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November 25 ,2019

Div of Waste Management
and Radiation Control

NOV 26 2019

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 2019 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,

A handwritten signature in black ink that reads 'Kathy Weinel'.

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

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



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White Mesa Uranium Mill

2019 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 25, 2019

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2019 ANNUAL TAILINGS SYSTEM WASTEWATER SAMPLING REPORT

1.0 INTRODUCTION

This is the 2019 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 2019

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 2019, Cell 1 received fluid from the Mill process, storm water run-off, and Mill laboratory waste. The LDS in Cell 1 was dry in 2019.

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 2019. 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 and is undergoing pre-closure steps. This cell is equipped with a LDS and a slimes drain. The LDS was dry in 2019 and the slimes drain system will be monitored once dewatering begins. In 2019, 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 2019, as described below. In 2019, 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 2019, Cell 4B received fluid from the Mill process. The LDS in Cell 4B was sampled in 2019, as described below.

3.0 SAMPLING EVENTS AND SAMPLING METHODOLOGY

3.1 Sampling Events

Samples of solutions from Cells 1, 3, 4A, and 4B, the Cell 2 slimes drain and the Cell 4A and Cell 4B LDSs were collected on August 21, 2019.

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 21, 2019 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 21, 2019 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 3.88 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 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 2019 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 laboratories reported more VOC analytes and SVOC analytes than are required. The data are included in the data packages included in Tab C. The extra data are included as required by the GWDP Part II.F.

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 except as noted below were analyzed within the required holding time.

Per the analytical method, SVOC samples have two holding times; a 7 day holding time for extraction of the sample and a 40-day holding time for analysis of the extract. The SVOCs in all samples were extracted 1-day beyond the method specified holding time of 7 days. The extracts were analyzed within the 40-day holding time window. This deviation does not affect the quality or usability of the data because the 7-day holding time is set to prevent the loss of SVOC compounds due to biological degradation. Based on the data, the cell solutions and LDS and slimes drain samples were at a pH of 3.88 or less at the time of collection without additional preservative. The pH of the samples at the time of collection provides protection from biological degradation.

The holding time for acetone in Cell 2 slimes drain samples were missed. The analysis of acetone in the Cell 2 slimes required a dilution. The initial analysis was within the holding time however, the diluted analysis for acetone was completed beyond the holding time. The initial

analysis cannot be reported because the concentration cannot be accurately quantified because the value is above the upper quantitation limit of the instrument calibration. This deviation does not affect the quality or usability of the data because the 14-day holding time is set to prevent the loss of VOC compounds due to biological degradation and volatilization. Based on the data, the cell solutions and LDS and slimes drain samples were at a pH of 3.88 or less at the time of collection without additional preservative. The pH of the samples at the time of collection provides protection from biological growth. Volatilization is not expected to affect the samples because of the stability of the matrix due to the density (high specific gravity).

The holding time for fluoride in the Cell 2 slimes drain sample was missed. The laboratory noted that the original analysis was analyzed within holding time however the data are from a recheck analysis that was completed after the holding time expired. The difficult matrix likely caused this issue. Fluoride analyses are completed using a ion-specific electrode. After a number of samples, the electrode likely needed cleaning or repair, which would have resulted in erroneous data. Upon data review, the laboratory noticed the anomaly and reanalyzed the sample beyond the holding time. This deviation does not affect the quality or usability of the data because the holding time is set to prevent the loss of fluoride due to biological degradation and chemical reaction. Based on the data, the cell solutions and LDS and slimes drain samples were at a pH of 3.88 or less at the time of collection without additional preservative. The pH of the samples at the time of collection provides protection from biological growth and chemical reaction.

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 except as noted below.

EL labs subcontracted the SVOC analyses to Eurofins, Denver. EL shipped the samples to Eurofins and four of the SVOCs were received above the required temperature. The SVOC samples for Cell 4 LDS, Cell 4B, Cell 4B LDS and Cell 65 (duplicate of Cell 1) were received at 7.6°C. This deviation does not affect the quality or usability of the data because the temperature requirements are set to prevent the loss of SVOCs due to biological degradation. Based on the data, the cell solutions and LDS and slimes drain samples were at a pH of 3.88 or less at the time of collection. The pH of the samples at the time of collection provides protection from biological degradation and the missed temperature requirements do not adversely affect the data.

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 8270C, rather than 8270D, was used to complete the analyses. It is important to note that an additional SVOC was included in the analyte list. The extra analyte is included in the data 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.

There are several SVOC compounds that had reporting limits that exceeded the reporting limits listed in Method 8270D in all samples. Those compounds are:

- 3,3'-Dichlorobenzidine – 2019 reporting limit = 50 ug/L
- Hexachlorobutadiene – 2019 reporting limit = 26 to 30 ug/L
- Hexachloroethane – 2019 reporting limit = 26 to 30 ug/L

The laboratory method detection limit (“MDL”) for each of these compounds is below the reporting limits listed above and the MDL is below the specified reporting limit in Method 8270D. If the compounds were detected below the reporting limit but above the MDL, the laboratory would have reported the data and qualified the result with a “J” as they did for other compounds (for example MEK in Cell 1). Because the MDLs are below the Method 8270D specified reporting limits, and because any detections would have been reported, the 2019 data are comparable to historic data and are usable for the intended purpose.

Two additional reporting limit exceedances were noted. The reporting limits for thallium in Cell 1 and lead in Cell 3 exceeded the GWQSSs. 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.

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 all VOCs.

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 except for magnesium, potassium, sodium, and gross alpha in the duplicate pair Cell 1/Cell 65. The gross alpha duplicate results are discussed in Section 4.3.8 below. The chromium and selenium RPDs were greater than 20%, however the sample and duplicate results reported for Cell 1/Cell 65 were not five times greater than the RLs, and, as such, the deviation from the 20% RPD requirement is acceptable.

The magnesium, potassium, and sodium results for the duplicate sample Cell 1/Cell 65 did not meet the duplicate comparability check. Per the approved QAP, and in response to requests from DWMRC, a separate corrective action for duplicate RPDs outside of acceptance limits has been developed. The revised procedure for duplicate results outside of acceptance limits was implemented. The corrective actions that were taken in accordance with the revised procedure are as follows: the QAM contacted the Analytical Laboratory and requested a review of the raw data to assure that there were no transcription errors and the data were accurately reported. The laboratory noted that the data were accurate and reported correctly. Reanalysis was not completed as the RPDs above the limit are likely due to interferences caused by the matrix, as discussed below. There is no effect on the usability of the data due to the duplicate results exceeding the comparability criteria because the matrix of the sample solution caused the noncompliance.

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 did not meet the duplicate comparability check specified in the QAP for gross alpha. Results of the RPD test are provided under Tab E. Per the approved QAP, and in response to requests from DWMRC, a separate corrective action for duplicate RPDs

outside of acceptance limits has been developed and is documented in the revised QAP. The revised procedure for duplicate results outside of acceptance limits was implemented for the gross alpha results in duplicate pair Cell 1/Cell 65. The corrective actions that were taken in accordance with the revised procedure are as follows: the QA Manager contacted the Analytical Laboratory and requested a review of the raw data to assure that there were no transcription errors and the data were accurately reported. The laboratory noted that the data were accurate and reported correctly. Reanalysis was not completed as the RPDs above the limit are likely due to interferences caused by the matrix as discussed below.

The lack of comparability of the gross alpha results is indicative of a matrix interference and does not affect the usability of the data. Matrix interference is most likely caused by high concentrations of TDS and other constituents in the sample.

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 were within acceptable laboratory limits for all regulated compounds.

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 all tailings system wastewater samples were within acceptable laboratory limits for all surrogate compounds except as indicated in Tab E.

There are ten surrogate recoveries outside of acceptance limits for the SVOC analyses. In all instances the surrogate recoveries outside of acceptance limits were the result of a matrix interference. A matrix interference resulted in the surrogate compounds being outside of the acceptance limits noted in Tab E. There are other surrogate compounds used for SVOC analyses which were all within acceptance limits. As such there is no effect on the quality or usability of the data. Since surrogate compounds were added to all of the organic analyses as required by the QAP, the data are compliant with the QAP requirements.

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 1.14. 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, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, uranium, vanadium and zinc. A decrease was noted in the gross alpha concentration in the August 2019 sample, but it is the same order of magnitude as the 2018 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 2019 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 solutions were acidic in nature, with a laboratory pH of 3.88. As expected, the solutions contained gross alpha, major ions, metals, and VOCs. SVOCs were not detected. Regarding major ions, chloride, fluoride, magnesium, ammonia, sodium and sulfate were generally 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 greater than the other metals analyzed included cadmium, cobalt, copper, iron, manganese, nickel, selenium, uranium, vanadium and zinc. A decrease in the gross alpha and many metals and ions concentrations was noted in the August 2019 sample. The reason for the increase in many constituent concentrations was due to the increased precipitation in early 2019, which would have flowed into Cell 3. As a result of the additional precipitation, the liquid was diluted. Gross alpha results 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 2019 sample are similar to previous results. 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.

6.3 Cell 4A

Cell 4A solutions were acidic in nature, with a laboratory pH of 2.40. As expected, the solutions contained gross alpha, major ions, metals, and VOCs. One SVOC was 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 2019 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 2019 sample remained approximately the same as the 2018 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 1.53. As expected, the solutions contained gross alpha, major ions, metals and VOCs. One SVOCs was detected. Cell 4B fluid exhibited the highest major ion concentrations for chloride, fluoride, magnesium, 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 2019 sample, but it is the same order of magnitude as the 2018 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 2019 sample remained approximately the same as the 2018 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 3.07. As expected, the solutions contained gross alpha, major ions, metals, and VOCs. Five 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, 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 2019 sample. The gross alpha result decreased but is the same order of magnitude of the historic data. Overall, the concentrations reported in the 2019 sample remained approximately the same as the 2018 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 Cell 2 Leak Detection System

Consistent with the Permit, the Cell 2 LDS was not sampled during the 2019 sampling event. The Cell 2 LDS is now dry and covered to prevent precipitation inflow.

6.8 Cells 1 and 3 Leak Detection System

Consistent with the Permit, the Cells 1 and 3 leak detection systems were not sampled during the 2019 sampling event because the systems were dry.

6.9 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. One SVOC was detected. Cell 4A 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, manganese, molybdenum, nickel, selenium, uranium, vanadium, and zinc were one or more orders of magnitude greater than the other metals analyzed. An increase in the gross alpha concentration was noted in the 2019 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 2019 Cell 4A LDS sample remained within historic ranges.

6.10 Cell 4B Leak Detection System

Cell 4B LDS solutions were acidic in nature, with a laboratory pH of 1.53. As expected, the solutions contained gross alpha, major ions, metals, VOCs and one SVOC. 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 slight decrease in the gross alpha concentration was noted in the 2019 sample, but it is the same order of magnitude as the 2018 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 2019 Cell 4B LDS sample are within historic ranges.

6.11 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 2019 tailings solutions are within historic, expected ranges.

7.0 CORRECTIVE ACTION REPORT

No corrective action reports are required for the 2019 annual sampling event.

7.1 Assessment of Corrective Actions from Previous Period

No corrective action reports were required for the 2018 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 A. Bakken
Senior Director Regulatory Affairs

11/25/19

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 A. Bakken
Senior Director Regulatory Affairs
Energy Fuels Resources (USA) Inc.

TABLES

**Table 1
Summary of 2019 Tailings System Wastewater Monitoring**

Location	Sample Date	Date of Laboratory Report	Work Order Number/Lab Set ID
Cell 1 Solutions	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 2 Slimes Drain	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 3 Solutions	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 4A Solutions	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 4A LDS	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 4B Solutions	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 4B LDS	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073
Cell 65 - Duplicate of Cell 1	8/21/2019*	GEL- 09/16/2019	GEL - 488668
		EL - 11/25/2019	EL - C19081073

Notes:

GEL = GEL Laboratories, LLC

EL = Energy Labs

***EFRI conducted the annual sampling event in August 2019. EFRI collected additional samples aliquots for specific gravity and additional radiological constituents.**

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- E-3 Analytical Method Check
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- E-5 Trip Blank Evaluation
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- E-7 Radiologic Counting Error
- E-8 Laboratory Matrix QC Evaluation

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, Marti Brown, Tom Larcas

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: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	G-EL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	G-EL

QC Samples Associated with this Location:

Rinsate Blank

Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site at 0828. samples collected at 0835.
Left site at 0857

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

Location: Slimes # 2 Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lancaster

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): 39.00

Weather Conditions at Time of Sampling: Sunny

Analytical Parameters/Sample Collection Method: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Other Non Radiologies	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GEL

QC Samples Associated with this Location:

- Rinsate Blank
- Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site at 0859. samples collected at 0905
Left site at 0911

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

Location: Cell 3 Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lancaster

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: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL

QC Samples Associated with this Location:

Rinsate Blank

Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site at 0914 Samples collected at 0920.
Left site at 0929

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

Location: Cell 4A Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lucas

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: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL

QC Samples Associated with this Location:

Rinsate Blank

Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site at 0935, samples collected at 0940
Left site at 0949 1008.

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

Location: Cell 4A LDS Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lancasi

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: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL

QC Samples Associated with this Location:

- Rinsate Blank
- Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site 0940. Samples collected at 0945
Left site at 1008

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

Location: Cell 4B Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lancaster

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): NA

Weather Conditions at Time of Sampling: Sunny

Analytical Parameters/Sample Collection Method: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL

QC Samples Associated with this Location:

Rinsate Blank

Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site 1008. Samples collected at 1015.
Left site at 1022

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

Location: Cell 4B LDS Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lancaster

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: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL

QC Samples Associated with this Location:

- Rinsate Blank
- Duplicate

Duplicate Sample Name: _____

Notes: Arrived on site at 1022. Samples collected at 1030
DWMRC split sample Cell 4B LDS. Left site at 1058

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

Location: Cell 65 Sampling Personnel: Tanner Holliday, Deen Lyman
Dean Henderson, Marti Brown, Tom Lancaster

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: Date 8/21/2019

Parameter	Sample Taken		Filtered		Sampling Method			Lab Name
					Peristaltic Pump	Bailer	Ladle	
VOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Metals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL
SVOCs	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GEL

QC Samples Associated with this Location:

Rinsate Blank

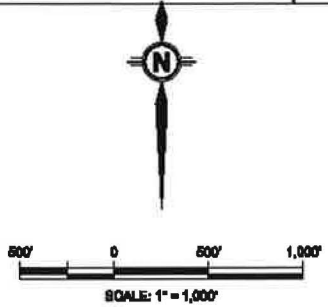
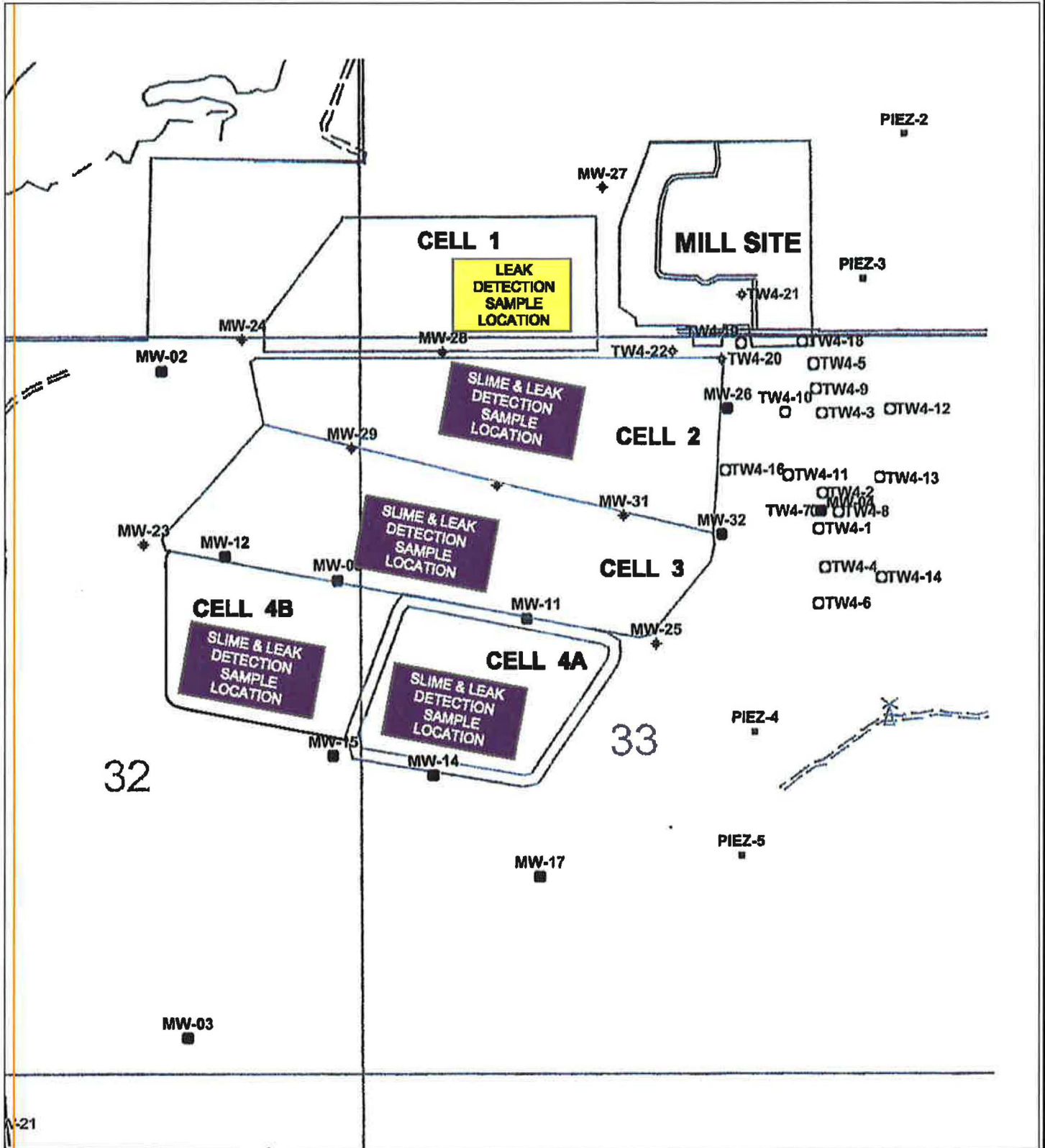
Duplicate

Duplicate Sample Name: Cell 65

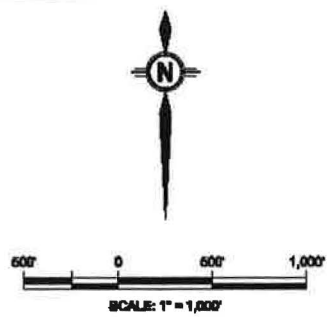
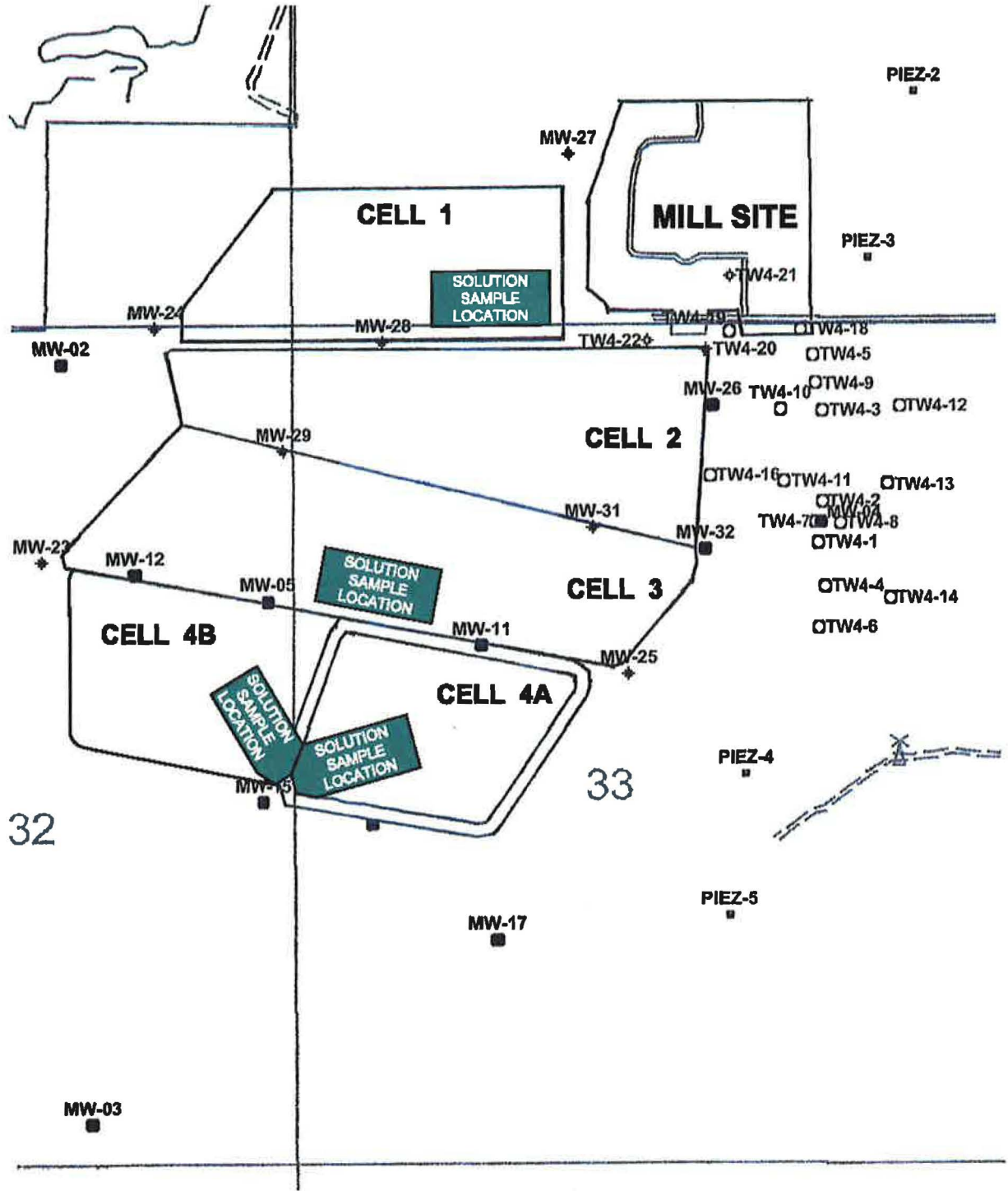
Notes: Duplicate of cell 1

Tab B

Sample Location Figures



		Project: White Mesa Mill	
		County: San Juan	State: Utah
Date	By	Location: T37S, R22E	
10/8/14	RE	Annual Tailings System Slimes and Leak Detection Sample Locations	
11/24/16	RE		
Author: ----		Date: 11/24/15	Drafted By:



EF Energy Fuels Resources (USA) Inc.

