 11600 | 8090 | 2690 | NS | 3970 | 7070 | 3950 | 5070 | 10700 | NS | 10000 | 16600 |
| Silver | <5000 | NA | 1559.2 | 449 | 558 | 155 | 1110 | 4310 | 329 | NS | 336 | 1390 | 1240 | 1240 | 2320 | NS | 790 | 1290 |
| Thallium | 45000 | NA | 407.8 | 165 | 387 | 193 | 560 | 13 | 63.3 | NS | 876 | 1130 | 754 | 155 | 442 | NS | <700 | <50 |
| Tin | <5000 | NA | 6512 | 1240 | 2290 | 263 | 1500 | <100 | <100 | NS | <17000 | <100 | <17000 | <17000 | <17000 | NS | 540 | 1220 |
| Uranium | 105000 | 134517 | 788600 | 416000 | 578000 | 159000 | 838000 | 1450000 | 140000 | NS | 137000 | 363000 | 131000 | 102000 | 248000 | NS | 81000 | 200000 |
| Vanadium | 280000 | 348000 | 2208200 | 1200000 | 773000 | 752000 | 2500000 | 1940000 | 98200 | NS | 485000 | 1130000 | 746000 | 1520000 | 2440000 | NS | 1400000 | 2090000 |
| Zinc | 1300000 | NA | 642940 | 476000 | 229000 | 171000 | 398000 | 811000 | 228000 | NS | 229000 | 638000 | 448000 | 515000 | 948000 | NS | 550000 | 396000 |
| **Radiologics (pCi/L)** | | | | | | | | | | | | | | | | | | |
| Gross Alpha | NA | 1693331 | 29380 | 21900 | 16500 | 11300 | 3610 | 12600 | 32700 | NS | 331000 | 735000 (8/4/2015) 73800 (5/28/2015) | 420000 | 191000 | 550000 | NS | 326000 | 83800 |

**Cell 1**
**Chemical and Radiological Characteristics**

| Constituent | 1987 | 2003 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2013 Resample | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 Resample | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCS (ug/L)** | | | | | | | | | | | | | | | | | | |
| Acetone | 35 | NA | 66.5 | 110 | 710 | 260 | 80 | 310 | 41.1 | NS | <700 | 56 | 40.6 | 28 | 50.4 | NS | 28 | 32.6 |
| Benzene | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <5.0 | <1 | <1 | <1 | <1 | NS | <1 | <1 |
| Carbon tetrachloride | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <5.0 | <1 | <1 | <1 | <1 | NS | <1 | <1 |
| Chloroform | 8 | NA | 6.7 | 6.6 | 16 | 4.9 | 13 | 19 | 7.62 | NS | <70.0 | 5.54 | <1 | 3.42 | 114 | NS | 7.5 | 2.84 |
| Chloromethane | NA | NA | ND | 9.4 | 11 | 4.4 | 3.6 | 4 | 5 | NS | <30.0 | 1.93 | <1 | 1.13 | 1.16 | NS | 2.3 | 1.49 |
| MEK | NA | NA | ND | ND | 120 | 65 | <1 | 200 | <20 | NS | <4000 | <20 | <20 | <20 | <20 | NS | 11 J | 6.41 |
| Methylene Chloride | 11 | NA | ND | ND | 2 | <1 | <1 | 2 | <1 | NS | <5.0 | 1.83 | <1 | 1.09 | 2.41 | NS | <1 | <5 |
| Naphthalene | <10000 | NA | <10 | ND | 1.1 | 5.4 | 2 | 3 | <1 | NS | <100 | <1 | <1 | <1 | <1 | NS | <1 | <1 |
| Tetrahydrofuran | NA | NA | 150 | <20 | <100 | <10 | <500 | 2.9 | <1 | NS | <46.0 | <1 | <1 | <1 | 4.93 | NS | <35 | <5 |
| Toluene | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <1000 | <1 | <1 | <1 | <1 | NS | <1 | <1 |
| Xylenes | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <10000 | <1 | <1 | <1 | <1 | NS | <1 | <3 |
| **SVOCS (ug/L)** | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 1,2-Dichlorobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 1,3-Dichlorobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 1,4-Dichlorobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 1-Methylnaphthalene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3.0 |
| 2,4,5-Trichlorophenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2,4,6-Trichlorophenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2,4-Dichlorophenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2,4-Dimethylphenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2,4-Dinitrophenol | NA | NA | NA | NA | <250 | <20 | <20 | <20 | <21.6 | <20 | <20 | <20 | <10 | <10 | <148 | <8.04 | <50 | <50 |
| 2,4-Dinitrotoluene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2,6-Dinitrotoluene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2-Chloronaphthalene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <4.1 |
| 2-Chlorophenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2-Methylnaphthalene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| 2-Methylphenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 2-Nitrophenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 3&4-Methylphenol | NA | NA | NA | NA | <22 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <37 |
| 3,3-Dichlorobenzidine | NA | NA | NA | NA | <100 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <50 | <33 |
| 4,6-Dinitro-2-methylphenol | NA | NA | NA | NA | <250 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <50 | <30 |
| 4-Bromophenyl phenyl ether | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 4-Chloro-3-methylphenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 4-Chlorophenyl phenyl ether | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| 4-Nitrophenol | NA | NA | NA | NA | <250 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <50 | <30 |
| Acenaphthene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Acenaphthylene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Anthracene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Azobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Benz(a)anthracene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |

**Cell 1**
**Chemical and Radiological Characteristics**

| Constituent | 1987 | 2003 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2013 Resample | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 Resample | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzidine | NA | NA | NA | NA | <100 | <10 | <10 | <10 | <10.8 | <10 | 41 | <10 | <10 | <10 | <148 | <8.04 | <100 | <39 |
| Benzo(a)pyrene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Benzo(b)fluoranthene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Benzo(g,h,i)perylene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Benzo(k)fluoranthene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Bis(2-chloroethoxy) methane | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Bis(2-chloroethyl) ether | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Bis(2-chloroisopropyl) ether | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Bis(2-ethylhexyl) phthalate | NA | NA | NA | NA | <50 | 27 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Butyl benzyl phthalate | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Chrysene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Dibenz(a,h)anthracene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Diethyl phthalate | NA | NA | NA | NA | 170 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Dimethyl phthalate | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Di-n-butyl phthalate | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Di-n-octyl phthalate | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Fluoranthene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Fluorene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Hexachlorobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Hexachlorobutadiene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <30 | <30 |
| Hexachloro - cyclopentadiene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Hexachloroethane | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <30 | <30 |
| Indeno(1,2,3-cd)pyrene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Isophorone | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <35 |
| Naphthalene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Nitrobenzene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| N-Nitrosodi-n-propylamine | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| N-Nitrosodiphenylamine | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Pentachlorophenol | NA | NA | NA | NA | <250 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <50 | <30 |
| Phenanthrene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Phenol | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <30 |
| Pyrene | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <10 | <3 |
| Pyridine | NA | NA | NA | NA | <50 | <10 | <10 | <10 | <10.8 | <10 | <10 | <10 | <10 | <10 | <148 | <8.04 | <20 | <30 |

[1] Historic values reported for Gross Alpha from 1987 and 2003 are total gross alpha reported in pCi/L. All other gross alpha data are reported as Gross Alpha minus Rn & U.

**Cell 2 Slimes Drain**

**Chemical and Radiological Characteristics**

| Constituents | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | | | | | |
| Carbonate | ND | ND | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Bicarbonate | ND | ND | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Calcium | 572 | 528 | 508 | 496 | 474 | 462 | 465 | 322 | 524 | 402 | 477 | 538 | 480 | 513 |
| Chloride | 3700 | 3860 | 2750 | 3510 | 3110 | 3730 | 3270 | 3720 | 3850 | 4040 | 3820 | 4310 | 3870 | 4080 |
| Fluoride | 3.3 | ND | <0.1 | 2.4 | 2.1 | 1.32 | 161 | 130 | 204 | 48.4 | 110 | 116 | 105 | 130 |
| Magnesium | 4100 | 4030 | 3750 | 3790 | 3640 | 3760 | 3320 | 2780 | 3810 | 3570 | 3630 | 4470 | 3700 | 3800 |
| Nitrogen-Ammonia | 4020 | 3620 | 3240 | 3820 | 2940 | 3540 | 1880 | 3500 | 367 | 3800 | 500 | 5620 | 4420 | 7150 |
| Nitrogen-Nitrate | 30.9 | 20.3 | 38 | 126 | 38 | 27 | 47.2 | 35 | 1.06 | 12.7 | 13.7 | 12.1 | 33.0 | 21.6 |
| Potassium | 636 | 560 | 689 | 620 | 636 | 611 | 622 | 489 | 659 | 512 | 668 | 774 | 710 | 735 |
| Sodium | 4050 | 4600 | 4410 | 4770 | 4590 | 4380 | 3980 | 3130 | 4800 | 4690 | 4810 | 5290 | 4600 | 4620 |
| Sulfate | 60600 | 74000 | 72200 | 63700 | 64200 | 58300 | 83700 | 62200 | 57800 | 83900 | 58300 | 63300 | 67000 | 67000 |
| pH (s.u.) | 3.18 | 3.24 | 3.11 | 3.39 | 3.18 | 3 | 3.02 | 3.1 | 3.1 | 2.99 | 3.08 | 2.89 | 3.07 | 3.06 |
| TDS | 84300 | 74600 | 84100 | 79900 | 80200 | 83800 | 92200 | 87000 | 88200 | 93100 | 85900 | 99900 | 94300 | 89500 |
| Conductivity (umhos/cm) | NA | NA | 88700 | 60200 | 51400 | 52900 | 51100 | 54100 | 58800 | 44500 | 52600 | 58200 | 55700 | 53900 |
| **Metals (ug/L)** | | | | | | | | | | | | | | |
| Arsenic | 26900 | 19300 | 14200 | 23500 | 17800 | 19400 | 21000 | 19800 | 13300 | 16900 | 21100 | 19600 | 23000 | 18000 |
| Beryllium | 298 | 245 | 271 | 267 | 231 | 251 | 262 | 197 | 275 | 259 | 261 | 241 | 280 | 284 |
| Cadmium | 5500 | 5840 | 5510 | 6370 | 5580 | 5290 | 5780 | 6480 | 6260 | 6610 | 6790 | 6380 | 6500 | 5220 |
| Chromium | 2750 | 2450 | 2230 | 2510 | 2380 | 2350 | 2290 | 1630 | 1840 | 1630 | 2290 | 2100 | 2100 | 1860 |
| Cobalt | 46500 | 43800 | 38700 | 48200 | 42500 | 48700 | 44900 | 46700 | 46000 | 46100 | 50600 | 46900 | 54000 | 40800 |
| Copper | 106000 | 154000 | 170000 | 148000 | 132000 | 138000 | 137000 | 126000 | 143000 | 156000 | 148000 | 136000 | 160000 | 93900 |
| Iron | 2770000 | 3310000 | 3230000 | 2720000 | 2960000 | 2850000 | 2810000 | 2180000 | 3000000 | 3410000 | 3430000 | 3030000 | 3600000 | 2420000 |
| Lead | 566 | 528 | 403 | 586 | 501 | 619 | 515 | 638 | 268 | 484 | 593 | 589 | 590 | 400 |
| Manganese | 117000 | 130000 | 160000 | 144000 | 123000 | 141000 | 122000 | 98000 | 136000 | 149000 | 151000 | 137000 | 170000 | 133000 |
| Mercury | ND | ND | <0.5 | <4 | 11.1 | 1.9 | <0.5 | <0.0020 | <0.5 | <2.00 | <2.00 | <2.00 | <0.2 | 0.058 |
| Molybdenum | 4080 | 3190 | 2240 | 4630 | 3510 | 3610 | 3650 | 4250 | 2010 | 3360 | 4060 | 3340 | 3200 | 2170 |
| Nickel | 123000 | 122000 | 108000 | 126000 | 111000 | 125000 | 108000 | 127000 | 120000 | 134000 | 133000 | 121000 | 140000 | 104000 |
| Selenium | 422 | 647 | 726 | 844 | 714 | 711 | 678 | 1020 | 631 | 615 | 683 | 635 | 1300 | 585 |
| Silver | ND | ND | <10 | <10 | <10 | <10 | <10 | <100 | <20 | <100 | <100 | <100 | <50 | 6 |
| Thallium | 361 | 703 | 368 | 470 | 371 | 338 | 278 | 402 | 233 | 212 | 373 | 374 | 390 | 2190 |
| Tin | ND | ND | <100 | <100 | <100 | <100 | <100 | <17000 | <100 | <17000 | <17000 | <17000 | <50 | <50 |
| Uranium | 23000 | 29200 | 29900 | 30600 | 27100 | 33400 | 22800 | 26400 | 27200 | 27300 | 28600 | 25200 | 29000 | 18600 |
| Vanadium | 409000 | 463000 | 536000 | 469000 | 454000 | 475000 | 452000 | 497000 | 513000 | 497000 | 534000 | 516000 | 500000 | 345000 |
| Zinc | 767000 | 750000 | 582000 | 652000 | 574000 | 639000 | 631000 | 405000 | 702000 | 764000 | 760000 | 728000 | 850000 | 816000 |
| **Radiologics (pCi/L)** | | | | | | | | | | | | | | |
| Gross Alpha | 1290 | 1570 | 1580 | 1000 | 1230 | 1370<br>(2400)* | 2270 | 6890 | 7210 | 5660 | 4570 | 7520 | 3790 | 1630 |
| **VOCS (ug/L)** | | | | | | | | | | | | | | |
| Acetone | 550 | 410 | 570 | 460 | 690 | 600 | 384 | <700 | 599 | 473 | 551 | 551 | 449 | 501 |
| Benzene | ND | ND | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <5 |
| Carbon tetrachloride | ND | ND | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <5 |
| Chloroform | 20 | 17 | 16 | 15 | 20 | 16 | 21.4 | <70.0 | 18.6 | 15 | 17.1 | 17.1 | 16 | 13.7 |
| Chloromethane | 1.8 | ND | 2.2 | 2.3 | 2 | 3 | 2.04 | <30.0 | <1 | <1 | 1.46 | 1.46 | 2.2 | <5 |

**Cell 2 Slimes Drain**

**Chemical and Radiological Characteristics**

| Constituents | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEK | 65 | ND | 100 | 83 | 130 | 100 | 95.5 | <4000 | 102 | 80.3 | 58.4 | 58.4 | 135 | 74.0 |
| Methylene Chloride | ND | ND | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | 1.02 | 1.02 | 0.49 J | <25 |
| Naphthalene | 14 | 7.5 | 16 | 17 | 13 | 12 | 16.8 | <100 | 16.2 | 11.9 | 10.1 | 10.1 | 13 | 7.65 |
| Tetrahydrofuran | 15 | NA | <100 | <10 | <10 | 3.2 | 3.98 | <46.0 | 2.16 | <1 | 2.88 | 2.88 | <10 | <25 |
| Toluene | 1.7 | ND | 2.6 | 2.6 | 3 | 2 | 3.23 | <1000 | 3.74 | 2.94 | 3.20 | 3.20 | 2.4 | <5 |
| Xylenes | 1.5 | ND | <1 | 2.2 | <1 | 2 | 5.97 | <10000 | <1 | <1 | <1 | <1 | 0.51 J | <15 |
| **SVOCS (ug/L)** | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 1,2-Dichlorobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 1,3-Dichlorobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 1,4-Dichlorobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 1-Methylnaphthalene | NA | NA | <11 | <10 | <10 | <10 | <10 | 11 | <10 | <10 | <10 | <9.03 | 12 | <3.0 |
| 2,4,5-Trichlorophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2,4,6-Trichlorophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2,4-Dichlorophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2,4-Dimethylphenol | NA | NA | <51 | <20 | <20 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2,4-Dinitrophenol | NA | NA | <11 | <10 | <10 | <20 | <20 | <20 | <20 | <10 | <10 | <9.03 | <50 | <50 |
| 2,4-Dinitrotoluene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2,6-Dinitrotoluene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2-Chloronaphthalene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <4.1 |
| 2-Chlorophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2-Methylnaphthalene | NA | NA | <11 | <10 | <10 | <10 | <10 | 11 | <10 | 11.1 | <10 | <9.03 | 11 | <3 |
| 2-Methylphenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 2-Nitrophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 3&4-Methylphenol | NA | NA | <21 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <37 |
| 3,3´-Dichlorobenzidine | NA | NA | <51 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <46 | <33 |
| 4,6-Dinitro-2-methylphenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <50 | <30 |
| 4-Bromophenyl phenyl ether | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 4-Chloro-3-methylphenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 4-Chlorophenyl phenyl ether | NA | NA | <51 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| 4-Nitrophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <50 | <30 |
| Acenaphthene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Acenaphthylene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Anthracene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Azobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| Benz(a)anthracene | NA | NA | <21 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Benzidine | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <92 | <39 |
| Benzo(a)pyrene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Benzo(b)fluoranthene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Benzo(g,h,i)perylene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Benzo(k)fluoranthene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Bis(2-chloroethoxy)methane | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Bis(2-chloroethyl) ether | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| Bis(2-chloroisopropyl) ether | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |

**Cell 2 Slimes Drain**

**Chemical and Radiological Characteristics**

| Constituents | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bis(2-ethylhexyl) phthalate | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | 1.1 | <3 |
| Butyl benzyl phthalate | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Chrysene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Dibenz(a,h)anthracene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Diethyl phthalate | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Dimethyl phthalate | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | 1.5 | <3 |
| Di-n-butyl phthalate | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Di-n-octyl phthalate | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Fluoranthene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Fluorene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Hexachlorobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| Hexachlorobutadiene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <28 | <30 |
| Hexachlorocyclopentadiene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| Hexachloroethane | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <28 | <30 |
| Indeno(1,2,3-cd)pyrene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Isophorone | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <35 |
| Naphthalene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | 5.3 | <3 |
| Nitrobenzene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| N-Nitrosodimethylamine | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| N-Nitrosodi-n-propylamine | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| N-Nitrosodiphenylamine | NA | NA | <51 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| Pentachlorophenol | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <50 | <30 |
| Phenanthrene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Phenol | NA | NA | <11 | 10.7 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <30 |
| Pyrene | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <10 | <3 |
| Pyridine | NA | NA | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.03 | <18 | <30 |

* Sample was reanalyzed due to comparability with the duplicate sample. The reanalysis data are in (parenthesis).

**Cell 2 LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | | | |
| Carbonate | <1 | <1 | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled |
| Bicarbonate | 168 | 324 | | | | | | | | | | |
| Calcium | 711 | 615 | | | | | | | | | | |
| Chloride | 1750 | 1360 | | | | | | | | | | |
| Fluoride | 0.4 | 0.4 | | | | | | | | | | |
| Magnesium | 596 | 454 | | | | | | | | | | |
| Nitrogen-Ammonia | 32.6 | 0.7 | | | | | | | | | | |
| Nitrogen-Nitrate | 2.8 | 2.2 | | | | | | | | | | |
| Potassium | 22 | 13 | | | | | | | | | | |
| Sodium | 412 | 318 | | | | | | | | | | |
| Sulfate | 2700 | 1780 | | | | | | | | | | |
| pH (s.u.) | 6.6 | 7.36 | | | | | | | | | | |
| TDS | 6750 | 5310 | | | | | | | | | | |
| Conductivity (umhos/cm) | 11000 | 6500 | | | | | | | | | | |
| **Metals (ug/L)** | | | | | | | | | | | | |
| Arsenic | <5 | <5 | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled |
| Beryllium | <0.50 | <0.50 | | | | | | | | | | |
| Cadmium | 33.4 | 1.1 | | | | | | | | | | |
| Chromium | <25 | <25 | | | | | | | | | | |
| Cobalt | 314 | <10 | | | | | | | | | | |
| Copper | 59 | 12 | | | | | | | | | | |
| Iron | 208 | 37 | | | | | | | | | | |
| Lead | <1.0 | <1.0 | | | | | | | | | | |
| Manganese | 1810 | 395 | | | | | | | | | | |
| Mercury | <0.50 | 0.52 | | | | | | | | | | |
| Molybdenum | 21 | 13 | | | | | | | | | | |
| Nickel | 948 | <20 | | | | | | | | | | |
| Selenium | 7.9 | 9.4 | | | | | | | | | | |
| Silver | <10 | <10 | | | | | | | | | | |
| Thallium | 0.92 | <0.50 | | | | | | | | | | |
| Tin | <100 | <100 | | | | | | | | | | |
| Uranium | 83.8 | 79.6 | | | | | | | | | | |
| Vanadium | 22 | <15 | | | | | | | | | | |
| Zinc | 4220 | 78 | | | | | | | | | | |

**Cell 2 LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Radiologics (pCi/L)** | | | | | | | | | | | | |
| Gross Alpha | 13.5 | 7.3 | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled |
| **VOCS (ug/L)** | | | | | | | | | | | | |
| Acetone | <20 | <20 | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled |
| Benzene | <1 | <1 | | | | | | | | | | |
| Carbon tetrachloride | <1 | <1 | | | | | | | | | | |
| Chloroform | <1 | <1 | | | | | | | | | | |
| Chloromethane | <1 | <1 | | | | | | | | | | |
| MEK | <20 | <20 | | | | | | | | | | |
| Methylene Chloride | <1 | <1 | | | | | | | | | | |
| Naphthalene | <1 | <1 | | | | | | | | | | |
| Tetrahydrofuran | <100 | 6.13 | | | | | | | | | | |
| Toluene | <1 | <1 | | | | | | | | | | |
| Xylenes | <1 | <1 | | | | | | | | | | |
| **SVOCS (ug/L)** | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | NA | <10 | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled |
| 1,2-Dichlorobenzene | NA | <10 | | | | | | | | | | |
| 1,3-Dichlorobenzene | NA | <10 | | | | | | | | | | |
| 1,4-Dichlorobenzene | NA | <10 | | | | | | | | | | |
| 1-Methylnaphthalene | NA | <10 | | | | | | | | | | |
| 2,4,5-Trichlorophenol | NA | <10 | | | | | | | | | | |
| 2,4,6-Trichlorophenol | NA | <10 | | | | | | | | | | |
| 2,4-Dichlorophenol | NA | <10 | | | | | | | | | | |
| 2,4-Dimethylphenol | NA | <10 | | | | | | | | | | |
| 2,4-Dinitrophenol | NA | <20 | | | | | | | | | | |
| 2,4-Dinitrotoluene | NA | <10 | | | | | | | | | | |
| 2,6-Dinitrotoluene | NA | <10 | | | | | | | | | | |
| 2-Chloronaphthalene | NA | <10 | | | | | | | | | | |
| 2-Chlorophenol | NA | <10 | | | | | | | | | | |
| 2-Methylnaphthalene | NA | <10 | | | | | | | | | | |
| 2-Methylphenol | NA | <10 | | | | | | | | | | |
| 2-Nitrophenol | NA | <10 | | | | | | | | | | |
| 3&4-Methylphenol | NA | <10 | | | | | | | | | | |
| 3,3´-Dichlorobenzidine | NA | <10 | | | | | | | | | | |
| 4,6-Dinitro-2-methylphenol | NA | <10 | | | | | | | | | | |
| 4-Bromophenyl phenyl ether | NA | <10 | | | | | | | | | | |

**Cell 2 LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4-Chloro-3-methylphenol | NA | <10 | | | | | | | | | | |
| 4-Chlorophenyl phenyl ether | NA | <10 | | | | | | | | | | |
| 4-Nitrophenol | NA | <10 | | | | | | | | | | |
| Acenaphthene | NA | <10 | | | | | | | | | | |
| Acenaphthylene | NA | <10 | | | | | | | | | | |
| Anthracene | NA | <10 | | | | | | | | | | |
| Azobenzene | NA | <10 | | | | | | | | | | |
| Benz(a)anthracene | NA | <10 | | | | | | | | | | |
| Benzidine | NA | <10 | | | | | | | | | | |
| Benzo(a)pyrene | NA | <10 | | | | | | | | | | |
| Benzo(b)fluoranthene | NA | <10 | | | | | | | | | | |
| Benzo(g,h,i)perylene | NA | <10 | | | | | | | | | | |
| Benzo(k)fluoranthene | NA | <10 | | | | | | | | | | |
| Bis(2-chloroethoxy)methane | NA | <10 | | | | | | | | | | |
| Bis(2-chloroethyl) ether | NA | <10 | | | | | | | | | | |
| Bis(2-chloroisopropyl) ether | NA | <10 | | | | | | | | | | |
| Bis(2-ethylhexyl) phthalate | NA | <10 | | | | | | | | | | |
| Butyl benzyl phthalate | NA | <10 | | | | | | | | | | |
| Chrysene | NA | <10 | | | | | | | | | | |
| Dibenz(a,h)anthracene | NA | <10 | | | | | | | | | | |
| Diethyl phthalate | NA | <10 | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled | Not Sampled |
| Dimethyl phthalate | NA | <10 | | | | | | | | | | |
| Di-n-butyl phthalate | NA | <10 | | | | | | | | | | |
| Di-n-octyl phthalate | NA | <10 | | | | | | | | | | |
| Fluoranthene | NA | <10 | | | | | | | | | | |
| Fluorene | NA | <10 | | | | | | | | | | |
| Hexachlorobenzene | NA | <10 | | | | | | | | | | |
| Hexachlorobutadiene | NA | <10 | | | | | | | | | | |
| Hexachlorocyclopentadiene | NA | <10 | | | | | | | | | | |
| Hexachloroethane | NA | <10 | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | NA | <10 | | | | | | | | | | |
| Isophorone | NA | <10 | | | | | | | | | | |
| Naphthalene | NA | <10 | | | | | | | | | | |
| Nitrobenzene | NA | <10 | | | | | | | | | | |
| N-Nitrosodimethylamine | NA | <10 | | | | | | | | | | |
| N-Nitrosodi-n-propylamine | NA | <10 | | | | | | | | | | |
| N-Nitrosodiphenylamine | NA | <10 | | | | | | | | | | |
| Pentachlorophenol | NA | <10 | | | | | | | | | | |
| Phenanthrene | NA | <10 | | | | | | | | | | |
| Phenol | NA | <10 | | | | | | | | | | |
| Pyrene | NA | <10 | | | | | | | | | | |
| Pyridine | NA | <10 | | | | | | | | | | |