REVISIONS		Project: White Mesa Mill	
Date	By	County: San Juan	State: Utah
10/8/14	RE	Location: T37S, R22E	
11/24/15	RE		
		Annual Tailings System, Cell Solution Sample Locations	
Author: _____		Date: 11/24/15	Drafted By:

Tab C

Laboratory Analytical Reports



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-001
Client Sample ID: Cell 1

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 15:28 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 15:28 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 15:28 / dmb
Chloride	19800	mg/L	D	100		E300.0	09/13/19 22:51 / ljl
Fluoride	3480	mg/L	D	50		A4500-F C	09/13/19 14:03 / dmb
Sulfate	169000	mg/L	D	400		E300.0	09/13/19 22:51 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	119000	umhos/cm	E	5		A2510 B	08/23/19 11:30 / kjp
pH	1.14	s.u.	H	0.01		A4500-H B	08/23/19 11:30 / kjp
pH Measurement Temp	17	°C				A4500-H B	08/23/19 11:30 / kjp
Solids, Total Dissolved TDS @ 180 C	257000	mg/L	D	2000		A2540 C	08/26/19 16:11 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	118	mg/L	D	0.5		E353.2	08/27/19 13:54 / dmb
Nitrogen, Ammonia as N	10400	mg/L	D	1000		E350.1	08/26/19 18:03 / dmb
METALS, DISSOLVED							
Arsenic	270	mg/L		4		E200.7_8	10/29/19 01:25 / ta-a
Beryllium	0.93	mg/L		0.2		E200.7_8	10/29/19 01:25 / ta-a
Cadmium	5.4	mg/L		0.2		E200.7_8	10/29/19 01:25 / ta-a
Calcium	720	mg/L		70		E200.7_8	10/29/19 01:25 / ta-a
Chromium	15	mg/L		4		E200.7_8	10/29/19 01:25 / ta-a
Cobalt	66	mg/L		0.7		E200.7_8	10/29/19 01:25 / ta-a
Copper	1700	mg/L		1		E200.7_8	10/29/19 01:25 / ta-a
Iron	9100	mg/L		20		E200.7_8	10/29/19 01:25 / ta-a
Lead	22	mg/L		1		E200.7_8	10/29/19 01:25 / ta-a
Magnesium	9200	mg/L		20		E200.7_8	10/29/19 01:25 / ta-a
Manganese	540	mg/L		2		E200.7_8	10/29/19 01:25 / ta-a
Mercury	3.7	ug/L		0.2		E245.1	09/09/19 19:43 / ta-a
Molybdenum	120	mg/L		2		E200.7_8	10/29/19 01:25 / ta-a
Nickel	110	mg/L		2		E200.7_8	10/29/19 01:25 / ta-a
Potassium	2600	mg/L		40		E200.7_8	10/29/19 01:25 / ta-a
Selenium	10	mg/L		2		E200.7_8	10/29/19 01:25 / ta-a
Silver	0.79	mg/L		70		E200.7_8	10/29/19 01:25 / ta-a
Sodium	28000	mg/L		40		E200.7_8	10/29/19 01:25 / ta-a
Thallium	ND	mg/L		0.7		E200.7_8	10/29/19 01:25 / ta-a
Tin	0.54	mg/L		0.7		E200.7_8	10/29/19 01:25 / ta-a
Uranium	81	mg/L		0.4		E200.7_8	10/29/19 01:25 / ta-a
Vanadium	1400	mg/L		4		E200.7_8	10/29/19 01:25 / ta-a
Zinc	550	mg/L		7		E200.7_8	10/29/19 01:25 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	ND	ug/L		35.0		SW8260B	09/03/19 14:28 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 D - RL increased due to sample matrix.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 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 Tails 2019
Lab ID: C19081073-001
Client Sample ID: Cell 1

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	28	ug/L		20		SW8260B	09/04/19 07:34 / dm
Acetonitrile	20	ug/L	J	20		SW8260B	09/04/19 07:34 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 07:34 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 07:34 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Carbon disulfide	1.2	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Chloroethane	1.7	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Chloroform	7.5	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Chloromethane	2.3	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 07:34 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-001
Client Sample ID: Cell 1

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	ND	ug/L		20		SW8260B	09/04/19 07:34 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Methyl ethyl ketone	11	ug/L	J	20		SW8260B	09/04/19 07:34 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 07:34 / dm
Methylene chloride	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Naphthalene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 07:34 / dm
Surr: 1,2-Dichloroethane-d4	124	%REC		70-130		SW8260B	09/04/19 07:34 / dm
Surr: Dibromofluoromethane	126	%REC		70-130		SW8260B	09/04/19 07:34 / dm
Surr: p-Bromofluorobenzene	92.0	%REC		70-130		SW8260B	09/04/19 07:34 / dm
Surr: Toluene-d8	84.0	%REC		70-130		SW8260B	09/04/19 07:34 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-001
Client Sample ID: Cell 1

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:21 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	50		SW8270C	09/12/19 20:21 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 20:21 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:21 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Benzidine	ND	ug/L	H	100		SW8270C	09/12/19 20:21 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
bis(2-ethylhexyl)Phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Hexachlorobutadiene	ND	ug/L	H	30		SW8270C	09/12/19 20:21 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Hexachloroethane	ND	ug/L	H	30		SW8270C	09/12/19 20:21 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

H - Analysis performed past recommended holding time.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-001
Client Sample ID: Cell 1

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:21 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:21 / ta-a
Pyridine	ND	ug/L	H	20		SW8270C	09/12/19 20:21 / ta-a

Report Definitions:

RL - Analyte reporting limit.	MCL - Maximum contaminant level.
QCL - Quality control limit.	ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.	

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 1 Project: DNMI00107
Sample ID: 488668001 Client ID: DNMI001
Matrix: Water
Collect Date: 21-AUG-19 08:35
Receive Date: 24-AUG-19
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		1.15	0.010	0.100	none		1	VH1	08/30/19	1121	1913001	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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 1	Project: DNMI00107
Sample ID: 488668001	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 08:35	
Receive Date: 24-AUG-19	
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		1380	+/-344	552	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		7.47E+05	+/-7380	564	1.00	pCi/L							
Thorium-232		4780	+/-595	361	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		3.26E+05	+/-2590	289	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		348	+/-28.0	26.4	1.00	pCi/L			MXH8	09/12/19	1034	1914039	3
J- 233/234, U-235/236 and U-238 "As Received"													
Uranium-233/234		28400	+/-1410	678	1.00	pCi/L			JXB7	09/11/19	1927	1914171	4
Uranium-235/236		1650	+/-395	524	1.00	pCi/L							
Uranium-238		28700	+/-1420	513	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
DL-RAD-A-026	Laboratory Filtration				1912341

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"			89.5	(15%-125%)
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			103	(25%-125%)
Uranium-232 Tracer	U- 233/234, U-235/236 and U-238 "As Received"			78.5	(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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID:	Cell 1	Project:	DNMI00107
Sample ID:	488668001	Client ID:	DNMI001

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



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-002
Client Sample ID: Cell 2 Slimes

Report Date: 11/25/19
Collection Date: 08/21/19 09:05
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 15:31 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 15:31 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 15:31 / dmb
Chloride	3870	mg/L	D	50		E300.0	09/13/19 23:10 / ljl
Fluoride	105	mg/L	DH	50		A4500-F C	09/18/19 14:25 / dmb
Sulfate	67000	mg/L	D	200		E300.0	09/13/19 23:10 / ljl
- H - Original analysis was done within hold time. Data is from recheck analysis.							
PHYSICAL PROPERTIES							
Conductivity @ 25 C	55700	umhos/cm	E	5		A2510 B	08/23/19 11:34 / kjp
pH	3.07	s.u.	H	0.01		A4500-H B	08/23/19 11:34 / kjp
pH Measurement Temp	16	°C				A4500-H B	08/23/19 11:34 / kjp
Solids, Total Dissolved TDS @ 180 C	94300	mg/L	D	500		A2540 C	08/23/19 14:02 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	33.0	mg/L	D	0.2		E353.2	08/27/19 13:55 / dmb
Nitrogen, Ammonia as N	4420	mg/L	D	1000		E350.1	08/26/19 18:04 / dmb
METALS, DISSOLVED							
Arsenic	23	mg/L		0.2		E200.7_8	10/26/19 06:24 / ta-a
Beryllium	0.28	mg/L		0.01		E200.7_8	10/26/19 06:24 / ta-a
Cadmium	6.5	mg/L		0.01		E200.7_8	10/26/19 06:24 / ta-a
Calcium	480	mg/L		5		E200.7_8	10/26/19 06:24 / ta-a
Chromium	2.1	mg/L		0.2		E200.7_8	10/26/19 06:24 / ta-a
Cobalt	54	mg/L		0.05		E200.7_8	10/26/19 06:24 / ta-a
Copper	160	mg/L		0.8		E200.7_8	10/26/19 06:24 / ta-a
Iron	3600	mg/L		1		E200.7_8	10/26/19 06:24 / ta-a
Lead	0.59	mg/L		0.08		E200.7_8	10/26/19 06:24 / ta-a
Magnesium	3700	mg/L		1		E200.7_8	10/26/19 06:24 / ta-a
Manganese	170	mg/L		0.1		E200.7_8	10/26/19 06:24 / ta-a
Mercury	ND	ug/L		0.2		E245.1	09/09/19 19:45 / ta-a
Molybdenum	3.2	mg/L		0.1		E200.7_8	10/26/19 06:24 / ta-a
Nickel	140	mg/L		1		E200.7_8	10/26/19 06:24 / ta-a
Potassium	710	mg/L		2		E200.7_8	10/26/19 06:24 / ta-a
Selenium	1.3	mg/L		0.1		E200.7_8	10/26/19 06:24 / ta-a
Silver	ND	mg/L		0.05		E200.7_8	10/26/19 06:24 / ta-a
Sodium	4600	mg/L		2		E200.7_8	10/26/19 06:24 / ta-a
Thallium	0.39	mg/L		0.05		E200.7_8	10/26/19 06:24 / ta-a
Tin	ND	mg/L		0.05		E200.7_8	10/26/19 06:24 / ta-a
Uranium	29	mg/L		0.02		E200.7_8	10/26/19 06:24 / ta-a
Vanadium	500	mg/L		2		E200.7_8	10/26/19 06:24 / ta-a
Zinc	850	mg/L		5		E200.7_8	10/26/19 06:24 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 D - RL increased due to sample matrix.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 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 Tails 2019
Lab ID: C19081073-002
Client Sample ID: Cell 2 Slimes

Report Date: 11/25/19
Collection Date: 08/21/19 09:05
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	ND	ug/L		10.0		SW8260B	09/03/19 14:50 / ta-a
Acetone	449	ug/L	H	200		SW8260B	09/05/19 22:17 / dm
Acetonitrile	206	ug/L		20		SW8260B	09/04/19 08:05 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 08:05 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 08:05 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Bromomethane	0.86	ug/L	J	1.0		SW8260B	09/04/19 08:05 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Carbon disulfide	16	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Chloroethane	6.6	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Chloroform	16	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Chloromethane	2.2	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 08:05 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-002
Client Sample ID: Cell 2 Slimes

Report Date: 11/25/19
Collection Date: 08/21/19 09:05
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
2-Hexanone	11	ug/L	J	20		SW8260B	09/04/19 08:05 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Methyl ethyl ketone	135	ug/L		20		SW8260B	09/04/19 08:05 / dm
Methyl isobutyl ketone	12	ug/L	J	20		SW8260B	09/04/19 08:05 / dm
Methylene chloride	0.49	ug/L	J	1.0		SW8260B	09/04/19 08:05 / dm
Naphthalene	13	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Toluene	2.4	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,2,4-Trimethylbenzene	2.3	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 08:05 / dm
o-Xylene	0.51	ug/L	J	1.0		SW8260B	09/04/19 08:05 / dm
Xylenes, Total	0.51	ug/L	J	1.0		SW8260B	09/04/19 08:05 / dm
Surr: 1,2-Dichloroethane-d4	130	%REC		70-130		SW8260B	09/04/19 08:05 / dm
Surr: Dibromofluoromethane	120	%REC		70-130		SW8260B	09/04/19 08:05 / dm
Surr: p-Bromofluorobenzene	93.0	%REC		70-130		SW8260B	09/04/19 08:05 / dm
Surr: Toluene-d8	86.0	%REC		70-130		SW8260B	09/04/19 08:05 / dm
- Hold time was exceeded due to Laboratory error.							
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
1-Methylnaphthalene	12	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-002
Client Sample ID: Cell 2 Slimes

Report Date: 11/25/19
Collection Date: 08/21/19 09:05
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:51 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2-Methylnaphthalene	11	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	46		SW8270C	09/12/19 20:51 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 20:51 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:51 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Benzidine	ND	ug/L	H	92		SW8270C	09/12/19 20:51 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
bis(2-ethylhexyl)Phthalate	1.1	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Dimethyl phthalate	1.5	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Hexachlorobutadiene	ND	ug/L	H	28		SW8270C	09/12/19 20:51 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-002
Client Sample ID: Cell 2 Slimes

Report Date: 11/25/19
Collection Date: 08/21/19 09:05
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Hexachloroethane	ND	ug/L	H	28		SW8270C	09/12/19 20:51 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Naphthalene	5.3	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:51 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:51 / ta-a
Pyridine	ND	ug/L	H	18		SW8270C	09/12/19 20:51 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.
 MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 2 Slimes Project: DNMI00107
Sample ID: 488668002 Client ID: DNMI001
Matrix: Water
Collect Date: 21-AUG-19 09:05
Receive Date: 24-AUG-19
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
-azardous Waste												
ASTM D 5057 Specific Gravity "As Received"												
Specific Gravity		1.03	0.010	0.100	none		1	VH1	08/30/19	1123	1913001	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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 2 Slimes	Project: DNMI00107
Sample ID: 488668002	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 09:05	
Receive Date: 24-AUG-19	
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	3.58	+/-128	553	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		1750	+/-362	523	1.00	pCi/L							
Thorium-232	U	-36.3	+/-72.3	378	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		3790	+/-302	200	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		62.5	+/-13.5	24.0	1.00	pCi/L			MXH8	09/12/19	1034	1914039	3
J- 233/234,U-235/236 and U-238 "As Received"													
Uranium-233/234		9300	+/-789	555	1.00	pCi/L			JXB7	09/11/19	1927	1914171	4
Uranium-235/236		484	+/-214	242	1.00	pCi/L							
Uranium-238		9150	+/-781	505	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
DL-RAD-A-026	Laboratory Filtration				1912341

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"			86.9	(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"			86.7	(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.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 2 Slimes
Sample ID: 488668002

Project: DNMI00107
Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 Tails 2019
Lab ID: C19081073-003
Client Sample ID: Cell 3

Report Date: 11/25/19
Collection Date: 08/21/19 09:20
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 15:34 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 15:34 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 15:34 / dmb
Chloride	15000	mg/L	D	100		E300.0	09/10/19 13:30 / ljl
Fluoride	1340	mg/L	D	50		A4500-F C	08/26/19 18:25 / dmb
Sulfate	96000	mg/L	D	400		E300.0	09/10/19 13:30 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	95500	umhos/cm	E	5		A2510 B	08/23/19 11:40 / kjp
pH	3.88	s.u.	H	0.01		A4500-H B	08/23/19 11:40 / kjp
pH Measurement Temp	17	°C				A4500-H B	08/23/19 11:40 / kjp
Solids, Total Dissolved TDS @ 180 C	143000	mg/L	D	1000		A2540 C	08/23/19 14:03 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	925	mg/L	D	5		E353.2	08/27/19 13:56 / dmb
Nitrogen, Ammonia as N	9000	mg/L	D	1000		E350.1	08/26/19 18:05 / dmb
METALS, DISSOLVED							
Arsenic	0.38	mg/L		0.2		E200.7_8	10/26/19 06:31 / ta-a
Beryllium	0.35	mg/L		0.1		E200.7_8	10/26/19 06:31 / ta-a
Cadmium	7.4	mg/L		0.01		E200.7_8	10/26/19 06:31 / ta-a
Calcium	510	mg/L		5		E200.7_8	10/26/19 06:31 / ta-a
Chromium	0.23	mg/L		0.2		E200.7_8	10/26/19 06:31 / ta-a
Cobalt	64	mg/L		0.05		E200.7_8	10/26/19 06:31 / ta-a
Copper	35	mg/L		0.08		E200.7_8	10/26/19 06:31 / ta-a
Iron	2500	mg/L		1		E200.7_8	10/26/19 06:31 / ta-a
Lead	ND	mg/L		0.08		E200.7_8	10/26/19 06:31 / ta-a
Magnesium	10000	mg/L		1		E200.7_8	10/26/19 06:31 / ta-a
Manganese	1000	mg/L		0.1		E200.7_8	10/26/19 06:31 / ta-a
Mercury	0.20	ug/L		0.2		E245.1	09/09/19 14:44 / ta-a
Molybdenum	0.55	mg/L		0.1		E200.7_8	10/26/19 06:31 / ta-a
Nickel	150	mg/L		1		E200.7_8	10/26/19 06:31 / ta-a
Potassium	630	mg/L		2		E200.7_8	10/26/19 06:31 / ta-a
Selenium	2.9	mg/L		0.1		E200.7_8	10/26/19 06:31 / ta-a
Silver	0.11	mg/L		0.05		E200.7_8	10/26/19 06:31 / ta-a
Sodium	14000	mg/L		20		E200.7_8	10/26/19 06:31 / ta-a
Thallium	0.17	mg/L		0.05		E200.7_8	10/26/19 06:31 / ta-a
Tin	ND	mg/L		0.05		E200.7_8	10/26/19 06:31 / ta-a
Uranium	19	mg/L		0.02		E200.7_8	10/26/19 06:31 / ta-a
Vanadium	54	mg/L		0.2		E200.7_8	10/26/19 06:31 / ta-a
Zinc	950	mg/L		5		E200.7_8	10/26/19 06:31 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	ND	ug/L		35.0		SW8260B	09/03/19 15:11 / ta-a

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

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 Tails 2019
Lab ID: C19081073-003
Client Sample ID: Cell 3

Report Date: 11/25/19
Collection Date: 08/21/19 09:20
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	135	ug/L		20		SW8260B	09/04/19 08:37 / dm
Acetonitrile	ND	ug/L		20		SW8260B	09/04/19 08:37 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 08:37 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 08:37 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Carbon disulfide	0.84	ug/L	J	1.0		SW8260B	09/04/19 08:37 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Chloroethane	1.9	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Chloroform	18	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Chloromethane	2.8	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 08:37 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-003
Client Sample ID: Cell 3

Report Date: 11/25/19
Collection Date: 08/21/19 09:20
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	5.0	ug/L	J	20		SW8260B	09/04/19 08:37 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Methyl ethyl ketone	34	ug/L		20		SW8260B	09/04/19 08:37 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 08:37 / dm
Methylene chloride	0.67	ug/L	J	1.0		SW8260B	09/04/19 08:37 / dm
Naphthalene	0.57	ug/L	J	1.0		SW8260B	09/04/19 08:37 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 08:37 / dm
Surr: 1,2-Dichloroethane-d4	120	%REC		70-130		SW8260B	09/04/19 08:37 / dm
Surr: Dibromofluoromethane	122	%REC		70-130		SW8260B	09/04/19 08:37 / dm
Surr: p-Bromofluorobenzene	92.0	%REC		70-130		SW8260B	09/04/19 08:37 / dm
Surr: Toluene-d8	84.0	%REC		70-130		SW8260B	09/04/19 08:37 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-003
Client Sample ID: Cell 3

Report Date: 11/25/19
Collection Date: 08/21/19 09:20
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:20 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	45		SW8270C	09/12/19 20:20 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 20:20 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:20 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Benzidine	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
bis(2-ethylhexyl)Phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Hexachlorobutadiene	ND	ug/L	H	27		SW8270C	09/12/19 20:20 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Hexachloroethane	ND	ug/L	H	27		SW8270C	09/12/19 20:20 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-003
Client Sample ID: Cell 3

Report Date: 11/25/19
Collection Date: 08/21/19 09:20
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:20 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:20 / ta-a
Pyridine	ND	ug/L	H	18		SW8270C	09/12/19 20:20 / ta-a

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID:	Cell 3	Project:	DNMI00107
Sample ID:	488668003	Client ID:	DNMI001
Matrix:	Water		
Collect Date:	21-AUG-19 09:20		
Receive Date:	24-AUG-19		
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	0.010	0.100	none		I	VH1	08/30/19	1124	1913001	I

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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 3	Project: DNMI00107
Sample ID: 488668003	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 09:20	
Receive Date: 24-AUG-19	
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	196	+/-179	573	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		6610	+/-724	675	1.00	pCi/L							
Thorium-232	U	222	+/-152	286	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		3890	+/-302	186	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		48.0	+/-13.1	32.9	1.00	pCi/L			MXH8	09/12/19	1034	1914039	3
J- 233/234,U-235/236 and U-238 "As Received"													
Uranium-233/234		6640	+/-781	670	1.00	pCi/L			JXB7	09/12/19	1204	1914171	4
Uranium-235/236	U	109	+/-156	327	1.00	pCi/L							
Uranium-238		5780	+/-723	489	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
IL-RAD-A-026	Laboratory Filtration				1912341

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	DOE EML HASL-300, Th-01-RC Modified	
	EPA 903.0	
	EPA 903.1 Modified	
	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"			72.9	(15%-125%)
Radium 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"			78.2	(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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 3