**Cell 3**
**Chemical and Radiological Characteristics**

| Constituent | 1987 | 2003 (Avg) | 2007 (Avg) | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2013 ReSample | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 ReSample | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | | | | | | | | | |
| Carbonate | NA | <1 | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <1 | <1 | <1.00 | <1.00 | <1.00 | NS | <5 | Not Sampled - Dry |
| Bicarbonate | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <1 | NS | <1 | <1 | <1.00 | <1.00 | <1.00 | NS | <5 | |
| Calcium | 300 | 418 | 887 | 478 | 628 | 560 | 200 | 591 | 586 | NS | 294 | 713 | 148 | 526 | 498 | NS | 510 | |
| Chloride | NA | 2460 | 15965 | 15400 | 17200 | 3470 | 40400 | 8880 | 38400 | NS | 7200 | 22800 | 115000 | 2720 | 55200 | NS | 15000 | |
| Fluoride | <100 | 667 | 42.8 | 1.4 | 0.6 | 54.8 | 64.1 | 2300 | 12400 | NS | 1330 | 5410 | 46500 | 189 | 7400 | NS | 1340 | |
| Magnesium | 5400 | 3386 | 15767 | 13100 | 17100 | 2500 | 22100 | 5680 | 15400 | NS | 1910 | 12700 | 31000 | 84400 | 22000 | NS | 10000 | |
| Nitrogen-Ammonia | 13900 | 1302 | 13867 | 9010 | 21600 | 2650 | 6470 | 6840 | 100 | NS | 3030 | 8.91 | 6270 | 88.5 | 9490 | NS | 9000 | |
| Nitrogen-Nitrate | <100 | 20 | 102 | 44 | 142 | 26 | 261 | 64 | 277 | NS | 59.5 | 26.6 | 582 | 107 | 710 | NS | 925 | |
| Potassium | NA | 254 | 6657 | 4760 | 3820 | 782 | 2590 | 1190 | 2110 | NS | 386 | 1620 | 3120 | 133 | 1480 | NS | 630 | |
| Sodium | 5900 | 3198 | 25583 | 22900 | 28600 | 5620 | 47900 | 6660 | 34400 | NS | 3630 | 23800 | 59800 | 2120 | 46900 | NS | 14000 | |
| Sulfate | 180000 | 33400 | 173667 | 167000 | 214000 | 40400 | 197000 | 80000 | 440000 | NS | 37000 | 158000 | 834000 | 9970 | 208000 | NS | 96000 | |
| pH (s.u.) | 0.82 | 2.28 | 1.6 | 1.79 | 1.4 | 2.18 | 1.27 | 2.4 | 1.05 | NS | 2.2 | 1.72 | <1.00 | 3.63 | 1.32 | NS | 3.88 | |
| TDS | 189000 | 51633 | 228500 | 193000 | 243000 | 56200 | 296000 | 120000 | 410000 | NS | 70100 | 238000 | 887000 | 17300 | 327000 | NS | 143000 | |
| Conductivity (umhos/cm) | NA | NA | NA | NA | 304000 | 59800 | 86400 | 80300 | 84300 | NS | 56200 | 121000 | 13600 | 20300 | 104000 | NS | 95500 | |
| **Metals (ug/L)** | | | | | | | | | | | | | | | | | | |
| Arsenic | 163000 | 32867 | 256500 | 489000 | ND | 52900 | 263000 | 4340 | 66000 | NS | 2920 | 21500 | 194000 | 870 | 20900 | NS | 380 | Not Sampled - Dry |
| Beryllium | 540 | 430 | 913 | 840 | 905 | 206 | 1570 | 678 | 2570 | NS | 222 | 1520 | 12500 | 590 | 2950 | NS | 350 | |
| Cadmium | 2600 | 1958 | 9260 | 15400 | ND | 1960 | 12200 | 3460 | 24000 | NS | 2550 | 14800 | 41000 | 1190 | 52100 | NS | 7400 | |
| Chromium | 12000 | 3742 | 14883 | 12800 | ND | 3360 | 22800 | 10900 | 30600 | NS | 2380 | 15300 | 76200 | <100 | 25100 | NS | 230J | |
| Cobalt | 48000 | NA | 82783 | 57000 | ND | 13000 | 76000 | 76100 | 99700 | NS | 20800 | 72500 | 74200 | 4440 | 120000 | NS | 64000 | |
| Copper | 360000 | 87333 | 505000 | 345000 | ND | 89000 | 768000 | 379000 | 954000 | NS | 139000 | 511000 | 3000000 | 9720 | 515000 | NS | 35000 | |
| Iron | 2100000 | 1278333 | 4874500 | 4400000 | 5970000 | 1460000 | 10200000 | 3400000 | 9700000 | NS | 688000 | 4570000 | 15400000 | 262000 | 13300000 | NS | 2500000 | |
| Lead | <20000 | 2507 | 9647 | 16900 | ND | 17200 | 16700 | 1860 | 14400 | NS | 1900 | 9090 | 4030 | 15.8 | 20500 | NS | <75 | |
| Manganese | 82000 | 144000 | 496833 | 313000 | ND | 101000 | 587000 | 3110000 | 2470000 | NS | 214000 | 1270000 | 5690000 | 102000 | 4070000 | NS | 1000000 | |
| Mercury | ND | NA | ND | 16 | ND | <4 | 30.9 | 9.6 | 21.6 | NS | 2.4 | 7.01 | 873 | <2.00 | 430 | NS | 0.20 | |
| Molybdenum | 52000 | 12250 | 122167 | 209000 | 14 | 21300 | 96200 | 790 | 56100 | NS | 2930 | 12500 | 133000 | 70.1 | 3740 | NS | 550 | |
| Nickel | 170000 | 20917 | 131833 | 241000 | ND | 23800 | 75800 | 150000 | 122000 | NS | 44900 | 121000 | 29200 | 7220 | 113000 | NS | 150000 | |
| Selenium | <2000 | 910 | 5856 | 10200 | ND | 3080 | 6900 | 2460 | 7060 | NS | 1370 | 4330 | 3170 | 306 | 3680 | NS | 2900 | |
| Silver | <2500 | NA | 305 | 1010 | ND | 101 | 792 | 1850 | 3380 | NS | 329 | 1790 | 6780 | <100 | 3770 | NS | 110 | |
| Thallium | 4700 | NA | 446 | 1200 | ND | 190 | 518 | 1080 | 694 | NS | 290 | 602 | 2160 | 21.3 | 3760 | NS | 170 | |
| Tin | NA | NA | 1090 | 1070 | ND | 155 | 325 | <100 | <100 | NS | <17000 | <100 | <17000 | <17000 | <17000 | NS | <50 | |
| Uranium | 118000 | 67833 | 332333 | 636000 | 3690 | 180000 | 458000 | 835000 | 1200000 | NS | 134000 | 530000 | 5360000 | 9630 | 1110000 | NS | 19000 | |
| Vanadium | 210000 | 158333 | 935000 | 1130000 | ND | 692000 | 2370000 | 836000 | 3220000 | NS | 454000 | 1720000 | 10300000 | 5600 | 2420000 | NS | 54000 | |
| Zinc | 590000 | NA | 748833 | 515000 | ND | 134000 | 726000 | 652000 | 1430000 | NS | 155000 | 899000 | 7810000 | 68100 | 2100000 | NS | 950000 | |

**Cell 3**
**Chemical and Radiological Characteristics**

| Constituent | 1987 | 2003 (Avg) | 2007 (Avg) | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2013 ReSample | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 ReSample | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Radiologics (pCi/L)** | | | | | | | | | | | | | | | | | | |
| Gross Alpha | NA | 1015831 | 16533 | 21700 | 17000 | 4030 | 11100 | 1530 | 81900 | NS | 19700 | 94900 (8/4/2015) 8780 (5/28/2015) | 86000 | 292 | 19700 | NS | 3890 | Not Sampled - Dry |
| **VOCS (ug/L)** | | | | | | | | | | | | | | | | | | |
| Acetone | 28 | NA | 80 | 100 | 67 | 37 | 330 | 64 | 302 | 159 | <700 | 82.8 | <200 | 48.4 | 135 | NS | 135 | Not Sampled - Dry |
| Benzene | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <5 | <1 | <5.0 | <1 | <1 | <1 | <1 | NS | <1 | |
| Carbon tetrachloride | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <5 | <1 | <5.0 | <1 | <1 | <1 | <1 | NS | <1 | |
| Chloroform | 6 | NA | ND | 11 | 4.2 | 2.6 | 31 | 2 | 56.3 | 21 | <70.0 | 1.75 | 13.2 | <1 | 5.02 | NS | 18 | |
| Chloromethane | NA | NA | ND | ND | 1.4 | 1.8 | 3.5 | 1 | <5 | 2.58 | <30.0 | 1.03 | 19.8 | <1 | 5.36 | NS | 2.8 | |
| MEK | NA | NA | ND | ND | <1 | <1 | 67 | <20 | <100 | 24.5 | <4000 | <20 | <20 | <20 | <20 | NS | 34 | |
| Methylene Chloride | 10 | NA | ND | ND | <1 | <1 | 7.4 | <1 | 6.95 | <1 | <5.0 | <1 | <1 | <1 | 10.4 | NS | 0.67 J | |
| Naphthalene | <10000 | NA | ND | <10 | <1 | 2.1 | 1.2 | <1 | <5 | <1 | <100 | <1 | <1 | <1 | <1 | NS | 0.57 J | |
| Tetrahydrofuran | NA | NA | 150 | <20 | <100 | <10 | <10 | <1 | <5 | <1 | <46.0 | <1 | <1 | <1 | 3.01 | NS | <35.0 | |
| Toluene | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <5 | <1 | <1000 | <1 | <1 | <1 | <1 | NS | <1 | |
| Xylenes | <5 | NA | ND | ND | <1 | <1 | <1 | <1 | <5 | <1 | <10000 | <1 | <1 | <1 | <1 | NS | <1 | |
| **SVOCS (ug/L)** | | | | | | | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | Not Sampled - Dry |
| 1,2-Dichlorobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 1,3-Dichlorobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 1,4-Dichlorobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 1-Methylnaphthalene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2,4,5-Trichlorophenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2,4,6-Trichlorophenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2,4-Dichlorophenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2,4-Dimethylphenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2,4-Dinitrophenol | NA | NA | NA | NA | <53 | <20 | <20 | <20 | <21.1 | <20 | <20 | <20 | <10 | <10 | <1,490 | <7.78 | <50 | |
| 2,4-Dinitrotoluene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2,6-Dinitrotoluene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2-Chloronaphthalene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2-Chlorophenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2-Methylnaphthalene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2-Methylphenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 2-Nitrophenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 3&4-Methylphenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 3,3´-Dichlorobenzidine | NA | NA | NA | NA | <21 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <45 | |
| 4,6-Dinitro-2-methylphenol | NA | NA | NA | NA | <53 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <50 | |
| 4-Bromophenyl phenyl ether | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 4-Chloro-3-methylphenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 4-Chlorophenyl phenyl ether | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| 4-Nitrophenol | NA | NA | NA | NA | <53 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <50 | |
| Acenaphthene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |

**Cell 3**
**Chemical and Radiological Characteristics**

| Constituent | 1987 | 2003 (Avg) | 2007 (Avg) | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2013 ReSample | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 ReSample | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthylene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | Not Sampled - Dry |
| Anthracene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Azobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Benz(a)anthracene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Benzidine | NA | NA | NA | NA | <21 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Benzo(a)pyrene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Benzo(b)fluoranthene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Benzo(g,h,i)perylene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Benzo(k)fluoranthene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Bis(2-chloroethoxy)methane | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Bis(2-chloroethyl) ether | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Bis(2-chloroisopropyl) ether | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Bis(2-ethylhexyl) phthalate | NA | NA | NA | NA | <11 | 10.6 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Butyl benzyl phthalate | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Chrysene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Dibenz(a,h)anthracene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Diethyl phthalate | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Dimethyl phthalate | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Di-n-butyl phthalate | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Di-n-octyl phthalate | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Fluoranthene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Fluorene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Hexachlorobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Hexachlorobutadiene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <27 | |
| Hexachlorocyclopentadiene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Hexachloroethane | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <27 | |
| Indeno(1,2,3-cd)pyrene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Isophorone | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Naphthalene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Nitrobenzene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| N-Nitrosodimethylamine | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| N-Nitrosodi-n-propylamine | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| N-Nitrosodiphenylamine | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Pentachlorophenol | NA | NA | NA | NA | <53 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <50 | |
| Phenanthrene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Phenol | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Pyrene | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <10 | |
| Pyridine | NA | NA | NA | NA | <11 | <10 | <10 | <10 | <10.5 | <10 | <10 | <10 | <10 | <10 | <1,490 | <7.78 | <18 | |

[1] Historic values reported for Gross Alpha from 1987 and 2003 are total gross alpha reported in pCi/L. All other gross alpha data are reported as Gross Alpha minus Rn & U.

**Cell 4A**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | | | |
| Carbonate | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Bicarbonate | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Calcium | 627 | 598 | 558 | 591 | 668 | 445 | 604 | 632 | 607 | 707 | 510 | 641 |
| Chloride | 4650 | 7350 | 5870 | 4980 | 4530 | 5900 | 6410 | 7040 | 8060 | 10100 | 8670 | 9120 |
| Fluoride | 0.3 | 21.6 | 30.6 | 43 | 1130 | 1290 | 1660 | 2030 | 1420 | 2000 | 1650 | 1700 |
| Magnesium | 3250 | 4940 | 4720 | 2230 | 3660 | 2990 | 3910 | 3550 | 4360 | 7030 | 4100 | 4700 |
| Nitrogen-Ammonia | 3140 | 5230 | 4930 | 1540 | 1340 | 2730 | 11 | 4770 | 924 | 9060 | 6700 | 10000 |
| Nitrogen-Nitrate | 28 | 52 | 44 | 27 | 38.2 | 39.5 | 19.9 | 41.9 | 53.4 | 73.4 | 70.4 | 84.8 |
| Potassium | 980 | 1440 | 1450 | 558 | 773 | 724 | 1020 | 915 | 1500 | 2020 | 1200 | 1660 |
| Sodium | 5980 | 11300 | 11400 | 7130 | 6860 | 7190 | 9760 | 9580 | 12000 | 17600 | 15000 | 17700 |
| Sulfate | 67600 | 87100 | 267000 | 64900 | 83300 | 64900 | 77200 | 126000 | 77800 | 116000 | 81300 | 85700 |
| pH (s.u.) | 1.4 | 1.99 | 1.73 | 1.2 | 1.47 | 1.7 | 1.51 | 1.59 | 1.53 | 1.25 | 2.40 | 2.36 |
| TDS | 81400 | 107000 | 108000 | 76000 | 90000 | 97000 | 104000 | 124000 | 120000 | 147000 | 122000 | 139000 |
| Conductivity (umhos/cm) | 131000 | 101000 | 82100 | 78100 | 66300 | 73000 | 89600 | 81300 | 89800 | 115000 | 81400 | 84000 |
| **Metals (ug/L)** | | | | | | | | | | | | |
| Arsenic | 626000 | 109000 | 86600 | 60500 | 73700 | 70000 | 82600 | 94400 | 104000 | 125000 | 63000 | 71300 |
| Beryllium | 296 | 215 | 323 | 167 | 247 | 190 | 281 | 320 | 440 | 538 | 420 | 485 |
| Cadmium | 1920 | 3670 | 2190 | 844 | 1450 | 1780 | 2090 | 2850 | 3360 | 3850 | 2500 | 3490 |
| Chromium | 3220 | 7500 | 5900 | 5990 | 5220 | 4620 | 5460 | 7920 | 8520 | 9350 | 7200 | 9050 |
| Cobalt | 9440 | 26500 | 22500 | 22900 | 22900 | 27500 | 26100 | 32800 | 37900 | 41000 | 28000 | 32800 |
| Copper | 99200 | 168000 | 181000 | 433000 | 540000 | 556000 | 477000 | 566000 | 578000 | 683000 | 580000 | 617000 |
| Iron | 2360000 | 2920000 | 3390000 | 3190000 | 2620000 | 2280000 | 3090000 | 3850000 | 4480000 | 5320000 | 3200000 | 3690000 |
| Lead | 5360 | 11800 | 11000 | 5270 | 11500 | 14800 | 11700 | 14000 | 15100 | 16400 | 9000 | 8680 |
| Manganese | 178000 | 209000 | 131000 | 112000 | 143000 | 120000 | 181000 | 225000 | 261000 | 307000 | 210000 | 211000 |
| Mercury | 1.19 | <4 | 15.2 | 2.4 | 0.786 | 2.5 | 0.99 | <2 | 2.30 | 2.52 | 2.1 | 3.4 |
| Molybdenum | 24300 | 43800 | 24200 | 58200 | 25500 | 40600 | 35400 | 43900 | 40800 | 59100 | 19000 | 25700 |
| Nickel | 17100 | 40900 | 43500 | 41300 | 43300 | 54100 | 48700 | 61300 | 66800 | 71900 | 50000 | 58800 |
| Selenium | 4620 | 5810 | 4460 | 1310 | 2080 | 2000 | 2400 | 2820 | 4450 | 5870 | 3700 | 3660 |
| Silver | 78 | 193 | 216 | 127 | 144 | 197 | 186 | 305 | 379 | 521 | 310 | 487 |
| Thallium | 162 | 350 | 410 | 250 | 256 | 376 | 436 | 568 | 169 | 727 | 90 | 524 |
| Tin | 257 | 378 | 319 | 169 | 118 | <17000 | 142 | <17000 | <17000 | <17000 | 77 | 181 |
| Uranium | 118000 | 217000 | 153000 | 91000 | 112000 | 159000 | 171000 | 214000 | 193000 | 244000 | 35000 | 42600 |
| Vanadium | 918000 | 1090000 | 730000 | 237000 | 461000 | 535000 | 577000 | 715000 | 972000 | 1080000 | 150000 | 205000 |
| Zinc | 142000 | 224000 | 286000 | 200000 | 183000 | 169000 | 237000 | 318000 | 344000 | 406000 | 280000 | 350000 |

**Cell 4A**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Radiologics (pCi/L)** | | | | | | | | | | | | |
| Gross Alpha | 8910 | 3400 | 8290 | 16300 | 15800 | 240000 | 176000 (8/4/2015) 37800 (5/28/2015) | 292000 | 133000 | 516000 | 261000 | 52400 |
| **VOCS (ug/L)** | | | | | | | | | | | | |
| Acetone | 60 | 55 | 100 | 25 | 28.4 | <700 | 42.5 | 45.1 | 21.4 | 42.7 | 39 J | 16.2 |
| Benzene | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <2.5 | <1 |
| Carbon tetrachloride | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <2.5 | <1 |
| Chloroform | 4 | 8.5 | 10 | <1 | <1 | <70.0 | <1 | <1 | <1 | 1.91 | 1.9 J | 1.50 |
| Chloromethane | 3.4 | 5.5 | 7.9 | <1 | <1 | <30.0 | <1 | <1 | 1.35 | 1.76 | 1.7 J | 1.90 |
| MEK | <1 | <1 | <1 | <1 | <20 | <4000 | <20 | <20 | <20 | <20 | 13 J | <5 |
| Methylene Chloride | <1 | <1 | <1 | <20 | <1 | <5.0 | <1 | <1 | <1 | <1 | <2.5 | <5 |
| Naphthalene | 1.8 | <1 | <1 | <1 | <1 | <100 | <1 | <1 | <1 | <1 | <2.5 | <1 |
| Tetrahydrofuran | <100 | <10 | <10 | 1.36 | <1 | <46.0 | <1 | 12.6 | <1 | <1 | <35.0 | <5 |
| Toluene | <1 | <1 | <1 | <1 | <1 | <1000 | <1 | <1 | <1 | <1 | <2.5 | <1 |
| Xylenes | <1 | <1 | <1 | <1 | <1 | <10000 | <1 | <1 | <1 | <1 | <2.5 | <3 |
| **SVOCS (ug/L)** | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 1,2-Dichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 1,3-Dichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 1,4-Dichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 1-Methylnaphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3.0 |
| 2,4,5-Trichlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2,4,6-Trichlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2,4-Dichlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2,4-Dimethylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2,4-Dinitrophenol | <53 | <20 | <20 | <20 | <20 | <20 | <20 | <10 | <10 | <8.57 | <50 | <50 |
| 2,4-Dinitrotoluene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2,6-Dinitrotoluene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2-Chloronaphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <4.1 |
| 2-Chlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2-Methylnaphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| 2-Methylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 2-Nitrophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 3&4-Methylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <37 |
| 3,3´-Dichlorobenzidine | <21 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <46 | <33 |
| 4,6-Dinitro-2-methylphenol | <53 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <50 | <30 |
| 4-Bromophenyl phenyl ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 4-Chloro-3-methylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 4-Chlorophenyl phenyl ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| 4-Nitrophenol | <53 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <50 | <30 |
| Acenaphthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Acenaphthylene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |

**Cell 4A**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | 1.2 | <3 |
| Azobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Benz(a)anthracene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Benzidine | <21 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <39 |
| Benzo(a)pyrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Benzo(b)fluoranthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Benzo(g,h,i)perylene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Benzo(k)fluoranthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Bis(2-chloroethoxy)methane | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Bis(2-chloroethyl) ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Bis(2-chloroisopropyl) ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Bis(2-ethylhexyl) phthalate | <11 | 19.6 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Butyl benzyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Chrysene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Dibenz(a,h)anthracene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Diethyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Dimethyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Di-n-butyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Di-n-octyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Fluoranthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Fluorene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Hexachlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Hexachlorobutadiene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <28 | <30 |
| Hexachlorocyclopentadiene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Hexachloroethane | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <28 | <30 |
| Indeno(1,2,3-cd)pyrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Isophorone | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <35 |
| Naphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Nitrobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| N-Nitrosodimethylamine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| N-Nitrosodi-n-propylamine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| N-Nitrosodiphenylamine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Pentachlorophenol | <53 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <50 | <30 |
| Phenanthrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Phenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <30 |
| Pyrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.57 | <10 | <3 |
| Pyridine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | 34.0 | <19 | <30 |