Project: DNMI00107

Sample ID: 488668003

Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 Tails 2019
Lab ID: C19081073-004
Client Sample ID: Cell 4A

Report Date: 11/25/19
Collection Date: 08/21/19 09:40
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 15:37 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 15:37 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 15:37 / dmb
Chloride	8670	mg/L	D	100		E300.0	09/10/19 13:50 / ljl
Fluoride	1650	mg/L	D	50		A4500-F C	08/26/19 18:35 / dmb
Sulfate	81300	mg/L	D	400		E300.0	09/10/19 13:50 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	81400	umhos/cm	E	5		A2510 B	08/23/19 11:43 / kjp
pH	2.40	s.u.	H	0.01		A4500-H B	08/23/19 11:43 / kjp
pH Measurement Temp	17	°C				A4500-H B	08/23/19 11:43 / kjp
Solids, Total Dissolved TDS @ 180 C	122000	mg/L	D	1000		A2540 C	08/23/19 14:03 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	70.4	mg/L	D	0.2		E353.2	08/27/19 12:11 / dmb
Nitrogen, Ammonia as N	6700	mg/L	D	1000		E350.1	08/26/19 18:07 / dmb
METALS, DISSOLVED							
Arsenic	63	mg/L		0.2		E200.7_8	10/26/19 06:37 / ta-a
Beryllium	0.42	mg/L		0.01		E200.7_8	10/26/19 06:37 / ta-a
Cadmium	2.5	mg/L		0.01		E200.7_8	10/26/19 06:37 / ta-a
Calcium	510	mg/L		50		E200.7_8	10/26/19 06:37 / ta-a
Chromium	7.2	mg/L		2		E200.7_8	10/26/19 06:37 / ta-a
Cobalt	28	mg/L		0.05		E200.7_8	10/26/19 06:37 / ta-a
Copper	580	mg/L		0.8		E200.7_8	10/26/19 06:37 / ta-a
Iron	3200	mg/L		1		E200.7_8	10/26/19 06:37 / ta-a
Lead	9.0	mg/L		0.08		E200.7_8	10/26/19 06:37 / ta-a
Magnesium	4100	mg/L		10		E200.7_8	10/26/19 06:37 / ta-a
Manganese	210	mg/L		0.1		E200.7_8	10/26/19 06:37 / ta-a
Mercury	2.1	ug/L		0.2		E245.1	09/09/19 19:50 / ta-a
Molybdenum	19	mg/L		0.1		E200.7_8	10/26/19 06:37 / ta-a
Nickel	50	mg/L		0.1		E200.7_8	10/26/19 06:37 / ta-a
Potassium	1200	mg/L		20		E200.7_8	10/26/19 06:37 / ta-a
Selenium	3.7	mg/L		0.1		E200.7_8	10/26/19 06:37 / ta-a
Silver	0.31	mg/L		0.05		E200.7_8	10/26/19 06:37 / ta-a
Sodium	15000	mg/L		20		E200.7_8	10/26/19 06:37 / ta-a
Thallium	0.09	mg/L		0.05		E200.7_8	10/26/19 06:37 / ta-a
Tin	0.077	mg/L		0.05		E200.7_8	10/26/19 06:37 / ta-a
Uranium	35	mg/L		0.02		E200.7_8	10/26/19 06:37 / ta-a
Vanadium	150	mg/L		2		E200.7_8	10/26/19 06:37 / ta-a
Zinc	280	mg/L		5		E200.7_8	10/26/19 06:37 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	ND	ug/L		35.0		SW8260B	09/03/19 15:32 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 D - RL increased due to sample matrix.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 E - Estimated value. Result exceeds the instrument upper quantitation limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-004
Client Sample ID: Cell 4A

Report Date: 11/25/19
Collection Date: 08/21/19 09:40
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	39	ug/L	J	50		SW8260B	09/04/19 09:09 / dm
Acetonitrile	21	ug/L	J	50		SW8260B	09/04/19 09:09 / dm
Acrolein	ND	ug/L		50		SW8260B	09/04/19 09:09 / dm
Acrylonitrile	ND	ug/L		50		SW8260B	09/04/19 09:09 / dm
Benzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Bromobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Bromochloromethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Bromodichloromethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Bromoform	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Bromomethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
n-Butylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
sec-Butylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
tert-Butylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Carbon disulfide	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Carbon tetrachloride	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Chlorobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Chlorodibromomethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Chloroethane	2.4	ug/L	J	2.5		SW8260B	09/04/19 09:09 / dm
2-Chloroethyl vinyl ether	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Chloroform	1.9	ug/L	J	2.5		SW8260B	09/04/19 09:09 / dm
Chloromethane	1.7	ug/L	J	2.5		SW8260B	09/04/19 09:09 / dm
2-Chlorotoluene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
4-Chlorotoluene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		5.0		SW8260B	09/04/19 09:09 / dm
1,2-Dibromoethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Dibromomethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2-Dichlorobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,3-Dichlorobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,4-Dichlorobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Dichlorodifluoromethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1-Dichloroethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2-Dichloroethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1-Dichloroethene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
cis-1,2-Dichloroethene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
trans-1,2-Dichloroethene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2-Dichloropropane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,3-Dichloropropane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
2,2-Dichloropropane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1-Dichloropropene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
cis-1,3-Dichloropropene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
trans-1,3-Dichloropropene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Ethylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Hexachlorobutadiene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-004
Client Sample ID: Cell 4A

Report Date: 11/25/19
Collection Date: 08/21/19 09:40
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	ND	ug/L		50		SW8260B	09/04/19 09:09 / dm
Iodomethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Isopropylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
p-Isopropyltoluene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Methyl ethyl ketone	13	ug/L	J	50		SW8260B	09/04/19 09:09 / dm
Methyl isobutyl ketone	ND	ug/L		50		SW8260B	09/04/19 09:09 / dm
Methylene chloride	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Naphthalene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
n-Propylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Styrene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Tetrachloroethene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Toluene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2,3-Trichlorobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2,4-Trichlorobenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1,1-Trichloroethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,1,2-Trichloroethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Trichloroethene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Trichlorofluoromethane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2,3-Trichloropropane	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,2,4-Trimethylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
1,3,5-Trimethylbenzene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Vinyl acetate	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Vinyl chloride	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
m+p-Xylenes	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
o-Xylene	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Xylenes, Total	ND	ug/L		2.5		SW8260B	09/04/19 09:09 / dm
Surr: 1,2-Dichloroethane-d4	119	%REC		70-130		SW8260B	09/04/19 09:09 / dm
Surr: Dibromofluoromethane	108	%REC		70-130		SW8260B	09/04/19 09:09 / dm
Surr: p-Bromofluorobenzene	86.0	%REC		70-130		SW8260B	09/04/19 09:09 / dm
Surr: Toluene-d8	84.0	%REC		70-130		SW8260B	09/04/19 09:09 / dm

SEMI-VOLATILE ORGANIC COMPOUNDS

1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-004
Client Sample ID: Cell 4A

Report Date: 11/25/19
Collection Date: 08/21/19 09:40
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:49 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	46		SW8270C	09/12/19 20:49 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 20:49 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:49 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Anthracene	1.2	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Benzidine	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
bis(2-ethylhexyl)Phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Hexachlorobutadiene	ND	ug/L	H	28		SW8270C	09/12/19 20:49 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Hexachloroethane	ND	ug/L	H	28		SW8270C	09/12/19 20:49 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-004
Client Sample ID: Cell 4A

Report Date: 11/25/19
Collection Date: 08/21/19 09:40
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 20:49 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 20:49 / ta-a
Pyridine	ND	ug/L	H	19		SW8270C	09/12/19 20:49 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.
 MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 4A	Project: DNMI00107
Sample ID: 488668004	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 09:40	
Receive Date: 24-AUG-19	
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		1.02	0.010	0.100	none		1	VH1	08/30/19	1124	1913001	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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 4A	Project: DNMI00107
Sample ID: 488668004	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 09:40	
Receive Date: 24-AUG-19	
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		941	+/-274	534	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		4.30E+05	+/-5180	565	1.00	pCi/L							
Thorium-232		2870	+/-431	387	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		2.61E+05	+/-2840	411	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		260	+/-25.2	31.8	1.00	pCi/L			MXH8	09/12/19	1034	1914039	3
U- 233/234,U-235/236 and U-238 "As Received"													
Uranium-233/234		9350	+/-865	626	1.00	pCi/L			JXB7	09/12/19	1204	1914171	4
Uranium-235/236		674	+/-273	289	1.00	pCi/L							
Uranium-238		10900	+/-926	432	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
3L-RAD-A-026	Laboratory Filtration				1912341

The following Analytical Methods were performed:

Method	Description	Analyst	Comments
	DOE EML HASL-300, Th-01-RC Modified		
	EPA 903.0		
	EPA 903.1 Modified		
	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"			105	(15%-125%)
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			99.4	(25%-125%)
Uranium-232 Tracer	U- 233/234,U-235/236 and U-238 "As Received"			82.7	(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.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 4A Project: DNMI00107
Sample ID: 488668004 Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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 Tails 2019
Lab ID: C19081073-005
Client Sample ID: Cell 4A LDS

Report Date: 11/25/19
Collection Date: 08/21/19 09:45
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 15:59 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 15:59 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 15:59 / dmb
Chloride	7360	mg/L	D	100		E300.0	09/10/19 14:09 / ljl
Fluoride	1530	mg/L	D	50		A4500-F C	08/26/19 18:44 / dmb
Sulfate	72600	mg/L	D	400		E300.0	09/10/19 14:09 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	75400	umhos/cm	E	5		A2510 B	08/23/19 11:46 / kjp
pH	2.39	s.u.	H	0.01		A4500-H B	08/23/19 11:46 / kjp
pH Measurement Temp	17	°C				A4500-H B	08/23/19 11:46 / kjp
Solids, Total Dissolved TDS @ 180 C	112000	mg/L	D	1000		A2540 C	08/26/19 16:11 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	58.2	mg/L	D	0.2		E353.2	08/27/19 12:12 / dmb
Nitrogen, Ammonia as N	6080	mg/L	D	1000		E350.1	08/26/19 18:10 / dmb
METALS, DISSOLVED							
Arsenic	52	mg/L		0.4		E200.7_8	10/26/19 06:44 / ta-a
Beryllium	0.37	mg/L		0.02		E200.7_8	10/26/19 06:44 / ta-a
Cadmium	1.9	mg/L		0.02		E200.7_8	10/26/19 06:44 / ta-a
Calcium	520	mg/L		70		E200.7_8	10/26/19 06:44 / ta-a
Chromium	6.5	mg/L		4		E200.7_8	10/26/19 06:44 / ta-a
Cobalt	25	mg/L		0.07		E200.7_8	10/26/19 06:44 / ta-a
Copper	500	mg/L		1		E200.7_8	10/26/19 06:44 / ta-a
Iron	2500	mg/L		2		E200.7_8	10/26/19 06:44 / ta-a
Lead	4.2	mg/L		0.1		E200.7_8	10/26/19 06:44 / ta-a
Magnesium	3800	mg/L		20		E200.7_8	10/26/19 06:44 / ta-a
Manganese	190	mg/L		0.1		E200.7_8	10/26/19 06:44 / ta-a
Mercury	1.4	ug/L		0.2		E245.1	09/09/19 19:52 / ta-a
Molybdenum	8.4	mg/L		0.2		E200.7_8	10/26/19 06:44 / ta-a
Nickel	46	mg/L		0.2		E200.7_8	10/26/19 06:44 / ta-a
Potassium	1000	mg/L		40		E200.7_8	10/26/19 06:44 / ta-a
Selenium	3.1	mg/L		0.2		E200.7_8	10/26/19 06:44 / ta-a
Silver	0.23	mg/L		0.07		E200.7_8	10/26/19 06:44 / ta-a
Sodium	13000	mg/L		40		E200.7_8	10/26/19 06:44 / ta-a
Thallium	0.055	mg/L		0.07		E200.7_8	10/26/19 06:44 / ta-a
Tin	ND	mg/L		0.07		E200.7_8	10/26/19 06:44 / ta-a
Uranium	38	mg/L		0.04		E200.7_8	10/26/19 06:44 / ta-a
Vanadium	130	mg/L		4		E200.7_8	10/26/19 06:44 / ta-a
Zinc	210	mg/L		0.7		E200.7_8	10/26/19 06:44 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	16	ug/L		35.0		SW8260B	09/03/19 15:53 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 D - RL increased due to sample matrix.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 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 Tails 2019
Lab ID: C19081073-005
Client Sample ID: Cell 4A LDS

Report Date: 11/25/19
Collection Date: 08/21/19 09:45
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	84	ug/L		20		SW8260B	09/04/19 11:16 / dm
Acetonitrile	116	ug/L		20		SW8260B	09/04/19 11:16 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 11:16 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 11:16 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Carbon disulfide	0.72	ug/L	J	1.0		SW8260B	09/04/19 11:16 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Chloroethane	5.7	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Chloroform	31	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Chloromethane	3.6	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 11:16 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-005
Client Sample ID: Cell 4A LDS

Report Date: 11/25/19
Collection Date: 08/21/19 09:45
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	71	ug/L		20		SW8260B	09/04/19 11:16 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Methyl ethyl ketone	43	ug/L		20		SW8260B	09/04/19 11:16 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 11:16 / dm
Methylene chloride	0.47	ug/L	J	1.0		SW8260B	09/04/19 11:16 / dm
Naphthalene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 11:16 / dm
Surr: 1,2-Dichloroethane-d4	126	%REC		70-130		SW8260B	09/04/19 11:16 / dm
Surr: Dibromofluoromethane	118	%REC		70-130		SW8260B	09/04/19 11:16 / dm
Surr: p-Bromofluorobenzene	89.0	%REC		70-130		SW8260B	09/04/19 11:16 / dm
Surr: Toluene-d8	84.0	%REC		70-130		SW8260B	09/04/19 11:16 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-005
Client Sample ID: Cell 4A LDS

Report Date: 11/25/19
Collection Date: 08/21/19 09:45
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 22:19 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	46		SW8270C	09/12/19 22:19 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 22:19 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 22:19 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Anthracene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Benzidine	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
bis(2-ethylhexyl)Phthalate	1.1	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Hexachlorobutadiene	ND	ug/L	H	28		SW8270C	09/12/19 22:19 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Hexachloroethane	ND	ug/L	H	28		SW8270C	09/12/19 22:19 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

H - Analysis performed past recommended holding time.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-005
Client Sample ID: Cell 4A LDS

Report Date: 11/25/19
Collection Date: 08/21/19 09:45
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 22:19 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 22:19 / ta-a
Pyridine	ND	ug/L	H	19		SW8270C	09/12/19 22:19 / ta-a

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 4A LDS Project: DNMI00107
Sample ID: 488668005 Client ID: DNMI001
Matrix: Water
Collect Date: 21-AUG-19 09:45
Receive Date: 24-AUG-19
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		1.02	0.010	0.100	none		1	VHI	08/30/19	1124	1913001	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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 4A LDS	Project: DNMI00107
Sample ID: 488668005	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 09:45	
Receive Date: 24-AUG-19	
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		1060	+/-279	402	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		3.66E+05	+/-4840	524	1.00	pCi/L							
Thorium-232		2230	+/-383	246	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		1.63E+05	+/-1990	275	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		73.4	+/-13.2	22.5	1.00	pCi/L			MXH8	09/16/19	1124	1914039	3
J- 233/234,U-235/236 and U-238 "As Received"													
Uranium-233/234		13500	+/-985	631	1.00	pCi/L			JXB7	09/11/19	1927	1914171	4
Uranium-235/236		738	+/-276	480	1.00	pCi/L							
Uranium-238		13000	+/-965	587	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
DL-RAD-A-026	Laboratory Filtration				1912341

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"			86	(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"			88.1	(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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 4A LDS
Sample ID: 488668005

Project: DNMI00107
Client ID: DNMI001

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



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-006
Client Sample ID: Cell 4B

Report Date: 11/25/19
Collection Date: 08/21/19 10:15
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 16:05 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 16:05 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 16:05 / dmb
Chloride	10500	mg/L	D	100		E300.0	09/10/19 14:28 / ljl
Fluoride	2300	mg/L	D	50		A4500-F C	08/26/19 18:51 / dmb
Sulfate	124000	mg/L	D	400		E300.0	09/10/19 14:28 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	99600	umhos/cm	E	5		A2510 B	08/23/19 11:49 / kjp
pH	1.53	s.u.	H	0.01		A4500-H B	08/23/19 11:49 / kjp
pH Measurement Temp	17	°C				A4500-H B	08/23/19 11:49 / kjp
Solids, Total Dissolved TDS @ 180 C	180000	mg/L	D	1000		A2540 C	08/23/19 14:04 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	38.6	mg/L	D	0.2		E353.2	08/27/19 12:13 / dmb
Nitrogen, Ammonia as N	8150	mg/L	D	1000		E350.1	08/26/19 18:14 / dmb
METALS, DISSOLVED							
Arsenic	140	mg/L		0.5		E200.7_8	10/26/19 06:51 / ta-a
Beryllium	0.64	mg/L		0.02		E200.7_8	10/26/19 06:51 / ta-a
Cadmium	2.0	mg/L		0.02		E200.7_8	10/26/19 06:51 / ta-a
Calcium	670	mg/L		100		E200.7_8	10/26/19 06:51 / ta-a
Chromium	12	mg/L		5		E200.7_8	10/26/19 06:51 / ta-a
Cobalt	44	mg/L		0.1		E200.7_8	10/26/19 06:51 / ta-a
Copper	830	mg/L		2		E200.7_8	10/26/19 06:51 / ta-a
Iron	5800	mg/L		2		E200.7_8	10/26/19 06:51 / ta-a
Lead	16	mg/L		0.2		E200.7_8	10/26/19 06:51 / ta-a
Magnesium	6500	mg/L		20		E200.7_8	10/26/19 06:51 / ta-a
Manganese	320	mg/L		0.2		E200.7_8	10/26/19 06:51 / ta-a
Mercury	0.46	ug/L		0.2		E245.1	09/09/19 19:54 / ta-a
Molybdenum	29	mg/L		0.2		E200.7_8	10/26/19 06:51 / ta-a
Nickel	78	mg/L		0.2		E200.7_8	10/26/19 06:51 / ta-a
Potassium	1900	mg/L		50		E200.7_8	10/26/19 06:51 / ta-a
Selenium	6.6	mg/L		0.2		E200.7_8	10/26/19 06:51 / ta-a
Silver	0.17	mg/L		0.1		E200.7_8	10/26/19 06:51 / ta-a
Sodium	18000	mg/L		50		E200.7_8	10/26/19 06:51 / ta-a
Thallium	ND	mg/L		0.1		E200.7_8	10/26/19 06:51 / ta-a
Tin	0.34	mg/L		0.1		E200.7_8	10/26/19 06:51 / ta-a
Uranium	36	mg/L		0.05		E200.7_8	10/26/19 06:51 / ta-a
Vanadium	710	mg/L		5		E200.7_8	10/26/19 06:51 / ta-a
Zinc	280	mg/L		1		E200.7_8	10/26/19 06:51 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	ND	ug/L		35.0		SW8260B	09/03/19 16:14 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 D - RL increased due to sample matrix.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 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 Tails 2019
Lab ID: C19081073-006
Client Sample ID: Cell 4B

Report Date: 11/25/19
Collection Date: 08/21/19 10:15
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	39	ug/L		20		SW8260B	09/04/19 09:41 / dm
Acetonitrile	66	ug/L		20		SW8260B	09/04/19 09:41 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 09:41 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 09:41 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Chloroethane	2.7	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Chloroform	3.4	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Chloromethane	2.1	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 09:41 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-006
Client Sample ID: Cell 4B

Report Date: 11/25/19
Collection Date: 08/21/19 10:15
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	5.3	ug/L	J	20		SW8260B	09/04/19 09:41 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Methyl ethyl ketone	15	ug/L	J	20		SW8260B	09/04/19 09:41 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 09:41 / dm
Methylene chloride	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Naphthalene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 09:41 / dm
Surr: 1,2-Dichloroethane-d4	123	%REC		70-130		SW8260B	09/04/19 09:41 / dm
Surr: Dibromofluoromethane	118	%REC		70-130		SW8260B	09/04/19 09:41 / dm
Surr: p-Bromofluorobenzene	100	%REC		70-130		SW8260B	09/04/19 09:41 / dm
Surr: Toluene-d8	80.0	%REC		70-130		SW8260B	09/04/19 09:41 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-006
Client Sample ID: Cell 4B

Report Date: 11/25/19
Collection Date: 08/21/19 10:15
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 22:49 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	44		SW8270C	09/12/19 22:49 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 22:49 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 22:49 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Anthracene	1.7	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Benzidine	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
bis(2-ethylhexyl)Phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Hexachlorobutadiene	ND	ug/L	H	26		SW8270C	09/12/19 22:49 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Hexachloroethane	ND	ug/L	H	26		SW8270C	09/12/19 22:49 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-006
Client Sample ID: Cell 4B

Report Date: 11/25/19
Collection Date: 08/21/19 10:15
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 22:49 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 22:49 / ta-a
Pyridine	ND	ug/L	H	18		SW8270C	09/12/19 22:49 / ta-a

Report Definitions:

RL - Analyte reporting limit.	MCL - Maximum contaminant level.
QCL - Quality control limit.	ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.	