**Cell 4A LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | | | |
| Carbonate | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Bicarbonate | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Calcium | 558 | 474 | 470 | 453 | 429 | 336 | 510 | 446 | 542 | 516 | 520 | 496 |
| Chloride | 7570 | 4670 | 6040 | 2710 | 1910 | 4200 | 2860 | 5200 | 8610 | 4360 | 7360 | 3860 |
| Fluoride | 0.7 | 39.4 | 46 | 27 | 1970 | 1320 | 282 | 1150 | 1370 | 716 | 1530 | 500 |
| Magnesium | 6390 | 3240 | 5100 | 2070 | 1710 | 2690 | 2730 | 3940 | 4630 | 3820 | 3800 | 3690 |
| Nitrogen-Ammonia | 4480 | 2290 | 3480 | 1320 | 1010 | 2920 | 13.4 | 5050 | 846 | 4580 | 6080 | 3050 |
| Nitrogen-Nitrate | 69 | 183 | 94 | 15 | 28.9 | 39 | 27.4 | 40.9 | 63.1 | 44.0 | 58.2 | 60.2 |
| Potassium | 1960 | 934 | 1500 | 503 | 305 | 415 | 245 | 675 | 1710 | 539 | 1000 | 334 |
| Sodium | 12600 | 6700 | 11000 | 3500 | 2930 | 4190 | 3490 | 8050 | 11500 | 6780 | 13000 | 5260 |
| Sulfate | 92400 | 41700 | 77400 | 39600 | 31400 | 56000 | 50500 | 91300 | 89100 | 68600 | 72600 | 59900 |
| pH (s.u.) | 1.98 | 2.53 | 2.32 | 2.1 | 2.32 | 2.4 | 2.29 | 2.04 | 1.50 | 1.88 | 2.39 | 2.25 |
| TDS | 117000 | 56900 | 93800 | 55400 | 49700 | 81900 | 65200 | 95400 | 142000 | 75300 | 112000 | 83800 |
| Conductivity (umhos/cm) | 150000 | 49000 | 66600 | 39600 | 31300 | 53600 | 50200 | 62200 | 97900 | 63400 | 75600 | 53200 |
| **Metals (ug/L)** | | | | | | | | | | | | |
| Arsenic | 133000 | 54000 | 74700 | 44100 | 35700 | 51200 | 10400 | 43500 | 117000 | 42400 | 52000 | 16600 |
| Beryllium | 536 | 295 | 367 | 180 | 188 | 185 | 199 | 289 | 479 | 298 | 370 | 317 |
| Cadmium | 4010 | 2650 | 3160 | 921 | 1170 | 4720 | 4270 | 4500 | 4080 | 3740 | 1900 | 4410 |
| Chromium | 9140 | 3890 | 5940 | 3930 | 2630 | 2780 | 1760 | 4250 | 9410 | 3930 | 6500 | 2820 |
| Cobalt | 37300 | 15200 | 21700 | 22300 | 44300 | 41200 | 33700 | 32100 | 42700 | 30600 | 25000 | 45800 |
| Copper | 222000 | 116000 | 150000 | 481000 | 754000 | 439000 | 160000 | 331000 | 650000 | 376000 | 500000 | 273000 |
| Iron | 3940000 | 1420000 | 2530000 | 2460000 | 1370000 | 1850000 | 1320000 | 2330000 | 5140000 | 2090000 | 2500000 | 1440000 |
| Lead | 5270 | 3400 | 4520 | 2300 | 165 | 991 | 46.8 | 797 | 15500 | 118 | 4200 | 254 |
| Manganese | 389000 | 157000 | 207000 | 95200 | 86300 | 98600 | 96700 | 184000 | 296000 | 136000 | 190000 | 137000 |
| Mercury | 2.66 | 6.2 | 14.7 | 0.7 | <0.5 | <0.0020 | <0.5 | <2.00 | <2.00 | <2.00 | 1.4 | 0.20 |
| Molybdenum | 49200 | 23900 | 29300 | 10200 | 1200 | 3970 | 278 | 10700 | 49900 | 2350 | 8400 | 2190 |
| Nickel | 43900 | 23900 | 29600 | 35000 | 54600 | 99300 | 86300 | 72700 | 74700 | 70900 | 46000 | 110000 |
| Selenium | 5250 | 2820 | 3780 | 1260 | 1020 | 2170 | 649 | 1590 | 4940 | 1550 | 3100 | 1230 |
| Silver | 204 | 62 | 127 | 44 | 24.8 | <100 | 25.6 | 144 | 312 | <100 | 230 | 150 |
| Thallium | 252 | 194 | 290 | 332 | 171 | 522 | 218 | 439 | 550 | 281 | 55 | 425 |
| Tin | 504 | 180 | 119 | <100 | <100 | <17000 | <100 | <17000 | <17000 | <17000 | <70 | <500 |
| Uranium | 284000 | 145000 | 168000 | 90200 | 75000 | 82200 | 25000 | 116000 | 247000 | 78600 | 38000 | 48000 |
| Vanadium | 1150000 | 518000 | 770000 | 240000 | 157000 | 510000 | 253000 | 449000 | 1090000 | 475000 | 130000 | 374000 |
| Zinc | 298000 | 152000 | 204000 | 181000 | 163000 | 306000 | 510000 | 502000 | 385000 | 446000 | 210000 | 541000 |

**Cell 4A LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Radiologics (pCi/L)** | | | | | | | | | | | | |
| Gross Alpha | 7020 | 3230 | 7440 | 4730 | 6930 | 61800 | 17200 (8/4/2015) 1670 (5/28/2015) | 98700 | 176000 | 51000 | 163000 | 5450 |
| **VOCS (ug/L)** | | | | | | | | | | | | |
| Acetone | 240 | 130 | 120 | 55 | 57 | <700 | 84.7 | 61.5 | 79.8 | 108 | 84 | 90.3 |
| Benzene | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <5 |
| Carbon tetrachloride | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <5 |
| Chloroform | 23 | 52 | 26 | 42 | 110 | 95 | 129 | 84.5 | 21.6 | 33.8 | 31 | 120 |
| Chloromethane | 7.9 | 13 | 3.8 | 6 | 9.93 | <30.0 | 5.35 | <1.00 | 3.00 | 2.41 | 3.6 | 6.90 |
| MEK | 78 | 50 | 82 | 36 | <20 | <4000 | <20 | <20 | <20 | <20 | 43 | 29.5 |
| Methylene Chloride | <1 | <1 | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | 1.05 | 0.47 J | <25 |
| Naphthalene | <1 | 1.5 | <1 | 1 | 2.35 | <100 | <1 | <1 | <1 | <1 | <1 | <5 |
| Tetrahydrofuran | 140 | 158 | 102 | 117 | 39.1 | <46.0 | 18.5 | <1 | 15.7 | 19.7 | 16 | <25 |
| Toluene | <1 | <1 | <1 | <1 | <1 | <1000 | <1 | <1 | <1 | <1 | <1 | <5 |
| Xylenes | <1 | <1 | <1 | <1 | <1 | <10000 | <1 | <1 | <1 | <1 | <1 | <15 |
| **SVOCS (ug/L)** | | | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 1,2-Dichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 1,3-Dichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 1,4-Dichlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 1-Methylnaphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3.0 |
| 2,4,5-Trichlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2,4,6-Trichlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2,4-Dichlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2,4-Dimethylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | 11.1 | <10 | <30 |
| 2,4-Dinitrophenol | <54 | <20 | <20 | <20 | <20 | <20 | <20 | <10 | <10 | <9.08 | <50 | <50 |
| 2,4-Dinitrotoluene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2,6-Dinitrotoluene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2-Chloronaphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <4.1 |
| 2-Chlorophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2-Methylnaphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| 2-Methylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 2-Nitrophenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 3&4-Methylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <37 |
| 3,3´-Dichlorobenzidine | <22 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <46 | <33 |
| 4,6-Dinitro-2-methylphenol | <54 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <50 | <30 |
| 4-Bromophenyl phenyl ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 4-Chloro-3-methylphenol | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 4-Chlorophenyl phenyl ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| 4-Nitrophenol | <54 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <50 | <30 |
| Acenaphthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Acenaphthylene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |

**Cell 4A LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Azobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Benz(a)anthracene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Benzidine | <22 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <39 |
| Benzo(a)pyrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Benzo(b)fluoranthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Benzo(g,h,i)perylene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Benzo(k)fluoranthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Bis(2-chloroethoxy)methane | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Bis(2-chloroethyl) ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Bis(2-chloroisopropyl) ether | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Bis(2-ethylhexyl) phthalate | <11 | 54.9 | 54.9 | 16.6 | <10 | <10 | <10 | <10 | <10 | <9.08 | 1.1 | <3 |
| Butyl benzyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Chrysene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Dibenz(a,h)anthracene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Diethyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Dimethyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Di-n-butyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Di-n-octyl phthalate | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Fluoranthene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Fluorene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Hexachlorobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Hexachlorobutadiene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <28 | <30 |
| Hexachlorocyclopentadiene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Hexachloroethane | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <28 | <30 |
| Indeno(1,2,3-cd)pyrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Isophorone | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <35 |
| Naphthalene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Nitrobenzene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| N-Nitrosodimethylamine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| N-Nitrosodi-n-propylamine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| N-Nitrosodiphenylamine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Pentachlorophenol | <54 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <50 | <30 |
| Phenanthrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Phenol | 33 | 23.5 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <30 |
| Pyrene | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <9.08 | <10 | <3 |
| Pyridine | <11 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | 12.9 | <19 | <30 |

**Cell 4B**

**Chemical and Radiological Characteristics**

| Constituent | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | |
| Carbonate | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Bicarbonate | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Calcium | 570 | 580 | 662 | 366 | 655 | 523 | 473 | 664 | 670 | 628 |
| Chloride | 8290 | 8170 | 4570 | 7300 | 8500 | 12000 | 6930 | 7860 | 10500 | 10200 |
| Fluoride | 26.7 | 23.3 | 1050 | 1150 | 1210 | 1780 | 1170 | 1410 | 2300 | 1730 |
| Magnesium | 3910 | 4500 | 3560 | 3310 | 5530 | 5780 | 3550 | 5790 | 6500 | 4520 |
| Nitrogen-Ammonia | 5220 | 5580 | 2060 | 5380 | 1.09 | 8690 | 724 | 7590 | 8150 | 6580 |
| Nitrogen-Nitrate | 39 | 42 | 51.4 | 47 | 15.2 | 64.5 | 31.3 | 42.2 | 38.6 | 70.0 |
| Potassium | 1370 | 1650 | 1110 | 989 | 1700 | 1710 | 1230 | 1660 | 1900 | 1680 |
| Sodium | 9050 | 11700 | 3150 | 7100 | 12800 | 14100 | 10600 | 15700 | 18000 | 17100 |
| Sulfate | 134000 | 119000 | 98100 | 91500 | 108000 | 285000 | 708000 | 98400 | 124000 | 97200 |
| pH (s.u.) | 1.87 | 1.5 | 1.65 | 1.6 | 1.35 | 1.26 | 1.41 | 1.24 | 1.53 | 2.24 |
| TDS | 98000 | 128000 | 108000 | 131000 | 149000 | 172000 | 103000 | 117000 | 180000 | 150000 |
| Conductivity (umhos/cm) | 76900 | 86900 | 72800 | 90100 | 115000 | 116000 | 93800 | 107000 | 99600 | 87300 |
| **Metals (ug/L)** | | | | | | | | | | |
| Arsenic | 67400 | 80000 | 65400 | 70400 | 106000 | 139000 | 82700 | 97800 | 140000 | 67900 |
| Beryllium | 311 | 356 | 334 | 275 | 430 | 557 | 347 | 407 | 640 | 455 |
| Cadmium | 1990 | 2540 | 1990 | 2290 | 2980 | 4260 | 2340 | 2520 | 2000 | 1800 |
| Chromium | 6860 | 8280 | 6390 | 6940 | 7450 | 11900 | 7800 | 8630 | 12000 | 9350 |
| Cobalt | 17800 | 29300 | 21300 | 24600 | 33700 | 46700 | 30300 | 32900 | 44000 | 30900 |
| Copper | 193000 | 340000 | 340000 | 368000 | 499000 | 684000 | 457000 | 539000 | 830000 | 602000 |
| Iron | 2960000 | 3580000 | 2830000 | 2480000 | 4340000 | 6340000 | 3690000 | 4400000 | 5800000 | 3690000 |
| Lead | 9960 | 11600 | 9820 | 10900 | 13400 | 17900 | 12200 | 12500 | 16000 | 8150 |
| Manganese | 128000 | 148000 | 154000 | 129000 | 231000 | 325000 | 207000 | 242000 | 320000 | 201000 |
| Mercury | 13.7 | 2.6 | 1.49 | <0.0020 | 1.72 | <2.00 | <2.00 | <2.00 | 0.46 | 0.40 |
| Molybdenum | 21400 | 27600 | 26100 | 29000 | 39800 | 55400 | 22600 | 27400 | 29000 | 8110 |
| Nickel | 33900 | 50500 | 35100 | 42000 | 56400 | 79600 | 53000 | 57800 | 78000 | 56400 |
| Selenium | 4670 | 4470 | 3900 | 5010 | 5600 | 7300 | 3740 | 4510 | 6600 | 3540 |
| Silver | 137 | 169 | 137 | 142 | 195 | 307 | <100 | 160 | 170 | 76 |
| Thallium | 237 | 368 | 243 | 258 | 408 | 559 | 17.5 | 33.7 | <100 | 165 |
| Tin | 196 | 215 | 163 | <17000 | 211 | <17000 | <17000 | <17000 | 340 | 138 |
| Uranium | 133000 | 171000 | 110000 | 133000 | 200000 | 278000 | 23100 | 28100 | 36000 | 47400 |
| Vanadium | 660000 | 783000 | 163000 | 666000 | 881000 | 868000 | 746000 | 828000 | 710000 | 113000 |
| Zinc | 191000 | 270000 | 184000 | 144000 | 313000 | 476000 | 267000 | 323000 | 280000 | 334000 |

**Cell 4B**

**Chemical and Radiological Characteristics**

| Constituent | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Radiologics (pCi/L)** | | | | | | | | | | |
| Gross Alpha | 8590 | 13600 | 14600 | 148000 | 267000 (8/4/2015) 42500 (5/28/2015) | 262000 | 132000 | 320000 | 310000 | 54500 |
| **VOCS (ug/L)** | | | | | | | | | | |
| Acetone | 130 | 94 | 43.5 | <700 | 56.2 | 86.4 | 38.6 | 56.8 | 39 | 12.7 |
| Benzene | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <1 |
| Carbon tetrachloride | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <1 |
| Chloroform | 9.4 | 4 | 8.06 | <70.0 | 2.34 | 3.07 | 2.39 | 2.17 | 3.4 | <1 |
| Chloromethane | 8.5 | 8 | 7.12 | <30.0 | 3.62 | 6.01 | 1.26 | 1.72 | 2.1 | 1.28 |
| MEK | <1 | <1 | <20 | <4000 | <20 | <20 | <20 | 27.4 | 15 J | <5 |
| Methylene Chloride | <1 | <1 | <1 | <5.0 | <1 | <1 | <1 | <1 | <1 | <5 |
| Naphthalene | <1 | <1 | <1 | <100 | <1 | <1 | <1 | <1 | <1 | <1 |
| Tetrahydrofuran | <10 | 11.1 | <1 | <46.0 | <1 | <1 | <1 | 1.87 | <35.0 | <5 |
| Toluene | <1 | <1 | <1 | <1000 | <1 | <1 | <1 | <1 | <1 | <1 |
| Xylenes | <1 | <1 | <1 | <10000 | <1 | <1 | <1 | <1 | <1 | <3 |
| **SVOCS (ug/L)** | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 1,2-Dichlorobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 1,3-Dichlorobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 1,4-Dichlorobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 1-Methylnaphthalene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3.0 |
| 2,4,5-Trichlorophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2,4,6-Trichlorophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2,4-Dichlorophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <50 | <30 |
| 2,4-Dimethylphenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2,4-Dinitrophenol | <20 | <20 | <20 | <20 | <20 | <10 | <10 | <8.72 | <10 | <50 |
| 2,4-Dinitrotoluene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2,6-Dinitrotoluene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2-Chloronaphthalene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <4.1 |
| 2-Chlorophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2-Methylnaphthalene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| 2-Methylphenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 2-Nitrophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 3&4-Methylphenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <37 |
| 3,3´-Dichlorobenzidine | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <44 | <33 |
| 4,6-Dinitro-2-methylphenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <50 | <30 |
| 4-Bromophenyl phenyl ether | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 4-Chloro-3-methylphenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 4-Chlorophenyl phenyl ether | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| 4-Nitrophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <50 | <30 |
| Acenaphthene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Acenaphthylene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Anthracene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | 1.7 | <3 |
| Azobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |

**Cell 4B**

**Chemical and Radiological Characteristics**

| Constituent | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Benz(a)anthracene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Benzidine | <10 | <10 | <10 | 26 | <10 | <10 | <10 | <8.72 | <10 | <39 |
| Benzo(a)pyrene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Benzo(b)fluoranthene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Benzo(g,h,i)perylene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Benzo(k)fluoranthene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Bis(2-chloroethoxy)methane | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Bis(2-chloroethyl) ether | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| Bis(2-chloroisopropyl) ether | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| Bis(2-ethylhexyl) phthalate | 410 | 19 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Butyl benzyl phthalate | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Chrysene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Dibenz(a,h)anthracene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Diethyl phthalate | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Dimethyl phthalate | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Di-n-butyl phthalate | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Di-n-octyl phthalate | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Fluoranthene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Fluorene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Hexachlorobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| Hexachlorobutadiene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <26 | <30 |
| Hexachlorocyclopentadiene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| Hexachloroethane | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <26 | <30 |
| Indeno(1,2,3-cd)pyrene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Isophorone | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <35 |
| Naphthalene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Nitrobenzene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| N-Nitrosodimethylamine | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| N-Nitrosodi-n-propylamine | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| N-Nitrosodiphenylamine | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| Pentachlorophenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <50 | <30 |
| Phenanthrene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Phenol | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <30 |
| Pyrene | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <8.72 | <10 | <3 |
| Pyridine | <10 | <10 | <10 | 15 | <10 | <10 | <10 | 31.7 | <18 | <30 |

**Cell 4B LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Major Ions (mg/L)** | | | | | | | | | | |
| Carbonate | <1 | <1 | dry | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Bicarbonate | <1 | <1 | dry | <1 | <1 | <1 | <1 | <1 | <5 | <5 |
| Calcium | 486 | 456 | dry | 308 | 538 | 547 | 516 | 592 | 550 | 555 |
| Chloride | 3630 | 6850 | dry | 6900 | 7960 | 8510 | 10400 | 8060 | 8050 | 7630 |
| Fluoride | 28.4 | 22 | dry | 970 | 1150 | 1290 | 1050 | 1480 | 1680 | 1550 |
| Magnesium | 3230 | 3360 | dry | 3400 | 5190 | 4780 | 5370 | 5580 | 4800 | 4830 |
| Nitrogen-Ammonia | 4260 | 4090 | dry | 5240 | 2.43 | 7540 | 739 | 7510 | 7080 | 5080 |
| Nitrogen-Nitrate | 30 | 31 | dry | 43 | 16.6 | 49.6 | 63.9 | 47.4 | 41.2 | 39.5 |
| Potassium | 1130 | 1060 | dry | 952 | 1560 | 1360 | 2130 | 1620 | 1400 | 1350 |
| Sodium | 8240 | 8080 | dry | 6920 | 11900 | 10800 | 13200 | 14500 | 13000 | 12600 |
| Sulfate | 59900 | 99100 | dry | 82300 | 104000 | 163000 | 117000 | 100000 | 89500 | 88700 |
| pH (s.u.) | 2.23 | 2.4 | dry | 2.2 | 1.51 | 1.88 | 1.44 | 1.35 | 1.73 | 1.89 |
| TDS | 85800 | 90200 | dry | 129000 | 131000 | 133000 | 168000 | 132000 | 131000 | 134000 |
| Conductivity (umhos/cm) | 63000 | 62400 | dry | 76300 | 106000 | 68400 | 105000 | 104000 | 80800 | 77600 |
| **Metals (ug/L)** | | | | | | | | | | |
| Arsenic | 54200 | 41200 | dry | 67800 | 98400 | 98800 | 135000 | 94100 | 89000 | 84900 |
| Beryllium | 274 | 271 | dry | 282 | 411 | 430 | 559 | 416 | 470 | 483 |
| Cadmium | 1670 | 1740 | dry | 2290 | 2790 | 3250 | 4500 | 2610 | 2000 | 2060 |
| Chromium | 6250 | 5930 | dry | 6160 | 7320 | 9470 | 13700 | 8980 | 9100 | 9620 |
| Cobalt | 15600 | 19000 | dry | 23300 | 31100 | 33600 | 48900 | 31700 | 31000 | 32200 |
| Copper | 176000 | 181000 | dry | 308000 | 458000 | 475000 | 681000 | 497000 | 550000 | 500000 |
| Iron | 2450000 | 2120000 | dry | 2590000 | 4180000 | 4680000 | 5910000 | 4190000 | 4400000 | 4180000 |
| Lead | 6060 | 4420 | dry | 4120 | 10100 | 5860 | 14000 | 8770 | 7800 | 5110 |
| Manganese | 118000 | 162000 | dry | 144000 | 222000 | 262000 | 346000 | 239000 | 240000 | 221000 |
| Mercury | 12.3 | 3 | dry | 0.002 | 1.47 | <2.00 | <2.00 | <2.00 | 0.11J | 0.10 |
| Molybdenum | 16700 | 15000 | dry | 24300 | 36300 | 35500 | 52900 | 25900 | 27000 | 19800 |
| Nickel | 30700 | 33700 | dry | 40100 | 52600 | 58100 | 84400 | 56100 | 59000 | 57900 |
| Selenium | 3710 | 2880 | dry | 4080 | 5080 | 5310 | 6860 | 4500 | 4700 | 3950 |
| Silver | 111 | 117 | dry | 119 | 179 | 224 | 266 | 156 | 170 | 173 |
| Thallium | 179 | 175 | dry | 336 | 354 | 414 | 427 | 245 | 87 | 98 |
| Tin | 332 | <100 | dry | <17000 | 198 | <17000 | <17000 | <17000 | 200 | 258 |
| Uranium | 111000 | 132000 | dry | 143000 | 185000 | 192000 | 269000 | 54200 | 31000 | 34600 |
| Vanadium | 518000 | 428000 | dry | 671000 | 817000 | 847000 | 1260000 | 811000 | 760000 | 743000 |
| Zinc | 172000 | 182000 | dry | 144000 | 296000 | 315000 | 443000 | 303000 | 280000 | 286000 |

**Cell 4B LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Radiologics (pCi/L)** | | | | | | | | | | |
| Gross Alpha | 6000 | 7500 | dry | 181000 | 375000 (8/4/2015) 52500 (5/28/2015) | 185000 | 165000 | 305000 | 226000 | 54100 |
| **VOCS (ug/L)** | | | | | | | | | | |
| Acetone | 390 | 370 | dry | <700 | 218 | 266 | 479 | 147 | 102 | 68.5 |
| Benzene | <1 | <1 | dry | <5.0 | <1 | <1 | <1 | <1 | <1 | <1 |
| Carbon tetrachloride | <1 | <1 | dry | <5.0 | <1 | <1 | <1 | <1 | <1 | <1 |
| Chloroform | 20 | 19 | dry | <70.0 | 5.03 | 9.97 | 9.13 | 4.74 | 3.9 | 1.22 |
| Chloromethane | 11 | 11 | dry | <30.0 | 9.72 | 10.8 | 7.16 | 2.4 | 2.3 | <1 |
| MEK | 240 | 180 | dry | <4000 | 71.8 | 53.6 | 89.4 | 34.6 | 71 | 42.8 |
| Methylene Chloride | <1 | <1 | dry | <5.0 | <1 | <1 | 1.01 | <1 | <1 | <5 |
| Naphthalene | <1 | <1 | dry | <100 | <1 | <1 | <1 | <1 | <1 | <1 |
| Tetrahydrofuran | 198 | 322 | dry | 75.6 | 36.6 | 75.9 | 51.2 | 17.3 | 53 | 96.5 |
| Toluene | <1 | <1 | dry | <1000 | <1 | <1 | <1 | <1 | <1 | <1 |
| Xylenes | <1 | <1 | dry | <10000 | <1 | <1 | <1 | <1 | <1 | <3 |
| **SVOCS (ug/L)** | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 1,2-Dichlorobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 1,3-Dichlorobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 1,4-Dichlorobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 1-Methylnaphthalene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3.0 |
| 2,4,5-Trichlorophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2,4,6-Trichlorophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2,4-Dichlorophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2,4-Dimethylphenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2,4-Dinitrophenol | <20 | <20 | dry | <20 | <20 | <20 | <10 | <8.79 | <50 | <50 |
| 2,4-Dinitrotoluene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2,6-Dinitrotoluene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2-Chloronaphthalene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <4.1 |
| 2-Chlorophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2-Methylnaphthalene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| 2-Methylphenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 2-Nitrophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 3&4-Methylphenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | 0.42 | <37 |
| 3,3´-Dichlorobenzidine | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <45 | <33 |
| 4,6-Dinitro-2-methylphenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <50 | <30 |
| 4-Bromophenyl phenyl ether | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 4-Chloro-3-methylphenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 4-Chlorophenyl phenyl ether | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| 4-Nitrophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <50 | <30 |
| Acenaphthene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Acenaphthylene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |

**Cell 4B LDS**

**Chemical and Radiological Characteristics**

| Constituent | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Azobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Benz(a)anthracene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Benzidine | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <39 |
| Benzo(a)pyrene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Benzo(b)fluoranthene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Benzo(g,h,i)perylene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Benzo(k)fluoranthene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Bis(2-chloroethoxy)methane | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Bis(2-chloroethyl) ether | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Bis(2-chloroisopropyl) ether | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Bis(2-ethylhexyl) phthalate | 191 | 191 | dry | 27 | <10 | 132 | 145 | 65.9 | 16 | <3 |
| Butyl benzyl phthalate | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Chrysene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Dibenz(a,h)anthracene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Diethyl phthalate | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Dimethyl phthalate | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Di-n-butyl phthalate | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Di-n-octyl phthalate | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Fluoranthene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Fluorene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Hexachlorobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Hexachlorobutadiene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <27 | <30 |
| Hexachlorocyclopentadiene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Hexachloroethane | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <27 | <30 |
| Indeno(1,2,3-cd)pyrene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Isophorone | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <35 |
| Naphthalene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Nitrobenzene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| N-Nitrosodimethylamine | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| N-Nitrosodi-n-propylamine | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| N-Nitrosodiphenylamine | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Pentachlorophenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <50 | <30 |
| Phenanthrene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Phenol | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <30 |
| Pyrene | <10 | <10 | dry | <10 | <10 | <10 | <10 | <8.79 | <10 | <3 |
| Pyridine | <10 | <10 | dry | <10 | <10 | <10 | <10 | 29.1 | <18 | <30 |

**Cell 1**

**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | 1310 | 991000 | 6150 | 1110 | 141000 | 8920 | 140000 | 1.21 |
| 5/28/15 | 204 | 782000 | 6730 | 829 | 96700 | 5980 | 100000 | 1.13 |
| 8/30/16 | ND | 677000 | 4480 | 497 | | 2380 | 45800 | 1.15 |
| 8/29/17 | 2890 | 8100000 | 76000 | 391 | 353000 | 20400 | 344000 | 1.17 |
| 8/1/18 | ND | 856000 | 8410 | 443 | 97300 | 6970 | 97200 | 1.16 |
| 8/21/19 | 1380 | 747000 | 4780 | 348 | 28400 | 1650 | 28700 | 1.15 |
| 8/21/2019 (Cell 65 - Duplicate of Cell 1) | 1500 | 663000 | 5720 | 434 | 25500 | 1960 | 27700 | 1.15 |
| 8/19/20 | 1090 | 1030000 | 6670 | 801 | 68300 | 4020 | 64600 | 1.33 |