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 4B Project: DNMI00107
Sample ID: 488668006 Client ID: DNMI001
Matrix: Water
Collect Date: 21-AUG-19 10:15
Receive Date: 24-AUG-19
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	0.010	0.100	none		1	VH1	08/30/19	1124	1913001	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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 4B	Project: DNMI00107
Sample ID: 488668006	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 10:15	
Receive Date: 24-AUG-19	
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		1080	+/-262	411	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		4.34E+05	+/-4850	437	1.00	pCi/L							
Thorium-232		3490	+/-440	308	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		3.10E+05	+/-3100	307	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		296	+/-27.1	30.8	1.00	pCi/L			MXH8	09/12/19	1034	1914039	3
J- 233/234,U-235/236 and U-238 "As Received"													
Uranium-233/234		11600	+/-864	586	1.00	pCi/L			JXB7	09/11/19	1927	1914171	4
Uranium-235/236		563	+/-235	472	1.00	pCi/L							
Uranium-238		10800	+/-829	505	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
RL-RAD-A-026	Laboratory Filtration				1912341

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	DOE EML HASL-300, Th-01-RC Modified	
	EPA 903.0	
	EPA 903.1 Modified	
	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"			97.9	(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"			93.9	(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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 4B Project: DNMI00107
Sample ID: 488668006 Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
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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 Tails 2019
Lab ID: C19081073-007
Client Sample ID: Cell 4B LDS

Report Date: 11/25/19
Collection Date: 08/21/19 10:30
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO3	ND	mg/L		5		A2320 B	08/23/19 16:08 / dmb
Carbonate as CO3	ND	mg/L		5		A2320 B	08/23/19 16:08 / dmb
Bicarbonate as HCO3	ND	mg/L		5		A2320 B	08/23/19 16:08 / dmb
Chloride	8050	mg/L	D	100		E300.0	09/10/19 14:47 / ljl
Fluoride	1680	mg/L	D	50		A4500-F C	08/26/19 18:55 / dmb
Sulfate	89500	mg/L	D	400		E300.0	09/10/19 14:47 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	80800	umhos/cm	E	5		A2510 B	08/23/19 11:52 / kjp
pH	1.73	s.u.	H	0.01		A4500-H B	08/23/19 11:52 / kjp
pH Measurement Temp	17	°C				A4500-H B	08/23/19 11:52 / kjp
Solids, Total Dissolved TDS @ 180 C	131000	mg/L	D	1000		A2540 C	08/23/19 14:04 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	41.2	mg/L	D	0.2		E353.2	08/27/19 12:15 / dmb
Nitrogen, Ammonia as N	7080	mg/L	D	1000		E350.1	08/26/19 18:15 / dmb
METALS, DISSOLVED							
Arsenic	89	mg/L		0.5		E200.7_8	10/26/19 06:58 / ta-a
Beryllium	0.47	mg/L		0.02		E200.7_8	10/26/19 06:58 / ta-a
Cadmium	2.0	mg/L		0.02		E200.7_8	10/26/19 06:58 / ta-a
Calcium	550	mg/L		100		E200.7_8	10/26/19 06:58 / ta-a
Chromium	9.1	mg/L		5		E200.7_8	10/26/19 06:58 / ta-a
Cobalt	31	mg/L		0.1		E200.7_8	10/26/19 06:58 / ta-a
Copper	550	mg/L		2		E200.7_8	10/26/19 06:58 / ta-a
Iron	4400	mg/L		2		E200.7_8	10/26/19 06:58 / ta-a
Lead	7.8	mg/L		0.2		E200.7_8	10/26/19 06:58 / ta-a
Magnesium	4800	mg/L		20		E200.7_8	10/26/19 06:58 / ta-a
Manganese	240	mg/L		0.2		E200.7_8	10/26/19 06:58 / ta-a
Mercury	0.11	ug/L		0.2		E245.1	09/09/19 20:01 / ta-a
Molybdenum	27	mg/L		0.2		E200.7_8	10/26/19 06:58 / ta-a
Nickel	59	mg/L		0.2		E200.7_8	10/26/19 06:58 / ta-a
Potassium	1400	mg/L		50		E200.7_8	10/26/19 06:58 / ta-a
Selenium	4.7	mg/L		0.2		E200.7_8	10/26/19 06:58 / ta-a
Silver	0.17	mg/L		0.1		E200.7_8	10/26/19 06:58 / ta-a
Sodium	13000	mg/L		50		E200.7_8	10/26/19 06:58 / ta-a
Thallium	0.087	mg/L		0.1		E200.7_8	10/26/19 06:58 / ta-a
Tin	0.20	mg/L		0.1		E200.7_8	10/26/19 06:58 / ta-a
Uranium	31	mg/L		0.05		E200.7_8	10/26/19 06:58 / ta-a
Vanadium	760	mg/L		5		E200.7_8	10/26/19 06:58 / ta-a
Zinc	280	mg/L		1		E200.7_8	10/26/19 06:58 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	53	ug/L		35.0		SW8260B	09/03/19 16:35 / ta-a

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

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 Tails 2019
Lab ID: C19081073-007
Client Sample ID: Cell 4B LDS

Report Date: 11/25/19
Collection Date: 08/21/19 10:30
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	102	ug/L		20		SW8260B	09/04/19 10:12 / dm
Acetonitrile	ND	ug/L		20		SW8260B	09/04/19 10:12 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 10:12 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 10:12 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Chloroethane	2.5	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Chloroform	3.9	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Chloromethane	2.3	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 10:12 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-007
Client Sample ID: Cell 4B LDS

Report Date: 11/25/19
Collection Date: 08/21/19 10:30
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	4.8	ug/L	J	20		SW8260B	09/04/19 10:12 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Methyl ethyl ketone	71	ug/L		20		SW8260B	09/04/19 10:12 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 10:12 / dm
Methylene chloride	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Naphthalene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 10:12 / dm
Surr: 1,2-Dichloroethane-d4	127	%REC		70-130		SW8260B	09/04/19 10:12 / dm
Surr: Dibromofluoromethane	117	%REC		70-130		SW8260B	09/04/19 10:12 / dm
Surr: p-Bromofluorobenzene	97.0	%REC		70-130		SW8260B	09/04/19 10:12 / dm
Surr: Toluene-d8	86.0	%REC		70-130		SW8260B	09/04/19 10:12 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2,4,6-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-007
Client Sample ID: Cell 4B LDS

Report Date: 11/25/19
Collection Date: 08/21/19 10:30
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 12:28 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	45		SW8270C	09/12/19 12:28 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 12:28 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 12:28 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Anthracene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Benzidine	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
bis(2-ethylhexyl)Phthalate	16	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Hexachlorobutadiene	ND	ug/L	H	27		SW8270C	09/12/19 12:28 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Hexachloroethane	ND	ug/L	H	27		SW8270C	09/12/19 12:28 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.
H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-007
Client Sample ID: Cell 4B LDS

Report Date: 11/25/19
Collection Date: 08/21/19 10:30
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
m+p-Cresols	0.42	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 12:28 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 12:28 / ta-a
Pyridine	ND	ug/L	H	18		SW8270C	09/12/19 12:28 / ta-a

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 4B LDS	Project: DNMI00107
Sample ID: 488668007	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 10:30	
Receive Date: 24-AUG-19	
Collector: Client	

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Hazardous Waste												
ASTM D 5057 Specific Gravity "As Received"		1.05	0.010	0.100	none		1	VH1	08/30/19	1124	1913001	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

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Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 4B LDS	Project: DNMI00107
Sample ID: 488668007	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 10:30	
Receive Date: 24-AUG-19	
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		1030	+/-290	443	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		3.68E+05	+/-5100	613	1.00	pCi/L							
Thorium-232		2650	+/-440	350	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		2.26E+05	+/-2230	194	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		105	+/-15.4	22.4	1.00	pCi/L			MXH8	09/12/19	1034	1914039	3
J- 233/234,U-235/236 and U-238 "As Received"													
Uranium-233/234		8840	+/-722	403	1.00	pCi/L			JXB7	09/11/19	1927	1914171	4
Uranium-235/236		412	+/-191	343	1.00	pCi/L							
Uranium-238		9600	+/-749	278	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
JL-RAD-A-026	Laboratory Filtration				1912341

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"			82.3	(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"			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.

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 4B LDS
Sample ID: 488668007

Project: DNMI00107
Client ID: DNMI001

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



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-008
Client Sample ID: Cell 65

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS							
Alkalinity, Total as CaCO ₃	ND	mg/L		5		A2320 B	08/23/19 16:11 / dmb
Carbonate as CO ₃	ND	mg/L		5		A2320 B	08/23/19 16:11 / dmb
Bicarbonate as HCO ₃	ND	mg/L		5		A2320 B	08/23/19 16:11 / dmb
Chloride	19300	mg/L	D	100		E300.0	09/10/19 15:06 / ljl
Fluoride	2980	mg/L	D	50		A4500-F C	08/26/19 18:59 / dmb
Sulfate	169000	mg/L	D	400		E300.0	09/10/19 15:06 / ljl
PHYSICAL PROPERTIES							
Conductivity @ 25 C	118000	umhos/cm	E	5		A2510 B	08/23/19 11:55 / kjp
pH	1.13	s.u.	H	0.01		A4500-H B	08/23/19 11:55 / kjp
pH Measurement Temp	18	°C				A4500-H B	08/23/19 11:55 / kjp
Solids, Total Dissolved TDS @ 180 C	255000	mg/L	D	2000		A2540 C	08/26/19 16:11 / kjp
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	114	mg/L	D	0.5		E353.2	08/27/19 13:57 / dmb
Nitrogen, Ammonia as N	12000	mg/L	D	1000		E350.1	08/26/19 18:16 / dmb
METALS, DISSOLVED							
Arsenic	230	mg/L		1		E200.7_8	10/26/19 07:25 / ta-a
Beryllium	0.90	mg/L		0.06		E200.7_8	10/26/19 07:25 / ta-a
Cadmium	4.8	mg/L		0.06		E200.7_8	10/26/19 07:25 / ta-a
Calcium	620	mg/L		20		E200.7_8	10/26/19 07:25 / ta-a
Chromium	12	mg/L		1		E200.7_8	10/26/19 07:25 / ta-a
Cobalt	60	mg/L		0.2		E200.7_8	10/26/19 07:25 / ta-a
Copper	1500	mg/L		4		E200.7_8	10/26/19 07:25 / ta-a
Iron	7800	mg/L		6		E200.7_8	10/26/19 07:25 / ta-a
Lead	22	mg/L		0.4		E200.7_8	10/26/19 07:25 / ta-a
Magnesium	7000	mg/L		6		E200.7_8	10/26/19 07:25 / ta-a
Manganese	470	mg/L		0.5		E200.7_8	10/26/19 07:25 / ta-a
Mercury	3.2	ug/L		0.2		E245.1	09/09/19 20:03 / ta-a
Molybdenum	110	mg/L		0.6		E200.7_8	10/26/19 07:25 / ta-a
Nickel	90	mg/L		0.6		E200.7_8	10/26/19 07:25 / ta-a
Potassium	1900	mg/L		10		E200.7_8	10/26/19 07:25 / ta-a
Selenium	7.9	mg/L		0.6		E200.7_8	10/26/19 07:25 / ta-a
Silver	0.69	mg/L		0.2		E200.7_8	10/26/19 07:25 / ta-a
Sodium	21000	mg/L		10		E200.7_8	10/26/19 07:25 / ta-a
Thallium	0.13	mg/L		0.2		E200.7_8	10/26/19 07:25 / ta-a
Tin	0.46	mg/L		0.2		E200.7_8	10/26/19 07:25 / ta-a
Uranium	77	mg/L		0.1		E200.7_8	10/26/19 07:25 / ta-a
Vanadium	1300	mg/L		10		E200.7_8	10/26/19 07:25 / ta-a
Zinc	490	mg/L		2		E200.7_8	10/26/19 07:25 / ta-a
VOLATILE ORGANIC COMPOUNDS							
Tetrahydrofuran	ND	ug/L		35.0		SW8260B	09/03/19 16:57 / ta-a

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

D - RL increased due to sample matrix.

H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

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 Tails 2019
Lab ID: C19081073-008
Client Sample ID: Cell 65

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	30	ug/L		20		SW8260B	09/04/19 10:44 / dm
Acetonitrile	32	ug/L		20		SW8260B	09/04/19 10:44 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 10:44 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 10:44 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Chloroethane	1.6	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Chloroform	6.9	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Chloromethane	2.4	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		2.0		SW8260B	09/04/19 10:44 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-008
Client Sample ID: Cell 65

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	ND	ug/L		20		SW8260B	09/04/19 10:44 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Methyl ethyl ketone	10	ug/L	J	20		SW8260B	09/04/19 10:44 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 10:44 / dm
Methylene chloride	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Naphthalene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 10:44 / dm
Surr: 1,2-Dichloroethane-d4	127	%REC		70-130		SW8260B	09/04/19 10:44 / dm
Surr: Dibromofluoromethane	118	%REC		70-130		SW8260B	09/04/19 10:44 / dm
Surr: p-Bromofluorobenzene	96.0	%REC		70-130		SW8260B	09/04/19 10:44 / dm
Surr: Toluene-d8	83.0	%REC		70-130		SW8260B	09/04/19 10:44 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
1,2-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
1,3-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
1,4-Dichlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
1-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2,4,5-Trichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2,4,6-Trichlorophenol	5.2	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2,4-Dichlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a

Report Definitions:
 RL - Analyte reporting limit.
 QCL - Quality control limit.
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.
 J - Estimated value. The analyte was present but less than the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-008
Client Sample ID: Cell 65

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
2,4-Dimethylphenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2,4-Dinitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 23:47 / ta-a
2,4-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2,6-Dinitrotoluene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2-Chloronaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2-Methylnaphthalene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
2-Nitrophenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
3,3'-Dichlorobenzidine	ND	ug/L	H	49		SW8270C	09/12/19 23:47 / ta-a
4,6-Dinitro-2-methylphenol	ND	ug/L	H	50		SW8270C	09/12/19 23:47 / ta-a
4-Bromophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
4-Chloro-3-methylphenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
4-Chlorophenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
4-Chlorophenyl phenyl ether	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
4-Nitrophenol	ND	ug/L	H	50		SW8270C	09/12/19 23:47 / ta-a
Acenaphthene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Acenaphthylene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Anthracene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Azobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Benzidine	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Benzo(a)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Benzo(a)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Benzo(b)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Benzo(g,h,i)perylene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Benzo(k)fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
bis(-2-chloroethoxy)Methane	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
bis(-2-chloroethyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
bis(2-chloroisopropyl)Ether	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
bis(2-ethylhexyl)Phthalate	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Butylbenzylphthalate	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Chrysene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Di-n-butyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Di-n-octyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Dibenzo(a,h)anthracene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Diethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Dimethyl phthalate	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Fluoranthene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Fluorene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Hexachlorobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Hexachlorobutadiene	ND	ug/L	H	30		SW8270C	09/12/19 23:47 / ta-a
Hexachlorocyclopentadiene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Hexachloroethane	ND	ug/L	H	30		SW8270C	09/12/19 23:47 / ta-a
Indeno(1,2,3-cd)pyrene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a

Report RL - Analyte reporting limit.

MCL - Maximum contaminant level.

Definitions: QCL - Quality control limit.

ND - Not detected at the reporting limit.

H - Analysis performed past recommended holding time.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-008
Client Sample ID: Cell 65

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS							
Isophorone	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
m+p-Cresols	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
n-Nitroso-di-n-propylamine	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
n-Nitrosodimethylamine	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
n-Nitrosodiphenylamine	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Naphthalene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Nitrobenzene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
o-Cresol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Pentachlorophenol	ND	ug/L	H	50		SW8270C	09/12/19 23:47 / ta-a
Phenanthrene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Phenol	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Pyrene	ND	ug/L	H	10		SW8270C	09/12/19 23:47 / ta-a
Pyridine	ND	ug/L	H	20		SW8270C	09/12/19 23:47 / ta-a

Report Definitions:

RL - Analyte reporting limit.	MCL - Maximum contaminant level.
QCL - Quality control limit.	ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.	

GEL LABORATORIES LLC

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

Certificate of Analysis

Report Date: September 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 65 Project: DNMI00107
Sample ID: 488668008 Client ID: DNMI001
Matrix: Water
Collect Date: 21-AUG-19 08:35
Receive Date: 24-AUG-19
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		1.15	0.010	0.100	none		1	VH1	08/30/19	1124	1913001	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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
 Address : 225 Union Boulevard
 Suite 600
 Lakewood, Colorado 80228
 Contact: Ms. Kathy Weinel
 Project: Tailings 2019 Characterization

Client Sample ID: Cell 65	Project: DNMI00107
Sample ID: 488668008	Client ID: DNMI001
Matrix: Water	
Collect Date: 21-AUG-19 08:35	
Receive Date: 24-AUG-19	
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		1500	+/-440	1080	1.00	pCi/L			JXB7	09/11/19	1927	1914167	1
Thorium-230		6.63E+05	+/-7300	846	1.00	pCi/L							
Thorium-232		5720	+/-695	698	1.00	pCi/L							
GFPC, Total Alpha Radium, Liquid "As Received"													
Gross Radium Alpha		3.98E+05	+/-3070	219	1.00	pCi/L			AXM6	09/12/19	1658	1914172	2
Lucas Cell, Ra226, liquid "As Received"													
Radium-226		434	+/-31.1	23.9	1.00	pCi/L			MXH8	09/12/19	1108	1914039	3
U- 233/234, U-235/236 and U-238 "As Received"													
Uranium-233/234		25500	+/-1370	614	1.00	pCi/L			JXB7	09/11/19	1927	1914171	4
Uranium-235/236		1960	+/-434	433	1.00	pCi/L							
Uranium-238		27700	+/-1430	404	1.00	pCi/L							

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
3L-RAD-A-026	Laboratory Filtration				1912341

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	DOE EML HASL-300, Th-01-RC Modified	
	EPA 903.0	
	EPA 903.1 Modified	
	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"			78.3	(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"			81.4	(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 17, 2019

Company : Energy Fuels Resources (USA), Inc.
Address : 225 Union Boulevard
Suite 600
Lakewood, Colorado 80228
Contact: Ms. Kathy Weinel
Project: Tailings 2019 Characterization

Client Sample ID: Cell 65

Project: DNMI00107

Sample ID: 488668008

Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time Batch	Method
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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 Tails 2019
Lab ID: C19081073-009
Client Sample ID: Trip Blank 10988

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Acetonitrile	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Acrolein	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Acrylonitrile	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Benzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Bromobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Bromochloromethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Bromodichloromethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Bromoform	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Bromomethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
n-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
sec-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
tert-Butylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Chlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Chlorodibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Chloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
2-Chloroethyl vinyl ether	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Chloroform	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Chloromethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
2-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
4-Chlorotoluene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2-Dibromoethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Dibromomethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,3-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,4-Dichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Dichlorodifluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2-Dichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
cis-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
trans-1,2-Dichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,3-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
2,2-Dichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
cis-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
trans-1,3-Dichloropropene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Ethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Hexachlorobutadiene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Lab ID: C19081073-009
Client Sample ID: Trip Blank 10988

Report Date: 11/25/19
Collection Date: 08/21/19 08:35
Date Received: 08/22/19
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
2-Hexanone	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Iodomethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Isopropylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
p-Isopropyltoluene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/04/19 05:26 / dm
Methylene chloride	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Naphthalene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
n-Propylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Styrene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1,1,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1,2,2-Tetrachloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Tetrachloroethene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Toluene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2,3-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2,4-Trichlorobenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1,1-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,1,2-Trichloroethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Trichloroethene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Trichlorofluoromethane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2,3-Trichloropropane	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,2,4-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
1,3,5-Trimethylbenzene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Vinyl chloride	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
o-Xylene	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Xylenes, Total	ND	ug/L		1.0		SW8260B	09/04/19 05:26 / dm
Surr: 1,2-Dichloroethane-d4	105	%REC		70-130		SW8260B	09/04/19 05:26 / dm
Surr: Dibromofluoromethane	100	%REC		70-130		SW8260B	09/04/19 05:26 / dm
Surr: p-Bromofluorobenzene	90.0	%REC		70-130		SW8260B	09/04/19 05:26 / dm
Surr: Toluene-d8	92.0	%REC		70-130		SW8260B	09/04/19 05:26 / dm

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



ANALYTICAL SUMMARY REPORT

November 25, 2019

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

Work Order: C19081073 Quote ID: C5645

Project Name: Annual Tails 2019

Energy Laboratories, Inc. Casper WY received the following 9 samples for Energy Fuels Resources (USA) Inc on 8/22/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C19081073-001	Cell 1	08/21/19 08:35	08/22/19	Aqueous	Metals by ICP/ICPMS, Dissolved Acidity, Total as CaCO3 Alkalinity Conductivity Mercury, Dissolved Fluoride Anions by Ion Chromatography pH Check for H2SO4 Preserved Inorganics Metals pH check by the Laboratory FIRST Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Sample Filtering, Metals Digestion, Mercury by CVAA Solids, Total Dissolved Separatory Funnel Liquid-Liquid Ext. Semi-Volatile Organic Compounds 8260-Volatile Organic Compounds- Short List 8260-Volatile Organic Compounds- Extended List
C19081073-002	Cell 2 Slimes	08/21/19 09:05	08/22/19	Aqueous	Same As Above
C19081073-003	Cell 3	08/21/19 09:20	08/22/19	Aqueous	Same As Above
C19081073-004	Cell 4A	08/21/19 09:40	08/22/19	Aqueous	Same As Above
C19081073-005	Cell 4A LDS	08/21/19 09:45	08/22/19	Aqueous	Same As Above
C19081073-006	Cell 4B	08/21/19 10:15	08/22/19	Aqueous	Same As Above
C19081073-007	Cell 4B LDS	08/21/19 10:30	08/22/19	Aqueous	Same As Above
C19081073-008	Cell 65	08/21/19 08:35	08/22/19	Aqueous	Same As Above
C19081073-009	Trip Blank 10988	08/21/19 08:35	08/22/19	Trip Blank	8260-Volatile Organic Compounds- Extended List

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 .



ANALYTICAL SUMMARY REPORT

Report Approved By:


Project Manager

Digitally signed by
Tessa Parke
Date: 2019.11.25 13:47:40 -07:00

CLIENT: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Work Order: C19081073

Report Date: 11/25/19

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.

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Prep Comments for Sample C19081073-001C, Test PRP-FILT-MET: The prep hold time was exceeded by 0.0296 days. - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

Prep Comments for Sample C19081073-002C, Test PRP-FILT-MET: The prep hold time was exceeded by 0.00876 days. - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

Prep Comments for Sample C19081073-003C, Test PRP-FILT-MET: - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

Prep Comments for Sample C19081073-004C, Test PRP-FILT-MET: - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

Prep Comments for Sample C19081073-005C, Test PRP-FILT-MET: - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

CLIENT: Energy Fuels Resources (USA) Inc
Project: Annual Tails 2019
Work Order: C19081073

Report Date: 11/25/19

CASE NARRATIVE

Prep Comments for Sample C19081073-006C, Test PRP-FILT-MET: - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

Prep Comments for Sample C19081073-007C, Test PRP-FILT-MET: - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

Prep Comments for Sample C19081073-008C, Test PRP-FILT-MET: The prep hold time was exceeded by 0.0296 days. - The sample fraction submitted for Dissolved Metals Analysis was received in the laboratory unfiltered.