**Cell 2 Slimes Drain**
**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | ND | 6680 | ND | 36.6 | 11300 | 858 | 10500 | 1.09 |
| 8/30/16 | ND | 5050 | ND | 52.4 | 11700 | 599 | 10700 | 1.03 |
| 8/29/17 | ND | 38500 | ND | 51.2 | 111000 | ND | 75600 | 1.07 |
| 8/1/2018 | ND | 7390 | ND | 36.2 | 14900 | ND | 12500 | 1.07 |
| 8/1/2018 (cell 65 - Duplicate of Cell 2 Slimes) | ND | 6860 | ND | 29.8 | 10700 | 3440 | 12600 | 1.06 |
| 8/21/2019 | ND | 1750 | ND | 62.5 | 9300 | 484 | 9150 | 1.03 |
| 8/19/2020 | ND | 5180 | ND | 86.0 | 8680 | 917 | 8760 | 1.08 |

**Cell 3**
**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | ND | 123000 | 1640 | 448 | 184000 | 10300 | 191000 | 1.21 |
| 5/28/15 | 798 | 131000 | 1290 | 202 | 557000 | 37900 | 591000 | 1.29 |
| 8/30/16 | 983 | 72500 | 1670 | 584 | 1960000 | 130000 | 2060000 | 1.62 |
| 8/30/16 (cell 65 - Duplicate of Cell 3) | ND | 67000 | 788 | 640 | 2520000 | 130000 | 2490000 | 1.53 |
| 8/29/17 | ND | ND | ND | 101 | 37600 | ND | 32800 | 0.989 |
| 8/1/18 | ND | 28100 | 2310 | 79.8 | 398000 | 24000 | 468000 | 1.21 |
| 8/21/19 | ND | 6610 | ND | 48.0 | 6640 | ND | 5780 | 1.07 |
| 8/19/20 | Not Sampled - Dry | | | | | | | |

**Cell 4A**
**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | ND | 374000 | 3490 | 663 | 57500 | 3720 | 64400 | 1.11 |
| 5/28/15 | 327 | 405000 | 3440 | ND | 61200 | 4030 | 62700 | 1.07 |
| 5/28/2015 (Cell 65 - Duplicate of Cell 4A) | 265 | 315000 | 3790 | 772 | 58600 | 3020 | 58300 | NS |
| 8/30/16 | ND | 466000 | 2870 | 1050 | 61100 | 3320 | 70900 | 1.10 |
| 8/29/17 | ND | 4450000 | 47700 | 759 | 637000 | 30600 | 692000 | 1.09 |
| 8/29/17 (Cell 65 - Duplicate of Cell 4A) | ND | 4080000 | 11000 | 822 | 602000 | 44900 | 616000 | 1.12 |
| 8/1/18 | 1970 | 539000 | 8230 | 59.2 | 88700 | 9900 | 86300 | 1.10 |
| 8/21/19 | 941 | 430000 | 2870 | 260 | 9350 | 674 | 10900 | 1.02 |
| 8/19/20 | 1040 | 521000 | 4130 | 395 | 17200 | 991 | 13700 | 1.10 |
| 8/19/2020 (Cell 65 - Duplicate of Cell 4A) | ND | 488000 | 2200 | 372 | 14100 | 1000 | 14300 | 1.11 |

**Cell 4A LDS**
**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | ND | 25300 | ND | 19.3 | 9380 | 504 | 10800 | 1.07 |
| 5/28/15 | ND | 25300 | ND | 19.3 | 9380 | 504 | 10800 | NS |
| 8/30/16 | ND | 134000 | 1130 | 51.1 | 46200 | 1900 | 40400 | 1.10 |
| 8/29/17 | ND | 5410000 | 49200 | 286 | 852000 | 66200 | 851000 | 1.17 |
| 8/1/18 | ND | 76000 | ND | 38.2 | 28800 | ND | 30500 | 1.05 |
| 8/21/19 | 1060 | 366000 | 2230 | 73.4 | 13500 | 738 | 13000 | 1.02 |
| 8/19/20 | ND | 39500 | ND | 18.6 | 19000 | 711 | 16600 | 1.07 |

**Cell 4B**

**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | ND | 410000 | 2210 | 611 | 63500 | 3710 | 67000 | 1.12 |
| 5/28/15 | 122 | 346000 | 3790 | 544 | 65000 | 3870 | 66100 | 1.08 |
| 8/30/16 | ND | 595000 | 3510 | 715 | 90200 | 4090 | 90100 | 1.13 |
| 8/29/17 | ND | 3390000 | 56000 | 489 | 76000 | 8100 | 92700 | 1.07 |
| 8/1/18 | ND | 461000 | 7360 | 307 | 13700 | ND | 8420 | 1.08 |
| 8/21/19 | 1080 | 434000 | 3490 | 296 | 11600 | 563 | 10800 | 1.10 |
| 8/19/20 | 1280 | 606000 | 4320 | 360 | 17000 | 1080 | 17700 | 1.11 |

**Cell 4B LDS**

**Additional Radiological Analyses**

| | Thorium-228 (pCi/L) | Thorium-230 (pCi/L) | Thorium-232 (pCi/L) | Radium-226 (pCi/L) | Uranium-233/234 (pCi/L) | Uranium-235/236 (pCi/L) | Uranium-238 (pCi/L) | Specific Gravity |
|---|---|---|---|---|---|---|---|---|
| 8/4/15 | ND | 452000 | 3660 | 161 | 62600 | 3890 | 60900 | 1.12 |
| 8/4/15 (Cell 65 - Duplicate of Cell 4B LDS) | ND | 436000 | 4000 | 125 | 62600 | 2680 | 61300 | 1.12 |
| 5/28/15 | 334 | 487000 | 5430 | 55.2 | 63500 | 3900 | 65500 | NS |
| 8/30/16 | ND | 368000 | 1010 | 104 | 78600 | 3820 | 78900 | 1.11 |
| 8/29/17 | 4680 | 5220000 | 43200 | 143 | 846000 | 64200 | 894000 | 1.07 |
| 8/1/18 | 1520 | 424000 | 5130 | 88.3 | 14300 | ND | 18400 | 1.09 |
| 8/21/19 | 1030 | 368000 | 2650 | 105 | 8840 | 412 | 9600 | 1.05 |
| 8/19/20 | 888 | 541000 | 4070 | 153 | 11700 | 749 | 14500 | 1.11 |

Tab E

Quality Assurance and Data Validation Tables

**Table E-1 Holding Time Evaluation****

| | Required Holding Time | Cell 1 Solutions | Cell 2 Slimes Drain | Cell 3 Solutions | Cell 4A Solutions | Cell 4A LDS | Cell 4B Solutions | Cell 4B LDS | Cell 65 (Cell 1) |
|---|---|---|---|---|---|---|---|---|---|
| Carbonate | 14 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Bicarbonate | 14 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Calcium | 6 months | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Chloride | 28 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Fluoride | 28 days | OK | *** | NS - Dry | OK | OK | OK | OK | OK |
| Magnesium | 6 months | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Nitrogen-Ammonia | 28 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Nitrogen-Nitrate | 28 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Potassium | 6 months | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Sodium | 6 months | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Sulfate | 28 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| pH (pH units) | Immediately | OK* | OK* | NS - Dry | OK* | OK* | OK* | OK* | OK* |
| TDS | 7 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Conductivity (umhos/cm) | N/A | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Metals | 6 months (except mercury which is 28 days) | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| Radiologics | 6 months | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| VOCS (including THF) | 14 days | OK | OK | NS - Dry | OK | OK | OK | OK | OK |
| SVOCS | 7 days to extraction/40 days for analysis | OK | OK | NS - Dry | OK | OK | OK | OK | OK |

* Per the method, pH should be analyzed within 15 minutes of sample collection. Due to the nature of the solution matrix, sample handling in the field is minimized and pH is measured by the laboratory upon receipt. This procedure change was requested by and approved by DWMRC.

** - The voluntary analyses conducted for specific gravity, thorium isotopes, uranium isotopes, and radium-226 are for informational purposes only. These analyses do not have QAP required holding times, and therefore, are not included in the holding time evaluation.

**E-2 Laboratory Receipt Temperature Check**

| Work Order Number/Lab Set ID | Receipt Temp |
|---|---|
| GEL - 519405 | 3.0 °C |
| EL - C20080962 | 2.4 °C |

N/A = These shipments contained samples for the analysis of radionuclides only. Samples submitted for radionuclide analyses do not have a sample temperature requirement.

**E-3: Analytical Method Check - Routine Samples****

| Parameter | QAP/Permit Method | Method Used by Lab |
|---|---|---|
| Ammonia (as N) | A4500-NH3 G or E350.1 | E350.1 |
| Nitrate + Nitrite (as N) | E353.1 or E353.2 | E353.2 |
| Metals | E200.7 or E200.8 (Hg 245.1) | E200.7 and E200.8 and 245.1 (Hg) |
| Gross Alpha | E900.0 or E900.1 or E903.0 | E903.0 |
| VOCs | SW8260B or SW8260C | SW8260B |
| Chloride | A4500-Cl B or E300.0 | E300.0 |
| Fluoride | A4500-F C or E300.0 | A4500-F C |
| Sulfate | A4500-SO4 E or E300.0 | E300.0 |
| TDS | A2540 C | SM2540C |
| Carbonate as CO3, Bicarbonate as HCO3 | A2320 B | SM2320B |
| pH | Not Specified | A4500-H B |
| Conductivity | Not Specified | SM2510B |
| SVOCs | SW8270D | SW8270D |

** - The voluntary analyses conducted for specific gravity, thorium isotopes, uranium isotopes, and radium-226 are for informational purposes only. These analyses do not have QAP required methods, and therefore, are not included in the analytical method evaluation.

**E-4 Reporting Limit Evaluation****

| Parameter | Permit-Specified RL |
|---|---|
| Ammonia (as N) | 25 mg/L |
| Nitrate + Nitrite (as N) | 10 mg/L |
| **Metals ug/L** | |
| Arsenic | 50 |
| Beryllium | 4 |
| Cadmium | 5 |
| Chromium | 100 |
| Cobalt | 730 |
| Copper | 1300 |
| Iron | 11000 |
| Lead | 15 |
| Manganese | 800 |
| Mercury | 2 |
| Molybdenum | 40 |
| Nickel | 100 |
| Selenium | 50 |
| Silver | 100 |
| Thallium | 2 |
| Tin | 17000 |
| Uranium | 30 |
| Vanadium | 60 |
| Zinc | 5000 |
| Gross Alpha | 15 |
| **VOCs ug/L** | |
| Acetone | 700 |
| Benzene | 5 |
| Carbon tetrachloride | 5 |
| Chloroform | 70 |
| Chloromethane | 30 |
| MEK (2-Butanone) | 4000 |
| Methylene Chloride | 5 |
| Naphthalene | 100 |
| Tetrahydrofuran | 46 |
| Toluene | 1000 |
| Xylenes | 10000 |
| **Major Ions** | |
| Chloride | 1.0 mg/L |
| Fluoride | 4 mg/L |
| Sulfate | 1000 mg/L |
| TDS | 1000 mg/L |
| Carbonate as CO3, Bicarbonate as HCO3 | * |
| Calcium, Magnesium, Potassium, Sodium | * |
| **SVOCs (from the 8270D LLD) ug/L** | |
| 1,2,4-Trichlorobenzene | 10 |
| 1,2-Dichlorobenzene | 10 |