ANALYTICAL REPORT

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

Laboratory Job ID: 280-127755-1
Client Project/Site: 11(e) Byproduct Material

For:
Energy Laboratories, Inc.
2393 North Salt Creek Highway
PO BOX 247
Casper, Wyoming 82601

Attn: Ms. Tessa Parke



Authorized for release by:
9/24/2019 8:52:19 AM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 280-127755-1

Qualifiers

GC/MS VOA

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.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

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

Job ID: 280-127755-1

Job ID: 280-127755-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Energy Laboratories, Inc.

Project: 11(e) Byproduct Material

Report Number: 280-127755-1

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 8/28/2019 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 2.8° C and 7.6° C.

The following sample was received by the laboratory; however, it was not listed on the Chain-of-Custody (COC): M3-54865 (280-127755-25). The sample was logged per the information stated on the sample container.

The containers for the following samples requesting method 8270C were received at the laboratory outside the required temperature criteria: C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20) and C19081073-008D (280-127755-23).

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples C19081073-001F (280-127755-3), C19081073-002F (280-127755-6), C19081073-003F (280-127755-9), C19081073-004F (280-127755-12), C19081073-005F (280-127755-15), C19081073-006F (280-127755-18), C19081073-007F (280-127755-21) and C19081073-008F (280-127755-24) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/03/2019.

The following samples were diluted due to the nature of the sample matrix: C19081073-001F (280-127755-3), C19081073-002F (280-127755-6), C19081073-003F (280-127755-9), C19081073-004F (280-127755-12), C19081073-005F (280-127755-15), C19081073-006F (280-127755-18), C19081073-007F (280-127755-21) and C19081073-008F (280-127755-24). Elevated reporting limits (RLs) are provided. The samples were blue-green in color and had a "greasy" sheen to the water.

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

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples C19081073-001D (280-127755-2), C19081073-002D (280-127755-5), C19081073-003D (280-127755-8), C19081073-004D (280-127755-11), C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20) and C19081073-008D (280-127755-23) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 08/29/2019 and analyzed on 09/12/2019 and 09/17/2019.

The following samples were diluted due to the nature of the sample matrix: C19081073-004D (280-127755-11) and C19081073-006D (280-127755-17). Elevated reporting limits (RLs) are provided.

The following samples formed emulsions during the extraction procedure: C19081073-001D (280-127755-2), C19081073-002D

Case Narrative

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

Job ID: 280-127755-1

Job ID: 280-127755-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

(280-127755-5), C19081073-003D (280-127755-8), C19081073-004D (280-127755-11), C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20) and C19081073-008D (280-127755-23). The emulsions were broken up using a pour back technique.

The laboratory was unable to perform the base extraction due to emulsion that did not allow the sample to separate sufficiently: C19081073-001D (280-127755-2), C19081073-002D (280-127755-5), C19081073-003D (280-127755-8), C19081073-004D (280-127755-11), C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20) and C19081073-008D (280-127755-23).

Due to the high density of the sample matrix (>1.0 g/mL), the initial volumes used for the following samples deviated from the standard procedure: C19081073-001D (280-127755-2), C19081073-004D (280-127755-11) and C19081073-008D (280-127755-23). The reporting limits (RLs) have been adjusted proportionately.

The following samples were prepared outside of preparation holding time due to the samples being received on the last day of the method holding time. As such, the laboratory had insufficient time to extract the samples in hold: C19081073-001D (280-127755-2), C19081073-002D (280-127755-5), C19081073-003D (280-127755-8), C19081073-004D (280-127755-11), C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20) and C19081073-008D (280-127755-23).

Due to matrix interference, the following samples failed the surrogate recovery criteria low: C19081073-004D (280-127755-11), (280-127755-17), C19081073-001D (280-127755-2), C19081073-008D (280-127755-23).

The laboratory control sample duplicate (LCSD) for preparation batch 280-469200 and analytical batch 280-470328 recovered outside control limits for the following analytes: 1,2,4,5-Tetrachlorobenzene and 1,1'-Biphenyl. 1,2,4,5-Tetrachlorobenzene and 1,1'-Biphenyl have been identified as a poor performing analytes when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene and Indene failed the recovery criteria low for LCS 280-469200/2-A. Several analytes failed the recovery criteria low for LCSD 280-469200/3-A. Pyridine exceeded the LCS/LCSD RPD limit. Refer to the QC report for details. Due to expired holding times data was reported as is and flagged appropriately.

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

DISSOLVED MERCURY (CVAA)

Samples C19081073-001C (280-127755-1), C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), C19081073-008C (280-127755-22) and M3-54865 (280-127755-25) were analyzed for dissolved mercury (CVAA) in accordance with EPA Method 245.1. The samples were prepared and analyzed on 09/09/2019.

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: 280-127755-1

Client Sample ID: C19081073-001C

Lab Sample ID: 280-127755-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	3.7		0.20	0.027	ug/L	1		245.1	Dissolved

Client Sample ID: C19081073-001D

Lab Sample ID: 280-127755-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hexadecane	85	H	10	0.35	ug/L	1		8270C	Total/NA

Client Sample ID: C19081073-001F

Lab Sample ID: 280-127755-3

No Detections.

Client Sample ID: C19081073-002C

Lab Sample ID: 280-127755-4

No Detections.

Client Sample ID: C19081073-002D

Lab Sample ID: 280-127755-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	14	J H	18	0.65	ug/L	1		8270C	Total/NA
2-Methylnaphthalene	11	H *	3.7	0.38	ug/L	1		8270C	Total/NA
Bis(2-ethylhexyl) phthalate	1.1	J H	9.2	1.0	ug/L	1		8270C	Total/NA
Dimethyl phthalate	1.5	J H	3.7	1.2	ug/L	1		8270C	Total/NA
Naphthalene	5.3	H *	3.7	0.37	ug/L	1		8270C	Total/NA
1-Methylnaphthalene	12	H *	3.7	0.32	ug/L	1		8270C	Total/NA

Client Sample ID: C19081073-002F

Lab Sample ID: 280-127755-6

No Detections.

Client Sample ID: C19081073-003C

Lab Sample ID: 280-127755-7

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: C19081073-003D

Lab Sample ID: 280-127755-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzyl alcohol	8.0	J H	9.0	0.31	ug/L	1		8270C	Total/NA

Client Sample ID: C19081073-003F

Lab Sample ID: 280-127755-9

No Detections.

Client Sample ID: C19081073-004C

Lab Sample ID: 280-127755-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	2.1		0.20	0.027	ug/L	1		245.1	Dissolved

Client Sample ID: C19081073-004D

Lab Sample ID: 280-127755-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	1.2	J H	3.7	0.99	ug/L	1		8270C	Total/NA
Hexadecane - DL	320	H	37	1.3	ug/L	4		8270C	Total/NA

Client Sample ID: C19081073-004F

Lab Sample ID: 280-127755-12

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

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

Job ID: 280-127755-1

Client Sample ID: C19081073-005C

Lab Sample ID: 280-127755-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	1.4		0.20	0.027	ug/L	1		245.1	Dissolved

Client Sample ID: C19081073-005D

Lab Sample ID: 280-127755-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	1.1	J H	9.2	1.0	ug/L	1		8270C	Total/NA

Client Sample ID: C19081073-005F

Lab Sample ID: 280-127755-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrahydrofuran	16	J	35	10	ug/L	5		8260B	Total/NA

Client Sample ID: C19081073-006C

Lab Sample ID: 280-127755-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.46		0.20	0.027	ug/L	1		245.1	Dissolved

Client Sample ID: C19081073-006D

Lab Sample ID: 280-127755-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	1.7	J H	3.5	0.94	ug/L	1		8270C	Total/NA
Hexadecane - DL	190	H	35	1.2	ug/L	4		8270C	Total/NA

Client Sample ID: C19081073-006F

Lab Sample ID: 280-127755-18

No Detections.

Client Sample ID: C19081073-007C

Lab Sample ID: 280-127755-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.11	J	0.20	0.027	ug/L	1		245.1	Dissolved

Client Sample ID: C19081073-007D

Lab Sample ID: 280-127755-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	16	H	9.1	1.0	ug/L	1		8270C	Total/NA
3-Methylphenol	0.42	J H	9.1	0.36	ug/L	1		8270C	Total/NA
Total Cresols	0.42	J H	9.1	0.36	ug/L	1		8270C	Total/NA

Client Sample ID: C19081073-007F

Lab Sample ID: 280-127755-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrahydrofuran	53		35	10	ug/L	5		8260B	Total/NA

Client Sample ID: C19081073-008C

Lab Sample ID: 280-127755-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	3.2		0.20	0.027	ug/L	1		245.1	Dissolved

Client Sample ID: C19081073-008D

Lab Sample ID: 280-127755-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2,4,6-Trichlorophenol	5.2	J H	9.9	0.73	ug/L	1		8270C	Total/NA
Hexadecane	91	H	9.9	0.35	ug/L	1		8270C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

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

Job ID: 280-127755-1

Client Sample ID: C19081073-008F

Lab Sample ID: 280-127755-24

No Detections.

Client Sample ID: M3-54865

Lab Sample ID: 280-127755-25

No Detections.

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: 280-127755-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL DEN
245.1	Mercury - Dissolved	EPA	TAL DEN
245.1	Preparation, Mercury	EPA	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

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: 280-127755-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-127755-1	C19081073-001C	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-2	C19081073-001D	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-3	C19081073-001F	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-4	C19081073-002C	Water	08/21/19 09:05	08/28/19 10:45	
280-127755-5	C19081073-002D	Water	08/21/19 09:05	08/28/19 10:45	
280-127755-6	C19081073-002F	Water	08/21/19 09:05	08/28/19 10:45	
280-127755-7	C19081073-003C	Water	08/21/19 09:20	08/28/19 10:45	
280-127755-8	C19081073-003D	Water	08/21/19 09:20	08/28/19 10:45	
280-127755-9	C19081073-003F	Water	08/21/19 09:20	08/28/19 10:45	
280-127755-10	C19081073-004C	Water	08/21/19 09:40	08/28/19 10:45	
280-127755-11	C19081073-004D	Water	08/21/19 09:40	08/28/19 10:45	
280-127755-12	C19081073-004F	Water	08/21/19 09:40	08/28/19 10:45	
280-127755-13	C19081073-005C	Water	08/21/19 09:45	08/28/19 10:45	
280-127755-14	C19081073-005D	Water	08/21/19 09:45	08/28/19 10:45	
280-127755-15	C19081073-005F	Water	08/21/19 09:45	08/28/19 10:45	
280-127755-16	C19081073-006C	Water	08/21/19 10:15	08/28/19 10:45	
280-127755-17	C19081073-006D	Water	08/21/19 10:15	08/28/19 10:45	
280-127755-18	C19081073-006F	Water	08/21/19 10:15	08/28/19 10:45	
280-127755-19	C19081073-007C	Water	08/21/19 10:30	08/28/19 10:45	
280-127755-20	C19081073-007D	Water	08/21/19 10:30	08/28/19 10:45	
280-127755-21	C19081073-007F	Water	08/21/19 10:30	08/28/19 10:45	
280-127755-22	C19081073-008C	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-23	C19081073-008D	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-24	C19081073-008F	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-25	M3-54865	Water	08/23/19 11:20	08/28/19 10:45	

Client Sample Results

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

Job ID: 280-127755-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-001F
Date Collected: 08/21/19 08:35
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	ND		35	10	ug/L			09/03/19 14:28	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 127					09/03/19 14:28	5
Toluene-d8 (Surr)	96		80 - 125					09/03/19 14:28	5
4-Bromofluorobenzene (Surr)	93		78 - 120					09/03/19 14:28	5
Dibromofluoromethane (Surr)	99		77 - 120					09/03/19 14:28	5

Client Sample ID: C19081073-002F
Date Collected: 08/21/19 09:05
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	ND		35	10	ug/L			09/03/19 14:50	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		70 - 127					09/03/19 14:50	5
Toluene-d8 (Surr)	96		80 - 125					09/03/19 14:50	5
4-Bromofluorobenzene (Surr)	95		78 - 120					09/03/19 14:50	5
Dibromofluoromethane (Surr)	99		77 - 120					09/03/19 14:50	5

Client Sample ID: C19081073-003F
Date Collected: 08/21/19 09:20
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	ND		35	10	ug/L			09/03/19 15:11	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 127					09/03/19 15:11	5
Toluene-d8 (Surr)	95		80 - 125					09/03/19 15:11	5
4-Bromofluorobenzene (Surr)	93		78 - 120					09/03/19 15:11	5
Dibromofluoromethane (Surr)	100		77 - 120					09/03/19 15:11	5

Client Sample ID: C19081073-004F
Date Collected: 08/21/19 09:40
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-12
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	ND		35	10	ug/L			09/03/19 15:32	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 127					09/03/19 15:32	5
Toluene-d8 (Surr)	96		80 - 125					09/03/19 15:32	5
4-Bromofluorobenzene (Surr)	93		78 - 120					09/03/19 15:32	5
Dibromofluoromethane (Surr)	99		77 - 120					09/03/19 15:32	5

Client Sample ID: C19081073-005F
Date Collected: 08/21/19 09:45
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-15
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	16	J	35	10	ug/L			09/03/19 15:53	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 127					09/03/19 15:53	5

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-005F
Date Collected: 08/21/19 09:45
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-15
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 125		09/03/19 15:53	5
4-Bromofluorobenzene (Surr)	93		78 - 120		09/03/19 15:53	5
Dibromofluoromethane (Surr)	98		77 - 120		09/03/19 15:53	5

Client Sample ID: C19081073-006F
Date Collected: 08/21/19 10:15
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-18
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	ND		35	10	ug/L			09/03/19 16:14	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 127		09/03/19 16:14	5
Toluene-d8 (Surr)	96		80 - 125		09/03/19 16:14	5
4-Bromofluorobenzene (Surr)	93		78 - 120		09/03/19 16:14	5
Dibromofluoromethane (Surr)	98		77 - 120		09/03/19 16:14	5

Client Sample ID: C19081073-007F
Date Collected: 08/21/19 10:30
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-21
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	53		35	10	ug/L			09/03/19 16:35	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 127		09/03/19 16:35	5
Toluene-d8 (Surr)	97		80 - 125		09/03/19 16:35	5
4-Bromofluorobenzene (Surr)	93		78 - 120		09/03/19 16:35	5
Dibromofluoromethane (Surr)	100		77 - 120		09/03/19 16:35	5

Client Sample ID: C19081073-008F
Date Collected: 08/21/19 08:35
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-24
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrahydrofuran	ND		35	10	ug/L			09/03/19 16:57	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 127		09/03/19 16:57	5
Toluene-d8 (Surr)	97		80 - 125		09/03/19 16:57	5
4-Bromofluorobenzene (Surr)	94		78 - 120		09/03/19 16:57	5
Dibromofluoromethane (Surr)	99		77 - 120		09/03/19 16:57	5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-001D
Date Collected: 08/21/19 08:35
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	10	0.41	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,2,4,5-Tetrachlorobenzene	ND	H *	10	0.24	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,2,4-Trichlorobenzene	ND	H *	5.0	0.37	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,2-Dichlorobenzene	ND	H *	5.0	0.30	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,3-Dichlorobenzene	ND	H *	10	2.0	ug/L		08/29/19 12:28	09/12/19 20:21	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-001D

Lab Sample ID: 280-127755-2

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND	H *	5.0	0.30	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,4-Dioxane	ND	H	20	0.71	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,4,6-Trichlorophenol	ND	H	10	0.74	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,4-Dichlorophenol	ND	H	10	0.68	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,2'-oxybis[1-chloropropane]	ND	H	10	0.42	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,3,4,6-Tetrachlorophenol	ND	H	50	0.96	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,4,5-Trichlorophenol	ND	H	10	0.52	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,4-Dimethylphenol	ND	H	10	0.67	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,4-Dinitrotoluene	ND	H	10	0.93	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,6-Dinitrotoluene	ND	H	10	0.72	ug/L		08/29/19 12:28	09/12/19 20:21	1
2-Chloronaphthalene	ND	H *	4.0	0.46	ug/L		08/29/19 12:28	09/12/19 20:21	1
2-Chlorophenol	ND	H	10	0.43	ug/L		08/29/19 12:28	09/12/19 20:21	1
2-Methylnaphthalene	ND	H *	4.0	0.41	ug/L		08/29/19 12:28	09/12/19 20:21	1
2-Methylphenol	ND	H	10	0.56	ug/L		08/29/19 12:28	09/12/19 20:21	1
3 & 4 Methylphenol	ND	H	10	1.0	ug/L		08/29/19 12:28	09/12/19 20:21	1
2-Nitroaniline	ND	H	10	0.90	ug/L		08/29/19 12:28	09/12/19 20:21	1
2-Nitrophenol	ND	H	10	0.62	ug/L		08/29/19 12:28	09/12/19 20:21	1
3,3'-Dichlorobenzidine	ND	H	50	0.83	ug/L		08/29/19 12:28	09/12/19 20:21	1
3-Nitroaniline	ND	H	10	0.78	ug/L		08/29/19 12:28	09/12/19 20:21	1
4,6-Dinitro-2-methylphenol	ND	H	50	5.9	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Bromophenyl phenyl ether	ND	H	10	0.41	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Chloro-3-methylphenol	ND	H	10	0.45	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Chloroaniline	ND	H	10	0.56	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Chlorophenyl phenyl ether	ND	H	10	0.63	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Nitroaniline	ND	H	10	0.84	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Nitrophenol	ND	H	10	1.0	ug/L		08/29/19 12:28	09/12/19 20:21	1
Acenaphthene	ND	H	4.0	0.45	ug/L		08/29/19 12:28	09/12/19 20:21	1
Acenaphthylene	ND	H *	4.0	0.50	ug/L		08/29/19 12:28	09/12/19 20:21	1
Acetophenone	ND	H	10	0.52	ug/L		08/29/19 12:28	09/12/19 20:21	1
Anthracene	ND	H	4.0	1.1	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzaldehyde	ND	H	10	0.53	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzo[a]pyrene	ND	H	4.0	0.64	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzo[b]fluoranthene	ND	H	4.0	0.53	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzo[g,h,i]perylene	ND	H	4.0	0.79	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzo[k]fluoranthene	ND	H	4.0	0.56	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzo[a]anthracene	ND	H	4.0	0.58	ug/L		08/29/19 12:28	09/12/19 20:21	1
Bis(2-chloroethoxy)methane	ND	H	10	0.61	ug/L		08/29/19 12:28	09/12/19 20:21	1
Bis(2-chloroethyl)ether	ND	H	10	0.49	ug/L		08/29/19 12:28	09/12/19 20:21	1
Bis(2-ethylhexyl) phthalate	ND	H	10	1.1	ug/L		08/29/19 12:28	09/12/19 20:21	1
Butyl benzyl phthalate	ND	H	5.0	2.0	ug/L		08/29/19 12:28	09/12/19 20:21	1
Caprolactam	ND	H	10	2.7	ug/L		08/29/19 12:28	09/12/19 20:21	1
Carbazole	ND	H	4.0	1.3	ug/L		08/29/19 12:28	09/12/19 20:21	1
Chrysene	ND	H	4.0	0.52	ug/L		08/29/19 12:28	09/12/19 20:21	1
Dibenz(a,h)anthracene	ND	H	4.0	0.65	ug/L		08/29/19 12:28	09/12/19 20:21	1
Di-n-butyl phthalate	ND	H	4.0	0.88	ug/L		08/29/19 12:28	09/12/19 20:21	1
Di-n-octyl phthalate	ND	H	5.0	1.6	ug/L		08/29/19 12:28	09/12/19 20:21	1
Dibenzofuran	ND	H	4.0	0.36	ug/L		08/29/19 12:28	09/12/19 20:21	1
Diethyl phthalate	ND	H	4.0	0.75	ug/L		08/29/19 12:28	09/12/19 20:21	1
Dimethyl phthalate	ND	H	4.0	1.3	ug/L		08/29/19 12:28	09/12/19 20:21	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-001D