**E-4 Reporting Limit Evaluation****

| Parameter | Permit-Specified RL |
|---|---|
| 1,3-Dichlorobenzene | 10 |
| 1,4-Dichlorobenzene | 10 |
| 1-Methylnaphthalene | 10 |
| 2,4,5-Trichlorophenol | 10 |
| 2,4,6-Trichlorophenol | 10 |
| 2,4-Dichlorophenol | 10 |
| 2,4-Dimethylphenol | 10 |
| 2,4-Dinitrophenol | 50 |
| 2,4-Dinitrotoluene | 10 |
| 2,6-Dinitrotoluene | 10 |
| 2-Chloronaphthalene | 10 |
| 2-Chlorophenol | 10 |
| 2-Methylnaphthalene | 10 |
| 2-Methylphenol | 10 |
| 2-Nitrophenol | 10 |
| 3&4-Methylphenol | 10 |
| 3,3´-Dichlorobenzidine | 20 |
| 4,6-Dinitro-2-methylphenol | 50 |
| 4-Bromophenyl phenyl ether | 10 |
| 4-Chloro-3-methylphenol | 20 |
| 4-Chlorophenyl phenyl ether | 10 |
| 4-Nitrophenol | 50 |
| Acenaphthene | 10 |
| Acenaphthylene | 10 |
| Anthracene | 10 |
| Azobenzene | * |
| Benz(a)anthracene | 10 |
| Benzidine | * |
| Benzo(a)pyrene | 10 |
| Benzo(b)fluoranthene | 10 |
| Benzo(g,h,i)perylene | 10 |
| Benzo(k)fluoranthene | 10 |
| Bis(2-chloroethoxy)methane | 10 |
| Bis(2-chloroethyl) ether | 10 |
| Bis(2-chloroisopropyl) ether | 10 |
| Bis(2-ethylhexyl) phthalate | * |
| Butyl benzyl phthalate | 10 |
| Chrysene | 10 |
| Dibenz(a,h)anthracene | 10 |
| Diethyl phthalate | 10 |
| Dimethyl phthalate | 10 |
| Di-n-butyl phthalate | 10 |
| Di-n-octyl phthalate | 10 |
| Fluoranthene | 10 |
| Fluorene | 10 |

**E-4 Reporting Limit Evaluation****

| Parameter | Permit-Specified RL |
|---|---|
| Hexachlorobenzene | 10 |
| Hexachlorobutadiene | 10 |
| Hexachlorocyclopentadiene | 10 |
| Hexachloroethane | 10 |
| Indeno(1,2,3-cd)pyrene | 10 |
| Isophorone | 10 |
| Naphthalene | 10 |
| Nitrobenzene | 10 |
| N-Nitrosodimethylamine | * |
| N-Nitrosodi-n-propylamine | 10 |
| N-Nitrosodiphenylamine | 10 |
| Pentachlorophenol | 50 |
| Phenanthrene | 10 |
| Phenol | 10 |
| Pyrene | 10 |
| Pyridine | * |

All analyses were reported to the required RLs unless noted in the text.
* Reporting limits for these analytes are not specified in either the Permit or EPA Method 8270D.

** - The voluntary analyses conducted for specific gravity, thorium isotopes, uranium isotopes, and radium-226 are for informational purposes only. These analyses do not have QAP required reporting limits, and therefore, are not included in the reporting limit evaluation.

E-5: Trip Blank Evaluation

| Lab Report | Constituent | Result | Units |
|---|---|---|---|
| 519405 | 2-Butanone | ND | ug/L |
| | Acetone | 5.80 | ug/L |
| | Benzene | ND | ug/L |
| | Carbon tetrachloride | ND | ug/L |
| | Chloroform | ND | ug/L |
| | Chloromethane | ND | ug/L |
| | Methylene Chloride | ND | ug/L |
| | Naphthalene | ND | ug/L |
| | Tetrahydrofuran | ND | ug/L |
| | Toluene | ND | ug/L |
| | Xylenes | ND | ug/L |

**E-6 Duplicate Sample Relative Percent Difference****

| Major Ions (mg/l) | Cell 4A | Cell 65 | RPD % |
|---|---|---|---|
| Carbonate | <5 | <5 | NC |
| Bicarbonate | <5 | <5 | NC |
| Calcium | 641 | 594 | 7.6 |
| Chloride | 9120 | 8670 | 5.1 |
| Fluoride | 1700 | 1640 | 3.6 |
| Magnesium | 4700 | 4330 | 8.2 |
| Nitrogen-Ammonia | 10000 | 10800 | 7.7 |
| Nitrogen-Nitrate | 84.8 | 81.0 | 4.6 |
| Potassium | 1660 | 1540 | 7.5 |
| Sodium | 17700 | 16300 | 8.2 |
| Sulfate | 85700 | 81900 | 4.5 |
| pH (s.u.) | 2.36 | 2.28 | 3.4 |
| TDS | 139000 | 137000 | 1.4 |
| Conductivity (umhos/cm) | 84000 | 83300 | 0.8 |
| **Metals (mg/l)** | | | |
| Arsenic | 71300 | 61900 | 14.1 |
| Beryllium | 485.00 | 441.00 | 9.5 |
| Cadmium | 3490 | 3060 | 13.1 |
| Chromium | 9050 | 7990 | 12.4 |
| Cobalt | 32800 | 28700 | 13.3 |
| Copper | 617000 | 543000 | 12.8 |
| Iron | 3690000 | 3250000 | 12.7 |
| Lead | 8680 | 7780 | 10.9 |
| Manganese | 211000 | 193000 | 8.9 |
| Mercury | 3.4 | 3.4 | 0.0 |
| Molybdenum | 25700 | 26200 | 1.9 |
| Nickel | 58800 | 51500 | 13.2 |
| Selenium | 3660 | 3200 | 13.4 |
| Silver | 487 | 424 | 13.8 |
| Thallium | 524 | 104 | NC |
| Tin | 181 | <200 | NC |
| Uranium | 42600 | 38800 | 9.3 |
| Vanadium | 205000 | 183000 | 11.3 |
| Zinc | 350000 | 310000 | 12.1 |
| **Radiologics (pCi/l)** | | | |
| Gross Alpha* | 52400 | 53700 | 1.25 |
| **VOCS (ug/L)** | | | |
| Acetone | 16.2 | 14.7 | 9.7 |
| Benzene | <1.00 | <1.00 | NC |
| Carbon tetrachloride | <1.00 | <1.00 | NC |
| Chloroform | 1.50 | 1.53 | 2.0 |
| Chloromethane | 1.90 | 1.86 | 2.1 |
| MEK | <5.00 | <5.00 | NC |
| Methylene Chloride | <5.00 | <5.00 | NC |
| Naphthalene | <1.00 | <1.00 | NC |
| Tetrahydrofuran | <5.00 | <5.00 | NC |
| Toluene | <1.00 | <1.00 | NC |
| Xylenes | <3.00 | <3.00 | NC |
| **SVOCS (ug/L)** | | | |
| 1,2,4-Trichlorobenzene | <30 | <30 | NC |
| 1,2-Dichlorobenzene | <30 | <30 | NC |
| 1,3-Dichlorobenzene | <30 | <30 | NC |
| 1,4-Dichlorobenzene | <30 | <30 | NC |
| 1-Methylnaphthalene | <3.0 | <3.0 | NC |
| 2,4,5-Trichlorophenol | <30 | <30 | NC |
| 2,4,6-Trichlorophenol | <30 | <30 | NC |
| 2,4-Dichlorophenol | <30 | <30 | NC |
| 2,4-Dimethylphenol | <30 | <30 | NC |
| 2,4-Dinitrophenol | <50 | <50 | NC |
| 2,4-Dinitrotoluene | <30 | <30 | NC |
| 2,6-Dinitrotoluene | <30 | <30 | NC |

**E-6 Duplicate Sample Relative Percent Difference****

| Major Ions (mg/l) | Cell 4A | Cell 65 | RPD % |
|---|---|---|---|
| 2-Chloronaphthalene | <4.1 | <4.1 | NC |
| 2-Chlorophenol | <30 | <30 | NC |
| 2-Methylnaphthalene | <3 | <3 | NC |
| 2-Methylphenol | <30 | <30 | NC |
| 2-Nitrophenol | <30 | <30 | NC |
| 3&4-Methylphenol | <37 | <37 | NC |
| 3,3´-Dichlorobenzidine | <33 | <33 | NC |
| 4,6-Dinitro-2-methylphenol | <30 | <30 | NC |
| 4-Bromophenyl phenyl ether | <30 | <30 | NC |
| 4-Chloro-3-methylphenol | <30 | <30 | NC |
| 4-Chlorophenyl phenyl ether | <30 | <30 | NC |
| 4-Nitrophenol | <30 | <30 | NC |
| Acenaphthene | <3 | <3 | NC |
| Acenaphthylene | <3 | <3 | NC |
| Anthracene | <3 | <3 | NC |
| Azobenzene (1,2-Diphenylhydrazine) | <30 | <30 | NC |
| Benz(a)anthracene | <3 | <3 | NC |
| Benzidine | <39 | <39 | NC |
| Benzo(a)pyrene | <3 | <3 | NC |
| Benzo(b)fluoranthene | <3 | <3 | NC |
| Benzo(g,h,i)perylene | <3 | <3 | NC |
| Benzo(k)fluoranthene | <3 | <3 | NC |
| Bis(2-chloroethoxy)methane | <3 | <3 | NC |
| Bis(2-chloroethyl) ether | <30 | <30 | NC |
| Bis(2-chloroisopropyl) ether | <30 | <30 | NC |
| Bis(2-ethylhexyl) phthalate | <3 | <3 | NC |
| Butyl benzyl phthalate | <3 | <3 | NC |
| Chrysene | <3 | <3 | NC |
| Dibenz(a,h)anthracene | <3 | <3 | NC |
| Diethyl phthalate | <3 | <3 | NC |
| Dimethyl phthalate | <3 | <3 | NC |
| Di-n-butyl phthalate | <3 | <3 | NC |
| Di-n-octyl phthalate | <3 | <3 | NC |
| Fluoranthene | <3 | <3 | NC |
| Fluorene | <3 | <3 | NC |
| Hexachlorobenzene | <30 | <30 | NC |
| Hexachlorobutadiene | <30 | <30 | NC |
| Hexachlorocyclopentadiene | <30 | <30 | NC |
| Hexachloroethane | <30 | <30 | NC |
| Indeno(1,2,3-cd)pyrene | <3 | <3 | NC |
| Isophorone | <35 | <35 | NC |
| Naphthalene | <3 | <3 | NC |
| Nitrobenzene | <30 | <30 | NC |
| N-Nitrosodimethylamine | <30 | <30 | NC |
| N-Nitrosodi-n-propylamine | <30 | <30 | NC |
| N-Nitrosodiphenylamine | <30 | <30 | NC |
| Pentachlorophenol | <30 | <30 | NC |
| Phenanthrene | <3 | <3 | NC |
| Phenol | <30 | <30 | NC |
| Pyrene | <3 | <3 | NC |
| Pyridine | <30 | <30 | NC |

* Duplicate checks reported for gross alpha minus RN and U are not %RPD. Calculated values are based on the formula in the approved QAP.

** - The voluntary analyses conducted for specific gravity, thorium isotopes, uranium isotopes, and radium-226 are for informational purposes only. These analyses do not have QAP required duplicate requirements, and therefore, are not included in the duplicate evaluation.

NC = Not Calculated.

**E-7 Radiologics Counting Error**

| Sample ID | Gross Alpha minus Rn & U | Gross Alpha minus Rn & U Precision (±) | Counting Error ≤ 20% | GWQS | Within GWQS |
|---|---|---|---|---|---|
| Cell 1 | 83800 | 890 | Y | 15 | NA |
| Cell 2 Slimes | 1630 | 132 | Y | 15 | NA |
| Cell 4A | 52400 | 755 | Y | 15 | NA |
| Cell 4A LDS | 5450 | 227 | Y | 15 | NA |
| Cell 4B | 54500 | 702 | Y | 15 | NA |
| Cell 4B LDS | 54100 | 680 | Y | 15 | NA |
| Cell 65 (Duplicate of Cell 4A) | 53700 | 713 | Y | 15 | NA |

GWQS = Groundwater Quality Standard

## E-8: Laboratory Matrix QC

**Matrix Spike % Recovery Comparison**

| Lab Report | Sample ID | Analyte | MS %REC | MSD %REC | REC Range | RPD |
|---|---|---|---|---|---|---|
| C20080962 | Cell 1 | Fluoride | 112 | N/A | 90 - 110 | NC |
| C20080962 | Cell 1 | Ammonia | 84 | 82 | 90 - 110 | 3 |
| C20080962 | Cell 4B LDS | Nitrate | 51 | 46 | 90 - 110 | 1.5 |
| C20080962 | Cell 65 (Duplicate of Cell 4A) | Iron* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 1 | Arsenic* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 1 | Copper* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 1 | Molybdenum* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 1 | Vanadium* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 1 | Zinc* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 2 Slimes | Arsenic* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 2 Slimes | Molybdenum | -212 | -209 | 70 - 130 | 2.1 |
| C20080962 | Cell 2 Slimes | Zinc* | NC | NC | 70 - 130 | NC |
| C20080962 | Cell 1 | Beryllium | 57 | 56 | 70 - 130 | 1.4 |
| C20080962 | Cell 1 | Thallium | 56 | 56 | 70 - 130 | 1 |

NC = Not Calculated

* Recovery was not calculated as the analyte level in the sample was greater than 4 times the spike amount

**LCS % Recovery**

All Laboratory Control Samples were within acceptance limits.

**Laboratory Duplicate % Recovery Comparison**

All Laboratory Duplicates were within acceptance limits.

**Method Blanks**

All Method Blanks for the quarter were non-detect.

**Surrogate % Recovery**

All surrogate recoveries were within acceptance limits.