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND	H	4.0	0.64	ug/L		08/29/19 12:28	09/12/19 20:21	1
Fluorene	ND	H	4.0	0.49	ug/L		08/29/19 12:28	09/12/19 20:21	1
Hexachlorobenzene	ND	H	10	0.96	ug/L		08/29/19 12:28	09/12/19 20:21	1
Hexachlorobutadiene	ND	H *	30	7.5	ug/L		08/29/19 12:28	09/12/19 20:21	1
Hexachloroethane	ND	H *	30	7.6	ug/L		08/29/19 12:28	09/12/19 20:21	1
Indeno[1,2,3-cd]pyrene	ND	H	5.0	1.6	ug/L		08/29/19 12:28	09/12/19 20:21	1
Isophorone	ND	H	10	0.67	ug/L		08/29/19 12:28	09/12/19 20:21	1
N-Nitrosodi-n-propylamine	ND	H	10	0.56	ug/L		08/29/19 12:28	09/12/19 20:21	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	10	0.61	ug/L		08/29/19 12:28	09/12/19 20:21	1
Naphthalene	ND	H *	4.0	0.40	ug/L		08/29/19 12:28	09/12/19 20:21	1
Nitrobenzene	ND	H	10	0.43	ug/L		08/29/19 12:28	09/12/19 20:21	1
Pentachlorophenol	ND	H	50	5.5	ug/L		08/29/19 12:28	09/12/19 20:21	1
Phenanthrene	ND	H	4.0	0.28	ug/L		08/29/19 12:28	09/12/19 20:21	1
Phenol	ND	H	10	0.56	ug/L		08/29/19 12:28	09/12/19 20:21	1
Pyrene	ND	H	10	0.43	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,3-Dinitrobenzene	ND	H	10	0.97	ug/L		08/29/19 12:28	09/12/19 20:21	1
1-Methylnaphthalene	ND	H *	4.0	0.35	ug/L		08/29/19 12:28	09/12/19 20:21	1
2,6-Dichlorophenol	ND	H	10	0.75	ug/L		08/29/19 12:28	09/12/19 20:21	1
Aniline	ND	H	10	0.88	ug/L		08/29/19 12:28	09/12/19 20:21	1
Azobenzene	ND	H	4.0	0.54	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzidine	ND	H	100	4.4	ug/L		08/29/19 12:28	09/12/19 20:21	1
Benzyl alcohol	ND	H	10	0.35	ug/L		08/29/19 12:28	09/12/19 20:21	1
Diphenylamine	ND	H	10	0.49	ug/L		08/29/19 12:28	09/12/19 20:21	1
Hexadecane	85	H	10	0.35	ug/L		08/29/19 12:28	09/12/19 20:21	1
N-Nitrosodimethylamine	ND	H	10	0.62	ug/L		08/29/19 12:28	09/12/19 20:21	1
Pyridine	ND	H *	20	5.0	ug/L		08/29/19 12:28	09/12/19 20:21	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	10	0.54	ug/L		08/29/19 12:28	09/12/19 20:21	1
3-Methylphenol	ND	H	10	0.40	ug/L		08/29/19 12:28	09/12/19 20:21	1
4-Methylphenol	ND	H	10	1.0	ug/L		08/29/19 12:28	09/12/19 20:21	1
Alachlor	ND	H	20	0.60	ug/L		08/29/19 12:28	09/12/19 20:21	1
Famphur	ND	H	100	0.80	ug/L		08/29/19 12:28	09/12/19 20:21	1
Indene	ND	H *	10	0.82	ug/L		08/29/19 12:28	09/12/19 20:21	1
Total Cresols	ND	H	10	0.40	ug/L		08/29/19 12:28	09/12/19 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	28		17 - 71	08/29/19 12:28	09/12/19 20:21	1
Phenol-d5	26		10 - 52	08/29/19 12:28	09/12/19 20:21	1
2,4,6-Tribromophenol	34	X	52 - 123	08/29/19 12:28	09/12/19 20:21	1
2-Fluorobiphenyl	26	X	47 - 119	08/29/19 12:28	09/12/19 20:21	1
Nitrobenzene-d5	36	X	45 - 113	08/29/19 12:28	09/12/19 20:21	1
Terphenyl-d14	27	X	50 - 123	08/29/19 12:28	09/12/19 20:21	1

Client Sample ID: C19081073-002D

Date Collected: 08/21/19 09:05

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	9.2	0.38	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,2,4,5-Tetrachlorobenzene	ND	H *	9.2	0.22	ug/L		08/29/19 12:28	09/12/19 20:51	1

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Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-002D

Lab Sample ID: 280-127755-5

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	H *	4.6	0.34	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,2-Dichlorobenzene	ND	H *	4.6	0.28	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,3-Dichlorobenzene	ND	H *	9.2	1.8	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,4-Dichlorobenzene	ND	H *	4.6	0.27	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,4-Dioxane	14	J H	18	0.65	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,4,6-Trichlorophenol	ND	H	9.2	0.68	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,4-Dichlorophenol	ND	H	9.2	0.63	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,2'-oxybis[1-chloropropane]	ND	H	9.2	0.39	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,3,4,6-Tetrachlorophenol	ND	H	46	0.89	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,4,5-Trichlorophenol	ND	H	9.2	0.48	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,4-Dimethylphenol	ND	H	9.2	0.62	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,4-Dinitrotoluene	ND	H	9.2	0.86	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,6-Dinitrotoluene	ND	H	9.2	0.66	ug/L		08/29/19 12:28	09/12/19 20:51	1
2-Chloronaphthalene	ND	H *	3.7	0.42	ug/L		08/29/19 12:28	09/12/19 20:51	1
2-Chlorophenol	ND	H	9.2	0.40	ug/L		08/29/19 12:28	09/12/19 20:51	1
2-Methylnaphthalene	11	H *	3.7	0.38	ug/L		08/29/19 12:28	09/12/19 20:51	1
2-Methylphenol	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 20:51	1
3 & 4 Methylphenol	ND	H	9.2	0.94	ug/L		08/29/19 12:28	09/12/19 20:51	1
2-Nitroaniline	ND	H	9.2	0.83	ug/L		08/29/19 12:28	09/12/19 20:51	1
2-Nitrophenol	ND	H	9.2	0.57	ug/L		08/29/19 12:28	09/12/19 20:51	1
3,3'-Dichlorobenzidine	ND	H	46	0.77	ug/L		08/29/19 12:28	09/12/19 20:51	1
3-Nitroaniline	ND	H	9.2	0.72	ug/L		08/29/19 12:28	09/12/19 20:51	1
4,6-Dinitro-2-methylphenol	ND	H	46	5.4	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Bromophenyl phenyl ether	ND	H	9.2	0.38	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Chloro-3-methylphenol	ND	H	9.2	0.41	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Chloroaniline	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Chlorophenyl phenyl ether	ND	H	9.2	0.58	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Nitroaniline	ND	H	9.2	0.77	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Nitrophenol	ND	H	9.2	0.93	ug/L		08/29/19 12:28	09/12/19 20:51	1
Acenaphthene	ND	H	3.7	0.41	ug/L		08/29/19 12:28	09/12/19 20:51	1
Acenaphthylene	ND	H *	3.7	0.46	ug/L		08/29/19 12:28	09/12/19 20:51	1
Acetophenone	ND	H	9.2	0.48	ug/L		08/29/19 12:28	09/12/19 20:51	1
Anthracene	ND	H	3.7	0.99	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzaldehyde	ND	H	9.2	0.49	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzo[a]pyrene	ND	H	3.7	0.59	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzo[b]fluoranthene	ND	H	3.7	0.49	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzo[g,h,i]perylene	ND	H	3.7	0.73	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzo[k]fluoranthene	ND	H	3.7	0.52	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzo[a]anthracene	ND	H	3.7	0.53	ug/L		08/29/19 12:28	09/12/19 20:51	1
Bis(2-chloroethoxy)methane	ND	H	9.2	0.56	ug/L		08/29/19 12:28	09/12/19 20:51	1
Bis(2-chloroethyl)ether	ND	H	9.2	0.45	ug/L		08/29/19 12:28	09/12/19 20:51	1
Bis(2-ethylhexyl) phthalate	1.1	J H	9.2	1.0	ug/L		08/29/19 12:28	09/12/19 20:51	1
Butyl benzyl phthalate	ND	H	4.6	1.8	ug/L		08/29/19 12:28	09/12/19 20:51	1
Caprolactam	ND	H	9.2	2.5	ug/L		08/29/19 12:28	09/12/19 20:51	1
Carbazole	ND	H	3.7	1.2	ug/L		08/29/19 12:28	09/12/19 20:51	1
Chrysene	ND	H	3.7	0.48	ug/L		08/29/19 12:28	09/12/19 20:51	1
Dibenz(a,h)anthracene	ND	H	3.7	0.60	ug/L		08/29/19 12:28	09/12/19 20:51	1
Di-n-butyl phthalate	ND	H	3.7	0.81	ug/L		08/29/19 12:28	09/12/19 20:51	1
Di-n-octyl phthalate	ND	H	4.6	1.5	ug/L		08/29/19 12:28	09/12/19 20:51	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-002D

Lab Sample ID: 280-127755-5

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND	H	3.7	0.33	ug/L		08/29/19 12:28	09/12/19 20:51	1
Diethyl phthalate	ND	H	3.7	0.69	ug/L		08/29/19 12:28	09/12/19 20:51	1
Dimethyl phthalate	1.5	J H	3.7	1.2	ug/L		08/29/19 12:28	09/12/19 20:51	1
Fluoranthene	ND	H	3.7	0.59	ug/L		08/29/19 12:28	09/12/19 20:51	1
Fluorene	ND	H	3.7	0.45	ug/L		08/29/19 12:28	09/12/19 20:51	1
Hexachlorobenzene	ND	H	9.2	0.89	ug/L		08/29/19 12:28	09/12/19 20:51	1
Hexachlorobutadiene	ND	H *	28	6.9	ug/L		08/29/19 12:28	09/12/19 20:51	1
Hexachloroethane	ND	H *	28	7.0	ug/L		08/29/19 12:28	09/12/19 20:51	1
Indeno[1,2,3-cd]pyrene	ND	H	4.6	1.5	ug/L		08/29/19 12:28	09/12/19 20:51	1
Isophorone	ND	H	9.2	0.62	ug/L		08/29/19 12:28	09/12/19 20:51	1
N-Nitrosodi-n-propylamine	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 20:51	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	9.2	0.56	ug/L		08/29/19 12:28	09/12/19 20:51	1
Naphthalene	5.3	H *	3.7	0.37	ug/L		08/29/19 12:28	09/12/19 20:51	1
Nitrobenzene	ND	H	9.2	0.40	ug/L		08/29/19 12:28	09/12/19 20:51	1
Pentachlorophenol	ND	H	46	5.1	ug/L		08/29/19 12:28	09/12/19 20:51	1
Phenanthrene	ND	H	3.7	0.26	ug/L		08/29/19 12:28	09/12/19 20:51	1
Phenol	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 20:51	1
Pyrene	ND	H	9.2	0.40	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,3-Dinitrobenzene	ND	H	9.2	0.89	ug/L		08/29/19 12:28	09/12/19 20:51	1
1-Methylnaphthalene	12	H *	3.7	0.32	ug/L		08/29/19 12:28	09/12/19 20:51	1
2,6-Dichlorophenol	ND	H	9.2	0.69	ug/L		08/29/19 12:28	09/12/19 20:51	1
Aniline	ND	H	9.2	0.81	ug/L		08/29/19 12:28	09/12/19 20:51	1
Azobenzene	ND	H	3.7	0.50	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzidine	ND	H	92	4.1	ug/L		08/29/19 12:28	09/12/19 20:51	1
Benzyl alcohol	ND	H	9.2	0.32	ug/L		08/29/19 12:28	09/12/19 20:51	1
Diphenylamine	ND	H	9.2	0.45	ug/L		08/29/19 12:28	09/12/19 20:51	1
Hexadecane	ND	H	9.2	0.33	ug/L		08/29/19 12:28	09/12/19 20:51	1
N-Nitrosodimethylamine	ND	H	9.2	0.57	ug/L		08/29/19 12:28	09/12/19 20:51	1
Pyridine	ND	H *	18	4.6	ug/L		08/29/19 12:28	09/12/19 20:51	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	9.2	0.50	ug/L		08/29/19 12:28	09/12/19 20:51	1
3-Methylphenol	ND	H	9.2	0.37	ug/L		08/29/19 12:28	09/12/19 20:51	1
4-Methylphenol	ND	H	9.2	0.94	ug/L		08/29/19 12:28	09/12/19 20:51	1
Alachlor	ND	H	18	0.55	ug/L		08/29/19 12:28	09/12/19 20:51	1
Famphur	ND	H	92	0.73	ug/L		08/29/19 12:28	09/12/19 20:51	1
Indene	ND	H *	9.2	0.76	ug/L		08/29/19 12:28	09/12/19 20:51	1
Total Cresols	ND	H	9.2	0.37	ug/L		08/29/19 12:28	09/12/19 20:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	46		17 - 71	08/29/19 12:28	09/12/19 20:51	1
Phenol-d5	35		10 - 52	08/29/19 12:28	09/12/19 20:51	1
2,4,6-Tribromophenol	76		52 - 123	08/29/19 12:28	09/12/19 20:51	1
2-Fluorobiphenyl	60		47 - 119	08/29/19 12:28	09/12/19 20:51	1
Nitrobenzene-d5	74		45 - 113	08/29/19 12:28	09/12/19 20:51	1
Terphenyl-d14	68		50 - 123	08/29/19 12:28	09/12/19 20:51	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-003D

Lab Sample ID: 280-127755-8

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	9.0	0.37	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,2,4,5-Tetrachlorobenzene	ND	H *	9.0	0.22	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,2,4-Trichlorobenzene	ND	H *	4.5	0.33	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,2-Dichlorobenzene	ND	H *	4.5	0.27	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,3-Dichlorobenzene	ND	H *	9.0	1.8	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,4-Dichlorobenzene	ND	H *	4.5	0.26	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,4-Dioxane	ND	H	18	0.64	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,4,6-Trichlorophenol	ND	H	9.0	0.66	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,4-Dichlorophenol	ND	H	9.0	0.61	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,2'-oxybis[1-chloropropane]	ND	H	9.0	0.38	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,3,4,6-Tetrachlorophenol	ND	H	45	0.86	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,4,5-Trichlorophenol	ND	H	9.0	0.47	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,4-Dimethylphenol	ND	H	9.0	0.60	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,4-Dinitrotoluene	ND	H	9.0	0.83	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,6-Dinitrotoluene	ND	H	9.0	0.64	ug/L		08/29/19 12:28	09/12/19 21:20	1
2-Chloronaphthalene	ND	H *	3.6	0.41	ug/L		08/29/19 12:28	09/12/19 21:20	1
2-Chlorophenol	ND	H	9.0	0.38	ug/L		08/29/19 12:28	09/12/19 21:20	1
2-Methylnaphthalene	ND	H *	3.6	0.37	ug/L		08/29/19 12:28	09/12/19 21:20	1
2-Methylphenol	ND	H	9.0	0.50	ug/L		08/29/19 12:28	09/12/19 21:20	1
3 & 4 Methylphenol	ND	H	9.0	0.91	ug/L		08/29/19 12:28	09/12/19 21:20	1
2-Nitroaniline	ND	H	9.0	0.81	ug/L		08/29/19 12:28	09/12/19 21:20	1
2-Nitrophenol	ND	H	9.0	0.55	ug/L		08/29/19 12:28	09/12/19 21:20	1
3,3'-Dichlorobenzidine	ND	H	45	0.74	ug/L		08/29/19 12:28	09/12/19 21:20	1
3-Nitroaniline	ND	H	9.0	0.70	ug/L		08/29/19 12:28	09/12/19 21:20	1
4,6-Dinitro-2-methylphenol	ND	H	45	5.2	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Bromophenyl phenyl ether	ND	H	9.0	0.37	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Chloro-3-methylphenol	ND	H	9.0	0.40	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Chloroaniline	ND	H	9.0	0.50	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Chlorophenyl phenyl ether	ND	H	9.0	0.56	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Nitroaniline	ND	H	9.0	0.75	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Nitrophenol	ND	H	9.0	0.90	ug/L		08/29/19 12:28	09/12/19 21:20	1
Acenaphthene	ND	H	3.6	0.40	ug/L		08/29/19 12:28	09/12/19 21:20	1
Acenaphthylene	ND	H *	3.6	0.45	ug/L		08/29/19 12:28	09/12/19 21:20	1
Acetophenone	ND	H	9.0	0.47	ug/L		08/29/19 12:28	09/12/19 21:20	1
Anthracene	ND	H	3.6	0.96	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzaldehyde	ND	H	9.0	0.47	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzo[a]pyrene	ND	H	3.6	0.57	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzo[b]fluoranthene	ND	H	3.6	0.47	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzo[g,h,i]perylene	ND	H	3.6	0.71	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzo[k]fluoranthene	ND	H	3.6	0.50	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzo[a]anthracene	ND	H	3.6	0.52	ug/L		08/29/19 12:28	09/12/19 21:20	1
Bis(2-chloroethoxy)methane	ND	H	9.0	0.55	ug/L		08/29/19 12:28	09/12/19 21:20	1
Bis(2-chloroethyl)ether	ND	H	9.0	0.44	ug/L		08/29/19 12:28	09/12/19 21:20	1
Bis(2-ethylhexyl) phthalate	ND	H	9.0	1.0	ug/L		08/29/19 12:28	09/12/19 21:20	1
Butyl benzyl phthalate	ND	H	4.5	1.8	ug/L		08/29/19 12:28	09/12/19 21:20	1
Caprolactam	ND	H	9.0	2.4	ug/L		08/29/19 12:28	09/12/19 21:20	1
Carbazole	ND	H	3.6	1.2	ug/L		08/29/19 12:28	09/12/19 21:20	1
Chrysene	ND	H	3.6	0.47	ug/L		08/29/19 12:28	09/12/19 21:20	1
Dibenz(a,h)anthracene	ND	H	3.6	0.58	ug/L		08/29/19 12:28	09/12/19 21:20	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-003D

Lab Sample ID: 280-127755-8

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND	H	3.6	0.79	ug/L		08/29/19 12:28	09/12/19 21:20	1
Di-n-octyl phthalate	ND	H	4.5	1.4	ug/L		08/29/19 12:28	09/12/19 21:20	1
Dibenzofuran	ND	H	3.6	0.32	ug/L		08/29/19 12:28	09/12/19 21:20	1
Diethyl phthalate	ND	H	3.6	0.67	ug/L		08/29/19 12:28	09/12/19 21:20	1
Dimethyl phthalate	ND	H	3.6	1.1	ug/L		08/29/19 12:28	09/12/19 21:20	1
Fluoranthene	ND	H	3.6	0.57	ug/L		08/29/19 12:28	09/12/19 21:20	1
Fluorene	ND	H	3.6	0.44	ug/L		08/29/19 12:28	09/12/19 21:20	1
Hexachlorobenzene	ND	H	9.0	0.86	ug/L		08/29/19 12:28	09/12/19 21:20	1
Hexachlorobutadiene	ND	H *	27	6.7	ug/L		08/29/19 12:28	09/12/19 21:20	1
Hexachloroethane	ND	H *	27	6.8	ug/L		08/29/19 12:28	09/12/19 21:20	1
Indeno[1,2,3-cd]pyrene	ND	H	4.5	1.5	ug/L		08/29/19 12:28	09/12/19 21:20	1
Isophorone	ND	H	9.0	0.60	ug/L		08/29/19 12:28	09/12/19 21:20	1
N-Nitrosodi-n-propylamine	ND	H	9.0	0.50	ug/L		08/29/19 12:28	09/12/19 21:20	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	9.0	0.55	ug/L		08/29/19 12:28	09/12/19 21:20	1
Naphthalene	ND	H *	3.6	0.36	ug/L		08/29/19 12:28	09/12/19 21:20	1
Nitrobenzene	ND	H	9.0	0.38	ug/L		08/29/19 12:28	09/12/19 21:20	1
Pentachlorophenol	ND	H	45	4.9	ug/L		08/29/19 12:28	09/12/19 21:20	1
Phenanthrene	ND	H	3.6	0.25	ug/L		08/29/19 12:28	09/12/19 21:20	1
Phenol	ND	H	9.0	0.50	ug/L		08/29/19 12:28	09/12/19 21:20	1
Pyrene	ND	H	9.0	0.38	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,3-Dinitrobenzene	ND	H	9.0	0.87	ug/L		08/29/19 12:28	09/12/19 21:20	1
1-Methylnaphthalene	ND	H *	3.6	0.31	ug/L		08/29/19 12:28	09/12/19 21:20	1
2,6-Dichlorophenol	ND	H	9.0	0.67	ug/L		08/29/19 12:28	09/12/19 21:20	1
Aniline	ND	H	9.0	0.79	ug/L		08/29/19 12:28	09/12/19 21:20	1
Azobenzene	ND	H	3.6	0.48	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzidine	ND	H	90	3.9	ug/L		08/29/19 12:28	09/12/19 21:20	1
Benzyl alcohol	8.0	J H	9.0	0.31	ug/L		08/29/19 12:28	09/12/19 21:20	1
Diphenylamine	ND	H	9.0	0.44	ug/L		08/29/19 12:28	09/12/19 21:20	1
Hexadecane	ND	H	9.0	0.32	ug/L		08/29/19 12:28	09/12/19 21:20	1
N-Nitrosodimethylamine	ND	H	9.0	0.55	ug/L		08/29/19 12:28	09/12/19 21:20	1
Pyridine	ND	H *	18	4.5	ug/L		08/29/19 12:28	09/12/19 21:20	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	9.0	0.48	ug/L		08/29/19 12:28	09/12/19 21:20	1
3-Methylphenol	ND	H	9.0	0.36	ug/L		08/29/19 12:28	09/12/19 21:20	1
4-Methylphenol	ND	H	9.0	0.91	ug/L		08/29/19 12:28	09/12/19 21:20	1
Alachlor	ND	H	18	0.54	ug/L		08/29/19 12:28	09/12/19 21:20	1
Famphur	ND	H	90	0.71	ug/L		08/29/19 12:28	09/12/19 21:20	1
Indene	ND	H *	9.0	0.73	ug/L		08/29/19 12:28	09/12/19 21:20	1
Total Cresols	ND	H	9.0	0.36	ug/L		08/29/19 12:28	09/12/19 21:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	55		17 - 71	08/29/19 12:28	09/12/19 21:20	1
Phenol-d5	43		10 - 52	08/29/19 12:28	09/12/19 21:20	1
2,4,6-Tribromophenol	78		52 - 123	08/29/19 12:28	09/12/19 21:20	1
2-Fluorobiphenyl	63		47 - 119	08/29/19 12:28	09/12/19 21:20	1
Nitrobenzene-d5	75		45 - 113	08/29/19 12:28	09/12/19 21:20	1
Terphenyl-d14	72		50 - 123	08/29/19 12:28	09/12/19 21:20	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-004D

Lab Sample ID: 280-127755-11

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	9.3	0.38	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,2,4,5-Tetrachlorobenzene	ND	H *	9.3	0.23	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,2,4-Trichlorobenzene	ND	H *	4.6	0.34	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,2-Dichlorobenzene	ND	H *	4.6	0.28	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,3-Dichlorobenzene	ND	H *	9.3	1.9	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,4-Dichlorobenzene	ND	H *	4.6	0.27	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,4-Dioxane	ND	H	19	0.66	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,4,6-Trichlorophenol	ND	H	9.3	0.69	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,4-Dichlorophenol	ND	H	9.3	0.63	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,2'-oxybis[1-chloropropane]	ND	H	9.3	0.39	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,3,4,6-Tetrachlorophenol	ND	H	46	0.89	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,4,5-Trichlorophenol	ND	H	9.3	0.48	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,4-Dimethylphenol	ND	H	9.3	0.62	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,4-Dinitrotoluene	ND	H	9.3	0.86	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,6-Dinitrotoluene	ND	H	9.3	0.67	ug/L		08/29/19 12:28	09/12/19 21:49	1
2-Chloronaphthalene	ND	H *	3.7	0.43	ug/L		08/29/19 12:28	09/12/19 21:49	1
2-Chlorophenol	ND	H	9.3	0.40	ug/L		08/29/19 12:28	09/12/19 21:49	1
2-Methylnaphthalene	ND	H *	3.7	0.38	ug/L		08/29/19 12:28	09/12/19 21:49	1
2-Methylphenol	ND	H	9.3	0.52	ug/L		08/29/19 12:28	09/12/19 21:49	1
3 & 4 Methylphenol	ND	H	9.3	0.95	ug/L		08/29/19 12:28	09/12/19 21:49	1
2-Nitroaniline	ND	H	9.3	0.84	ug/L		08/29/19 12:28	09/12/19 21:49	1
2-Nitrophenol	ND	H	9.3	0.58	ug/L		08/29/19 12:28	09/12/19 21:49	1
3,3'-Dichlorobenzidine	ND	H	46	0.77	ug/L		08/29/19 12:28	09/12/19 21:49	1
3-Nitroaniline	ND	H	9.3	0.72	ug/L		08/29/19 12:28	09/12/19 21:49	1
4,6-Dinitro-2-methylphenol	ND	H	46	5.4	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Bromophenyl phenyl ether	ND	H	9.3	0.38	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Chloro-3-methylphenol	ND	H	9.3	0.42	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Chloroaniline	ND	H	9.3	0.52	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Chlorophenyl phenyl ether	ND	H	9.3	0.59	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Nitroaniline	ND	H	9.3	0.78	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Nitrophenol	ND	H	9.3	0.94	ug/L		08/29/19 12:28	09/12/19 21:49	1
Acenaphthene	ND	H	3.7	0.42	ug/L		08/29/19 12:28	09/12/19 21:49	1
Acenaphthylene	ND	H *	3.7	0.46	ug/L		08/29/19 12:28	09/12/19 21:49	1
Acetophenone	ND	H	9.3	0.48	ug/L		08/29/19 12:28	09/12/19 21:49	1
Anthracene	1.2	J H	3.7	0.99	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzaldehyde	ND	H	9.3	0.49	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzo[a]pyrene	ND	H	3.7	0.59	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzo[b]fluoranthene	ND	H	3.7	0.49	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzo[g,h,i]perylene	ND	H	3.7	0.73	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzo[k]fluoranthene	ND	H	3.7	0.52	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzo[a]anthracene	ND	H	3.7	0.54	ug/L		08/29/19 12:28	09/12/19 21:49	1
Bis(2-chloroethoxy)methane	ND	H	9.3	0.57	ug/L		08/29/19 12:28	09/12/19 21:49	1
Bis(2-chloroethyl)ether	ND	H	9.3	0.46	ug/L		08/29/19 12:28	09/12/19 21:49	1
Bis(2-ethylhexyl) phthalate	ND	H	9.3	1.0	ug/L		08/29/19 12:28	09/12/19 21:49	1
Butyl benzyl phthalate	ND	H	4.6	1.9	ug/L		08/29/19 12:28	09/12/19 21:49	1
Caprolactam	ND	H	9.3	2.5	ug/L		08/29/19 12:28	09/12/19 21:49	1
Carbazole	ND	H	3.7	1.2	ug/L		08/29/19 12:28	09/12/19 21:49	1
Chrysene	ND	H	3.7	0.48	ug/L		08/29/19 12:28	09/12/19 21:49	1
Dibenz(a,h)anthracene	ND	H	3.7	0.60	ug/L		08/29/19 12:28	09/12/19 21:49	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-004D

Lab Sample ID: 280-127755-11

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND	H	3.7	0.82	ug/L		08/29/19 12:28	09/12/19 21:49	1
Di-n-octyl phthalate	ND	H	4.6	1.5	ug/L		08/29/19 12:28	09/12/19 21:49	1
Dibenzofuran	ND	H	3.7	0.33	ug/L		08/29/19 12:28	09/12/19 21:49	1
Diethyl phthalate	ND	H	3.7	0.70	ug/L		08/29/19 12:28	09/12/19 21:49	1
Dimethyl phthalate	ND	H	3.7	1.2	ug/L		08/29/19 12:28	09/12/19 21:49	1
Fluoranthene	ND	H	3.7	0.59	ug/L		08/29/19 12:28	09/12/19 21:49	1
Fluorene	ND	H	3.7	0.46	ug/L		08/29/19 12:28	09/12/19 21:49	1
Hexachlorobenzene	ND	H	9.3	0.89	ug/L		08/29/19 12:28	09/12/19 21:49	1
Hexachlorobutadiene	ND	H *	28	7.0	ug/L		08/29/19 12:28	09/12/19 21:49	1
Hexachloroethane	ND	H *	28	7.1	ug/L		08/29/19 12:28	09/12/19 21:49	1
Indeno[1,2,3-cd]pyrene	ND	H	4.6	1.5	ug/L		08/29/19 12:28	09/12/19 21:49	1
Isophorone	ND	H	9.3	0.62	ug/L		08/29/19 12:28	09/12/19 21:49	1
N-Nitrosodi-n-propylamine	ND	H	9.3	0.52	ug/L		08/29/19 12:28	09/12/19 21:49	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	9.3	0.57	ug/L		08/29/19 12:28	09/12/19 21:49	1
Naphthalene	ND	H *	3.7	0.37	ug/L		08/29/19 12:28	09/12/19 21:49	1
Nitrobenzene	ND	H	9.3	0.40	ug/L		08/29/19 12:28	09/12/19 21:49	1
Pentachlorophenol	ND	H	46	5.1	ug/L		08/29/19 12:28	09/12/19 21:49	1
Phenanthrene	ND	H	3.7	0.26	ug/L		08/29/19 12:28	09/12/19 21:49	1
Phenol	ND	H	9.3	0.52	ug/L		08/29/19 12:28	09/12/19 21:49	1
Pyrene	ND	H	9.3	0.40	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,3-Dinitrobenzene	ND	H	9.3	0.90	ug/L		08/29/19 12:28	09/12/19 21:49	1
1-Methylnaphthalene	ND	H *	3.7	0.33	ug/L		08/29/19 12:28	09/12/19 21:49	1
2,6-Dichlorophenol	ND	H	9.3	0.70	ug/L		08/29/19 12:28	09/12/19 21:49	1
Aniline	ND	H	9.3	0.82	ug/L		08/29/19 12:28	09/12/19 21:49	1
Azobenzene	ND	H	3.7	0.50	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzidine	ND	H	93	4.1	ug/L		08/29/19 12:28	09/12/19 21:49	1
Benzyl alcohol	ND	H	9.3	0.33	ug/L		08/29/19 12:28	09/12/19 21:49	1
Diphenylamine	ND	H	9.3	0.46	ug/L		08/29/19 12:28	09/12/19 21:49	1
N-Nitrosodimethylamine	ND	H	9.3	0.58	ug/L		08/29/19 12:28	09/12/19 21:49	1
Pyridine	ND	H *	19	4.7	ug/L		08/29/19 12:28	09/12/19 21:49	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	9.3	0.50	ug/L		08/29/19 12:28	09/12/19 21:49	1
3-Methylphenol	ND	H	9.3	0.37	ug/L		08/29/19 12:28	09/12/19 21:49	1
4-Methylphenol	ND	H	9.3	0.95	ug/L		08/29/19 12:28	09/12/19 21:49	1
Alachlor	ND	H	19	0.56	ug/L		08/29/19 12:28	09/12/19 21:49	1
Famphur	ND	H	93	0.74	ug/L		08/29/19 12:28	09/12/19 21:49	1
Indene	ND	H *	9.3	0.76	ug/L		08/29/19 12:28	09/12/19 21:49	1
Total Cresols	ND	H	9.3	0.37	ug/L		08/29/19 12:28	09/12/19 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	41		17 - 71	08/29/19 12:28	09/12/19 21:49	1
Phenol-d5	33		10 - 52	08/29/19 12:28	09/12/19 21:49	1
2,4,6-Tribromophenol	65		52 - 123	08/29/19 12:28	09/12/19 21:49	1
2-Fluorobiphenyl	56		47 - 119	08/29/19 12:28	09/12/19 21:49	1
Nitrobenzene-d5	73		45 - 113	08/29/19 12:28	09/12/19 21:49	1
Terphenyl-d14	31	X	50 - 123	08/29/19 12:28	09/12/19 21:49	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-005D

Lab Sample ID: 280-127755-14

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	9.2	0.38	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,2,4,5-Tetrachlorobenzene	ND	H *	9.2	0.22	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,2,4-Trichlorobenzene	ND	H *	4.6	0.34	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,2-Dichlorobenzene	ND	H *	4.6	0.28	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,3-Dichlorobenzene	ND	H *	9.2	1.8	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,4-Dichlorobenzene	ND	H *	4.6	0.27	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,4-Dioxane	ND	H	18	0.65	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,4,6-Trichlorophenol	ND	H	9.2	0.68	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,4-Dichlorophenol	ND	H	9.2	0.63	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,2'-oxybis[1-chloropropane]	ND	H	9.2	0.39	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,3,4,6-Tetrachlorophenol	ND	H	46	0.89	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,4,5-Trichlorophenol	ND	H	9.2	0.48	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,4-Dimethylphenol	ND	H	9.2	0.62	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,4-Dinitrotoluene	ND	H	9.2	0.86	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,6-Dinitrotoluene	ND	H	9.2	0.66	ug/L		08/29/19 12:28	09/12/19 22:19	1
2-Chloronaphthalene	ND	H *	3.7	0.42	ug/L		08/29/19 12:28	09/12/19 22:19	1
2-Chlorophenol	ND	H	9.2	0.40	ug/L		08/29/19 12:28	09/12/19 22:19	1
2-Methylnaphthalene	ND	H *	3.7	0.38	ug/L		08/29/19 12:28	09/12/19 22:19	1
2-Methylphenol	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 22:19	1
3 & 4 Methylphenol	ND	H	9.2	0.94	ug/L		08/29/19 12:28	09/12/19 22:19	1
2-Nitroaniline	ND	H	9.2	0.83	ug/L		08/29/19 12:28	09/12/19 22:19	1
2-Nitrophenol	ND	H	9.2	0.57	ug/L		08/29/19 12:28	09/12/19 22:19	1
3,3'-Dichlorobenzidine	ND	H	46	0.77	ug/L		08/29/19 12:28	09/12/19 22:19	1
3-Nitroaniline	ND	H	9.2	0.72	ug/L		08/29/19 12:28	09/12/19 22:19	1
4,6-Dinitro-2-methylphenol	ND	H	46	5.4	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Bromophenyl phenyl ether	ND	H	9.2	0.38	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Chloro-3-methylphenol	ND	H	9.2	0.42	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Chloroaniline	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Chlorophenyl phenyl ether	ND	H	9.2	0.58	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Nitroaniline	ND	H	9.2	0.77	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Nitrophenol	ND	H	9.2	0.93	ug/L		08/29/19 12:28	09/12/19 22:19	1
Acenaphthene	ND	H	3.7	0.42	ug/L		08/29/19 12:28	09/12/19 22:19	1
Acenaphthylene	ND	H *	3.7	0.46	ug/L		08/29/19 12:28	09/12/19 22:19	1
Acetophenone	ND	H	9.2	0.48	ug/L		08/29/19 12:28	09/12/19 22:19	1
Anthracene	ND	H	3.7	0.99	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzaldehyde	ND	H	9.2	0.49	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzo[a]pyrene	ND	H	3.7	0.59	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzo[b]fluoranthene	ND	H	3.7	0.49	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzo[g,h,i]perylene	ND	H	3.7	0.73	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzo[k]fluoranthene	ND	H	3.7	0.52	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzo[a]anthracene	ND	H	3.7	0.53	ug/L		08/29/19 12:28	09/12/19 22:19	1
Bis(2-chloroethoxy)methane	ND	H	9.2	0.56	ug/L		08/29/19 12:28	09/12/19 22:19	1
Bis(2-chloroethyl)ether	ND	H	9.2	0.45	ug/L		08/29/19 12:28	09/12/19 22:19	1
Bis(2-ethylhexyl) phthalate	1.1	J H	9.2	1.0	ug/L		08/29/19 12:28	09/12/19 22:19	1
Butyl benzyl phthalate	ND	H	4.6	1.8	ug/L		08/29/19 12:28	09/12/19 22:19	1
Caprolactam	ND	H	9.2	2.5	ug/L		08/29/19 12:28	09/12/19 22:19	1
Carbazole	ND	H	3.7	1.2	ug/L		08/29/19 12:28	09/12/19 22:19	1
Chrysene	ND	H	3.7	0.48	ug/L		08/29/19 12:28	09/12/19 22:19	1
Dibenz(a,h)anthracene	ND	H	3.7	0.60	ug/L		08/29/19 12:28	09/12/19 22:19	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-005D

Lab Sample ID: 280-127755-14

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND	H	3.7	0.81	ug/L		08/29/19 12:28	09/12/19 22:19	1
Di-n-octyl phthalate	ND	H	4.6	1.5	ug/L		08/29/19 12:28	09/12/19 22:19	1
Dibenzofuran	ND	H	3.7	0.33	ug/L		08/29/19 12:28	09/12/19 22:19	1
Diethyl phthalate	ND	H	3.7	0.69	ug/L		08/29/19 12:28	09/12/19 22:19	1
Dimethyl phthalate	ND	H	3.7	1.2	ug/L		08/29/19 12:28	09/12/19 22:19	1
Fluoranthene	ND	H	3.7	0.59	ug/L		08/29/19 12:28	09/12/19 22:19	1
Fluorene	ND	H	3.7	0.45	ug/L		08/29/19 12:28	09/12/19 22:19	1
Hexachlorobenzene	ND	H	9.2	0.89	ug/L		08/29/19 12:28	09/12/19 22:19	1
Hexachlorobutadiene	ND	H *	28	6.9	ug/L		08/29/19 12:28	09/12/19 22:19	1
Hexachloroethane	ND	H *	28	7.0	ug/L		08/29/19 12:28	09/12/19 22:19	1
Indeno[1,2,3-cd]pyrene	ND	H	4.6	1.5	ug/L		08/29/19 12:28	09/12/19 22:19	1
Isophorone	ND	H	9.2	0.62	ug/L		08/29/19 12:28	09/12/19 22:19	1
N-Nitrosodi-n-propylamine	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 22:19	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	9.2	0.56	ug/L		08/29/19 12:28	09/12/19 22:19	1
Naphthalene	ND	H *	3.7	0.37	ug/L		08/29/19 12:28	09/12/19 22:19	1
Nitrobenzene	ND	H	9.2	0.40	ug/L		08/29/19 12:28	09/12/19 22:19	1
Pentachlorophenol	ND	H	46	5.1	ug/L		08/29/19 12:28	09/12/19 22:19	1
Phenanthrene	ND	H	3.7	0.26	ug/L		08/29/19 12:28	09/12/19 22:19	1
Phenol	ND	H	9.2	0.52	ug/L		08/29/19 12:28	09/12/19 22:19	1
Pyrene	ND	H	9.2	0.40	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,3-Dinitrobenzene	ND	H	9.2	0.89	ug/L		08/29/19 12:28	09/12/19 22:19	1
1-Methylnaphthalene	ND	H *	3.7	0.32	ug/L		08/29/19 12:28	09/12/19 22:19	1
2,6-Dichlorophenol	ND	H	9.2	0.69	ug/L		08/29/19 12:28	09/12/19 22:19	1
Aniline	ND	H	9.2	0.81	ug/L		08/29/19 12:28	09/12/19 22:19	1
Azobenzene	ND	H	3.7	0.50	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzidine	ND	H	92	4.1	ug/L		08/29/19 12:28	09/12/19 22:19	1
Benzyl alcohol	ND	H	9.2	0.32	ug/L		08/29/19 12:28	09/12/19 22:19	1
Diphenylamine	ND	H	9.2	0.45	ug/L		08/29/19 12:28	09/12/19 22:19	1
Hexadecane	ND	H	9.2	0.33	ug/L		08/29/19 12:28	09/12/19 22:19	1
N-Nitrosodimethylamine	ND	H	9.2	0.57	ug/L		08/29/19 12:28	09/12/19 22:19	1
Pyridine	ND	H *	18	4.6	ug/L		08/29/19 12:28	09/12/19 22:19	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	9.2	0.50	ug/L		08/29/19 12:28	09/12/19 22:19	1
3-Methylphenol	ND	H	9.2	0.37	ug/L		08/29/19 12:28	09/12/19 22:19	1
4-Methylphenol	ND	H	9.2	0.94	ug/L		08/29/19 12:28	09/12/19 22:19	1
Alachlor	ND	H	18	0.55	ug/L		08/29/19 12:28	09/12/19 22:19	1
Famphur	ND	H	92	0.73	ug/L		08/29/19 12:28	09/12/19 22:19	1
Indene	ND	H *	9.2	0.76	ug/L		08/29/19 12:28	09/12/19 22:19	1
Total Cresols	ND	H	9.2	0.37	ug/L		08/29/19 12:28	09/12/19 22:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	48		17 - 71	08/29/19 12:28	09/12/19 22:19	1
Phenol-d5	37		10 - 52	08/29/19 12:28	09/12/19 22:19	1
2,4,6-Tribromophenol	79		52 - 123	08/29/19 12:28	09/12/19 22:19	1
2-Fluorobiphenyl	67		47 - 119	08/29/19 12:28	09/12/19 22:19	1
Nitrobenzene-d5	77		45 - 113	08/29/19 12:28	09/12/19 22:19	1
Terphenyl-d14	57		50 - 123	08/29/19 12:28	09/12/19 22:19	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-006D

Lab Sample ID: 280-127755-17

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	8.8	0.36	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,2,4,5-Tetrachlorobenzene	ND	H *	8.8	0.21	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,2,4-Trichlorobenzene	ND	H *	4.4	0.32	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,2-Dichlorobenzene	ND	H *	4.4	0.27	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,3-Dichlorobenzene	ND	H *	8.8	1.8	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,4-Dichlorobenzene	ND	H *	4.4	0.26	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,4-Dioxane	ND	H	18	0.62	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,4,6-Trichlorophenol	ND	H	8.8	0.65	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,4-Dichlorophenol	ND	H	8.8	0.60	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,2'-oxybis[1-chloropropane]	ND	H	8.8	0.37	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,3,4,6-Tetrachlorophenol	ND	H	44	0.84	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,4,5-Trichlorophenol	ND	H	8.8	0.46	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,4-Dimethylphenol	ND	H	8.8	0.59	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,4-Dinitrotoluene	ND	H	8.8	0.81	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,6-Dinitrotoluene	ND	H	8.8	0.63	ug/L		08/29/19 12:28	09/12/19 22:48	1
2-Chloronaphthalene	ND	H *	3.5	0.40	ug/L		08/29/19 12:28	09/12/19 22:48	1
2-Chlorophenol	ND	H	8.8	0.38	ug/L		08/29/19 12:28	09/12/19 22:48	1
2-Methylnaphthalene	ND	H *	3.5	0.36	ug/L		08/29/19 12:28	09/12/19 22:48	1
2-Methylphenol	ND	H	8.8	0.49	ug/L		08/29/19 12:28	09/12/19 22:48	1
3 & 4 Methylphenol	ND	H	8.8	0.89	ug/L		08/29/19 12:28	09/12/19 22:48	1
2-Nitroaniline	ND	H	8.8	0.79	ug/L		08/29/19 12:28	09/12/19 22:48	1
2-Nitrophenol	ND	H	8.8	0.54	ug/L		08/29/19 12:28	09/12/19 22:48	1
3,3'-Dichlorobenzidine	ND	H	44	0.73	ug/L		08/29/19 12:28	09/12/19 22:48	1
3-Nitroaniline	ND	H	8.8	0.68	ug/L		08/29/19 12:28	09/12/19 22:48	1
4,6-Dinitro-2-methylphenol	ND	H	44	5.1	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Bromophenyl phenyl ether	ND	H	8.8	0.36	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Chloro-3-methylphenol	ND	H	8.8	0.39	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Chloroaniline	ND	H	8.8	0.49	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Chlorophenyl phenyl ether	ND	H	8.8	0.55	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Nitroaniline	ND	H	8.8	0.74	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Nitrophenol	ND	H	8.8	0.88	ug/L		08/29/19 12:28	09/12/19 22:48	1
Acenaphthene	ND	H	3.5	0.39	ug/L		08/29/19 12:28	09/12/19 22:48	1
Acenaphthylene	ND	H *	3.5	0.44	ug/L		08/29/19 12:28	09/12/19 22:48	1
Acetophenone	ND	H	8.8	0.46	ug/L		08/29/19 12:28	09/12/19 22:48	1
Anthracene	1.7	J H	3.5	0.94	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzaldehyde	ND	H	8.8	0.46	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzo[a]pyrene	ND	H	3.5	0.56	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzo[b]fluoranthene	ND	H	3.5	0.46	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzo[g,h,i]perylene	ND	H	3.5	0.69	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzo[k]fluoranthene	ND	H	3.5	0.49	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzo[a]anthracene	ND	H	3.5	0.51	ug/L		08/29/19 12:28	09/12/19 22:48	1
Bis(2-chloroethoxy)methane	ND	H	8.8	0.53	ug/L		08/29/19 12:28	09/12/19 22:48	1
Bis(2-chloroethyl)ether	ND	H	8.8	0.43	ug/L		08/29/19 12:28	09/12/19 22:48	1
Bis(2-ethylhexyl) phthalate	ND	H	8.8	0.98	ug/L		08/29/19 12:28	09/12/19 22:48	1
Butyl benzyl phthalate	ND	H	4.4	1.8	ug/L		08/29/19 12:28	09/12/19 22:48	1
Caprolactam	ND	H	8.8	2.4	ug/L		08/29/19 12:28	09/12/19 22:48	1
Carbazole	ND	H	3.5	1.2	ug/L		08/29/19 12:28	09/12/19 22:48	1
Chrysene	ND	H	3.5	0.46	ug/L		08/29/19 12:28	09/12/19 22:48	1
Dibenz(a,h)anthracene	ND	H	3.5	0.57	ug/L		08/29/19 12:28	09/12/19 22:48	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-006D

Lab Sample ID: 280-127755-17

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND	H	3.5	0.77	ug/L		08/29/19 12:28	09/12/19 22:48	1
Di-n-octyl phthalate	ND	H	4.4	1.4	ug/L		08/29/19 12:28	09/12/19 22:48	1
Dibenzofuran	ND	H	3.5	0.32	ug/L		08/29/19 12:28	09/12/19 22:48	1
Diethyl phthalate	ND	H	3.5	0.66	ug/L		08/29/19 12:28	09/12/19 22:48	1
Dimethyl phthalate	ND	H	3.5	1.1	ug/L		08/29/19 12:28	09/12/19 22:48	1
Fluoranthene	ND	H	3.5	0.56	ug/L		08/29/19 12:28	09/12/19 22:48	1
Fluorene	ND	H	3.5	0.43	ug/L		08/29/19 12:28	09/12/19 22:48	1
Hexachlorobenzene	ND	H	8.8	0.84	ug/L		08/29/19 12:28	09/12/19 22:48	1
Hexachlorobutadiene	ND	H *	26	6.6	ug/L		08/29/19 12:28	09/12/19 22:48	1
Hexachloroethane	ND	H *	26	6.7	ug/L		08/29/19 12:28	09/12/19 22:48	1
Indeno[1,2,3-cd]pyrene	ND	H	4.4	1.4	ug/L		08/29/19 12:28	09/12/19 22:48	1
Isophorone	ND	H	8.8	0.59	ug/L		08/29/19 12:28	09/12/19 22:48	1
N-Nitrosodi-n-propylamine	ND	H	8.8	0.49	ug/L		08/29/19 12:28	09/12/19 22:48	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	8.8	0.53	ug/L		08/29/19 12:28	09/12/19 22:48	1
Naphthalene	ND	H *	3.5	0.35	ug/L		08/29/19 12:28	09/12/19 22:48	1
Nitrobenzene	ND	H	8.8	0.38	ug/L		08/29/19 12:28	09/12/19 22:48	1
Pentachlorophenol	ND	H	44	4.8	ug/L		08/29/19 12:28	09/12/19 22:48	1
Phenanthrene	ND	H	3.5	0.25	ug/L		08/29/19 12:28	09/12/19 22:48	1
Phenol	ND	H	8.8	0.49	ug/L		08/29/19 12:28	09/12/19 22:48	1
Pyrene	ND	H	8.8	0.38	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,3-Dinitrobenzene	ND	H	8.8	0.85	ug/L		08/29/19 12:28	09/12/19 22:48	1
1-Methylnaphthalene	ND	H *	3.5	0.31	ug/L		08/29/19 12:28	09/12/19 22:48	1
2,6-Dichlorophenol	ND	H	8.8	0.66	ug/L		08/29/19 12:28	09/12/19 22:48	1
Aniline	ND	H	8.8	0.77	ug/L		08/29/19 12:28	09/12/19 22:48	1
Azobenzene	ND	H	3.5	0.47	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzidine	ND	H	88	3.9	ug/L		08/29/19 12:28	09/12/19 22:48	1
Benzyl alcohol	ND	H	8.8	0.31	ug/L		08/29/19 12:28	09/12/19 22:48	1
Diphenylamine	ND	H	8.8	0.43	ug/L		08/29/19 12:28	09/12/19 22:48	1
N-Nitrosodimethylamine	ND	H	8.8	0.54	ug/L		08/29/19 12:28	09/12/19 22:48	1
Pyridine	ND	H *	18	4.4	ug/L		08/29/19 12:28	09/12/19 22:48	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	8.8	0.47	ug/L		08/29/19 12:28	09/12/19 22:48	1
3-Methylphenol	ND	H	8.8	0.35	ug/L		08/29/19 12:28	09/12/19 22:48	1
4-Methylphenol	ND	H	8.8	0.89	ug/L		08/29/19 12:28	09/12/19 22:48	1
Alachlor	ND	H	18	0.53	ug/L		08/29/19 12:28	09/12/19 22:48	1
Famphur	ND	H	88	0.70	ug/L		08/29/19 12:28	09/12/19 22:48	1
Indene	ND	H *	8.8	0.72	ug/L		08/29/19 12:28	09/12/19 22:48	1
Total Cresols	ND	H	8.8	0.35	ug/L		08/29/19 12:28	09/12/19 22:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	48		17 - 71	08/29/19 12:28	09/12/19 22:48	1
Phenol-d5	42		10 - 52	08/29/19 12:28	09/12/19 22:48	1
2,4,6-Tribromophenol	58		52 - 123	08/29/19 12:28	09/12/19 22:48	1
2-Fluorobiphenyl	41	X	47 - 119	08/29/19 12:28	09/12/19 22:48	1
Nitrobenzene-d5	62		45 - 113	08/29/19 12:28	09/12/19 22:48	1
Terphenyl-d14	31	X	50 - 123	08/29/19 12:28	09/12/19 22:48	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-007D

Lab Sample ID: 280-127755-20

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	9.1	0.37	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,2,4,5-Tetrachlorobenzene	ND	H *	9.1	0.22	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,2,4-Trichlorobenzene	ND	H *	4.5	0.33	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,2-Dichlorobenzene	ND	H *	4.5	0.28	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,3-Dichlorobenzene	ND	H *	9.1	1.8	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,4-Dichlorobenzene	ND	H *	4.5	0.27	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,4-Dioxane	ND	H	18	0.65	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,4,6-Trichlorophenol	ND	H	9.1	0.67	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,4-Dichlorophenol	ND	H	9.1	0.62	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,2'-oxybis[1-chloropropane]	ND	H	9.1	0.38	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,3,4,6-Tetrachlorophenol	ND	H	45	0.87	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,4,5-Trichlorophenol	ND	H	9.1	0.47	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,4-Dimethylphenol	ND	H	9.1	0.61	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,4-Dinitrotoluene	ND	H	9.1	0.84	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,6-Dinitrotoluene	ND	H	9.1	0.65	ug/L		08/29/19 12:28	09/12/19 23:17	1
2-Chloronaphthalene	ND	H *	3.6	0.42	ug/L		08/29/19 12:28	09/12/19 23:17	1
2-Chlorophenol	ND	H	9.1	0.39	ug/L		08/29/19 12:28	09/12/19 23:17	1
2-Methylnaphthalene	ND	H *	3.6	0.37	ug/L		08/29/19 12:28	09/12/19 23:17	1
2-Methylphenol	ND	H	9.1	0.51	ug/L		08/29/19 12:28	09/12/19 23:17	1
3 & 4 Methylphenol	ND	H	9.1	0.93	ug/L		08/29/19 12:28	09/12/19 23:17	1
2-Nitroaniline	ND	H	9.1	0.82	ug/L		08/29/19 12:28	09/12/19 23:17	1
2-Nitrophenol	ND	H	9.1	0.56	ug/L		08/29/19 12:28	09/12/19 23:17	1
3,3'-Dichlorobenzidine	ND	H	45	0.75	ug/L		08/29/19 12:28	09/12/19 23:17	1
3-Nitroaniline	ND	H	9.1	0.71	ug/L		08/29/19 12:28	09/12/19 23:17	1
4,6-Dinitro-2-methylphenol	ND	H	45	5.3	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Bromophenyl phenyl ether	ND	H	9.1	0.37	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Chloro-3-methylphenol	ND	H	9.1	0.41	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Chloroaniline	ND	H	9.1	0.51	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Chlorophenyl phenyl ether	ND	H	9.1	0.57	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Nitroaniline	ND	H	9.1	0.76	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Nitrophenol	ND	H	9.1	0.92	ug/L		08/29/19 12:28	09/12/19 23:17	1
Acenaphthene	ND	H	3.6	0.41	ug/L		08/29/19 12:28	09/12/19 23:17	1
Acenaphthylene	ND	H *	3.6	0.45	ug/L		08/29/19 12:28	09/12/19 23:17	1
Acetophenone	ND	H	9.1	0.47	ug/L		08/29/19 12:28	09/12/19 23:17	1
Anthracene	ND	H	3.6	0.97	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzaldehyde	ND	H	9.1	0.48	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzo[a]pyrene	ND	H	3.6	0.58	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzo[b]fluoranthene	ND	H	3.6	0.48	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzo[g,h,i]perylene	ND	H	3.6	0.72	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzo[k]fluoranthene	ND	H	3.6	0.51	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzo[a]anthracene	ND	H	3.6	0.53	ug/L		08/29/19 12:28	09/12/19 23:17	1
Bis(2-chloroethoxy)methane	ND	H	9.1	0.55	ug/L		08/29/19 12:28	09/12/19 23:17	1
Bis(2-chloroethyl)ether	ND	H	9.1	0.45	ug/L		08/29/19 12:28	09/12/19 23:17	1
Bis(2-ethylhexyl) phthalate	16	H	9.1	1.0	ug/L		08/29/19 12:28	09/12/19 23:17	1
Butyl benzyl phthalate	ND	H	4.5	1.8	ug/L		08/29/19 12:28	09/12/19 23:17	1
Caprolactam	ND	H	9.1	2.5	ug/L		08/29/19 12:28	09/12/19 23:17	1
Carbazole	ND	H	3.6	1.2	ug/L		08/29/19 12:28	09/12/19 23:17	1
Chrysene	ND	H	3.6	0.47	ug/L		08/29/19 12:28	09/12/19 23:17	1
Dibenz(a,h)anthracene	ND	H	3.6	0.59	ug/L		08/29/19 12:28	09/12/19 23:17	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-007D

Lab Sample ID: 280-127755-20

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND	H	3.6	0.80	ug/L		08/29/19 12:28	09/12/19 23:17	1
Di-n-octyl phthalate	ND	H	4.5	1.4	ug/L		08/29/19 12:28	09/12/19 23:17	1
Dibenzofuran	ND	H	3.6	0.33	ug/L		08/29/19 12:28	09/12/19 23:17	1
Diethyl phthalate	ND	H	3.6	0.68	ug/L		08/29/19 12:28	09/12/19 23:17	1
Dimethyl phthalate	ND	H	3.6	1.1	ug/L		08/29/19 12:28	09/12/19 23:17	1
Fluoranthene	ND	H	3.6	0.58	ug/L		08/29/19 12:28	09/12/19 23:17	1
Fluorene	ND	H	3.6	0.45	ug/L		08/29/19 12:28	09/12/19 23:17	1
Hexachlorobenzene	ND	H	9.1	0.87	ug/L		08/29/19 12:28	09/12/19 23:17	1
Hexachlorobutadiene	ND	H *	27	6.8	ug/L		08/29/19 12:28	09/12/19 23:17	1
Hexachloroethane	ND	H *	27	6.9	ug/L		08/29/19 12:28	09/12/19 23:17	1
Indeno[1,2,3-cd]pyrene	ND	H	4.5	1.5	ug/L		08/29/19 12:28	09/12/19 23:17	1
Isophorone	ND	H	9.1	0.61	ug/L		08/29/19 12:28	09/12/19 23:17	1
N-Nitrosodi-n-propylamine	ND	H	9.1	0.51	ug/L		08/29/19 12:28	09/12/19 23:17	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	9.1	0.55	ug/L		08/29/19 12:28	09/12/19 23:17	1
Naphthalene	ND	H *	3.6	0.36	ug/L		08/29/19 12:28	09/12/19 23:17	1
Nitrobenzene	ND	H	9.1	0.39	ug/L		08/29/19 12:28	09/12/19 23:17	1
Pentachlorophenol	ND	H	45	5.0	ug/L		08/29/19 12:28	09/12/19 23:17	1
Phenanthrene	ND	H	3.6	0.25	ug/L		08/29/19 12:28	09/12/19 23:17	1
Phenol	ND	H	9.1	0.51	ug/L		08/29/19 12:28	09/12/19 23:17	1
Pyrene	ND	H	9.1	0.39	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,3-Dinitrobenzene	ND	H	9.1	0.88	ug/L		08/29/19 12:28	09/12/19 23:17	1
1-Methylnaphthalene	ND	H *	3.6	0.32	ug/L		08/29/19 12:28	09/12/19 23:17	1
2,6-Dichlorophenol	ND	H	9.1	0.68	ug/L		08/29/19 12:28	09/12/19 23:17	1
Aniline	ND	H	9.1	0.80	ug/L		08/29/19 12:28	09/12/19 23:17	1
Azobenzene	ND	H	3.6	0.49	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzidine	ND	H	91	4.0	ug/L		08/29/19 12:28	09/12/19 23:17	1
Benzyl alcohol	ND	H	9.1	0.32	ug/L		08/29/19 12:28	09/12/19 23:17	1
Diphenylamine	ND	H	9.1	0.45	ug/L		08/29/19 12:28	09/12/19 23:17	1
Hexadecane	ND	H	9.1	0.32	ug/L		08/29/19 12:28	09/12/19 23:17	1
N-Nitrosodimethylamine	ND	H	9.1	0.56	ug/L		08/29/19 12:28	09/12/19 23:17	1
Pyridine	ND	H *	18	4.6	ug/L		08/29/19 12:28	09/12/19 23:17	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	9.1	0.49	ug/L		08/29/19 12:28	09/12/19 23:17	1
3-Methylphenol	0.42	J H	9.1	0.36	ug/L		08/29/19 12:28	09/12/19 23:17	1
4-Methylphenol	ND	H	9.1	0.93	ug/L		08/29/19 12:28	09/12/19 23:17	1
Alachlor	ND	H	18	0.55	ug/L		08/29/19 12:28	09/12/19 23:17	1
Famphur	ND	H	91	0.72	ug/L		08/29/19 12:28	09/12/19 23:17	1
Indene	ND	H *	9.1	0.74	ug/L		08/29/19 12:28	09/12/19 23:17	1
Total Cresols	0.42	J H	9.1	0.36	ug/L		08/29/19 12:28	09/12/19 23:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	50		17 - 71	08/29/19 12:28	09/12/19 23:17	1
Phenol-d5	40		10 - 52	08/29/19 12:28	09/12/19 23:17	1
2,4,6-Tribromophenol	68		52 - 123	08/29/19 12:28	09/12/19 23:17	1
2-Fluorobiphenyl	59		47 - 119	08/29/19 12:28	09/12/19 23:17	1
Nitrobenzene-d5	67		45 - 113	08/29/19 12:28	09/12/19 23:17	1
Terphenyl-d14	59		50 - 123	08/29/19 12:28	09/12/19 23:17	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: C19081073-008D

Lab Sample ID: 280-127755-23

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	H *	9.9	0.40	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,2,4,5-Tetrachlorobenzene	ND	H *	9.9	0.24	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,2,4-Trichlorobenzene	ND	H *	4.9	0.36	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,2-Dichlorobenzene	ND	H *	4.9	0.30	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,3-Dichlorobenzene	ND	H *	9.9	2.0	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,4-Dichlorobenzene	ND	H *	4.9	0.29	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,4-Dioxane	ND	H	20	0.70	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,4,6-Trichlorophenol	5.2	J H	9.9	0.73	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,4-Dichlorophenol	ND	H	9.9	0.67	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,2'-oxybis[1-chloropropane]	ND	H	9.9	0.41	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,3,4,6-Tetrachlorophenol	ND	H	49	0.95	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,4,5-Trichlorophenol	ND	H	9.9	0.51	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,4-Dimethylphenol	ND	H	9.9	0.66	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,4-Dinitrotoluene	ND	H	9.9	0.92	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,6-Dinitrotoluene	ND	H	9.9	0.71	ug/L		08/29/19 12:28	09/12/19 23:47	1
2-Chloronaphthalene	ND	H *	3.9	0.45	ug/L		08/29/19 12:28	09/12/19 23:47	1
2-Chlorophenol	ND	H	9.9	0.42	ug/L		08/29/19 12:28	09/12/19 23:47	1
2-Methylnaphthalene	ND	H *	3.9	0.40	ug/L		08/29/19 12:28	09/12/19 23:47	1
2-Methylphenol	ND	H	9.9	0.55	ug/L		08/29/19 12:28	09/12/19 23:47	1
3 & 4 Methylphenol	ND	H	9.9	1.0	ug/L		08/29/19 12:28	09/12/19 23:47	1
2-Nitroaniline	ND	H	9.9	0.89	ug/L		08/29/19 12:28	09/12/19 23:47	1
2-Nitrophenol	ND	H	9.9	0.61	ug/L		08/29/19 12:28	09/12/19 23:47	1
3,3'-Dichlorobenzidine	ND	H	49	0.82	ug/L		08/29/19 12:28	09/12/19 23:47	1
3-Nitroaniline	ND	H	9.9	0.77	ug/L		08/29/19 12:28	09/12/19 23:47	1
4,6-Dinitro-2-methylphenol	ND	H	49	5.8	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Bromophenyl phenyl ether	ND	H	9.9	0.40	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Chloro-3-methylphenol	ND	H	9.9	0.44	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Chloroaniline	ND	H	9.9	0.55	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Chlorophenyl phenyl ether	ND	H	9.9	0.62	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Nitroaniline	ND	H	9.9	0.83	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Nitrophenol	ND	H	9.9	1.0	ug/L		08/29/19 12:28	09/12/19 23:47	1
Acenaphthene	ND	H	3.9	0.44	ug/L		08/29/19 12:28	09/12/19 23:47	1
Acenaphthylene	ND	H *	3.9	0.49	ug/L		08/29/19 12:28	09/12/19 23:47	1
Acetophenone	ND	H	9.9	0.51	ug/L		08/29/19 12:28	09/12/19 23:47	1
Anthracene	ND	H	3.9	1.1	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzaldehyde	ND	H	9.9	0.52	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzo[a]pyrene	ND	H	3.9	0.63	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzo[b]fluoranthene	ND	H	3.9	0.52	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzo[g,h,i]perylene	ND	H	3.9	0.78	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzo[k]fluoranthene	ND	H	3.9	0.55	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzo[a]anthracene	ND	H	3.9	0.57	ug/L		08/29/19 12:28	09/12/19 23:47	1
Bis(2-chloroethoxy)methane	ND	H	9.9	0.60	ug/L		08/29/19 12:28	09/12/19 23:47	1
Bis(2-chloroethyl)ether	ND	H	9.9	0.48	ug/L		08/29/19 12:28	09/12/19 23:47	1
Bis(2-ethylhexyl) phthalate	ND	H	9.9	1.1	ug/L		08/29/19 12:28	09/12/19 23:47	1
Butyl benzyl phthalate	ND	H	4.9	2.0	ug/L		08/29/19 12:28	09/12/19 23:47	1
Caprolactam	ND	H	9.9	2.7	ug/L		08/29/19 12:28	09/12/19 23:47	1
Carbazole	ND	H	3.9	1.3	ug/L		08/29/19 12:28	09/12/19 23:47	1
Chrysene	ND	H	3.9	0.51	ug/L		08/29/19 12:28	09/12/19 23:47	1
Dibenz(a,h)anthracene	ND	H	3.9	0.64	ug/L		08/29/19 12:28	09/12/19 23:47	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: C19081073-008D

Lab Sample ID: 280-127755-23

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	ND	H	3.9	0.87	ug/L		08/29/19 12:28	09/12/19 23:47	1
Di-n-octyl phthalate	ND	H	4.9	1.6	ug/L		08/29/19 12:28	09/12/19 23:47	1
Dibenzofuran	ND	H	3.9	0.36	ug/L		08/29/19 12:28	09/12/19 23:47	1
Diethyl phthalate	ND	H	3.9	0.74	ug/L		08/29/19 12:28	09/12/19 23:47	1
Dimethyl phthalate	ND	H	3.9	1.2	ug/L		08/29/19 12:28	09/12/19 23:47	1
Fluoranthene	ND	H	3.9	0.63	ug/L		08/29/19 12:28	09/12/19 23:47	1
Fluorene	ND	H	3.9	0.48	ug/L		08/29/19 12:28	09/12/19 23:47	1
Hexachlorobenzene	ND	H	9.9	0.95	ug/L		08/29/19 12:28	09/12/19 23:47	1
Hexachlorobutadiene	ND	H*	30	7.4	ug/L		08/29/19 12:28	09/12/19 23:47	1
Hexachloroethane	ND	H*	30	7.5	ug/L		08/29/19 12:28	09/12/19 23:47	1
Indeno[1,2,3-cd]pyrene	ND	H	4.9	1.6	ug/L		08/29/19 12:28	09/12/19 23:47	1
Isophorone	ND	H	9.9	0.66	ug/L		08/29/19 12:28	09/12/19 23:47	1
N-Nitrosodi-n-propylamine	ND	H	9.9	0.55	ug/L		08/29/19 12:28	09/12/19 23:47	1
n-Nitrosodiphenylamine(as diphenylamine)	ND	H	9.9	0.60	ug/L		08/29/19 12:28	09/12/19 23:47	1
Naphthalene	ND	H*	3.9	0.39	ug/L		08/29/19 12:28	09/12/19 23:47	1
Nitrobenzene	ND	H	9.9	0.42	ug/L		08/29/19 12:28	09/12/19 23:47	1
Pentachlorophenol	ND	H	49	5.4	ug/L		08/29/19 12:28	09/12/19 23:47	1
Phenanthrene	ND	H	3.9	0.28	ug/L		08/29/19 12:28	09/12/19 23:47	1
Phenol	ND	H	9.9	0.55	ug/L		08/29/19 12:28	09/12/19 23:47	1
Pyrene	ND	H	9.9	0.42	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,3-Dinitrobenzene	ND	H	9.9	0.96	ug/L		08/29/19 12:28	09/12/19 23:47	1
1-Methylnaphthalene	ND	H*	3.9	0.35	ug/L		08/29/19 12:28	09/12/19 23:47	1
2,6-Dichlorophenol	ND	H	9.9	0.74	ug/L		08/29/19 12:28	09/12/19 23:47	1
Aniline	ND	H	9.9	0.87	ug/L		08/29/19 12:28	09/12/19 23:47	1
Azobenzene	ND	H	3.9	0.53	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzidine	ND	H	99	4.3	ug/L		08/29/19 12:28	09/12/19 23:47	1
Benzyl alcohol	ND	H	9.9	0.35	ug/L		08/29/19 12:28	09/12/19 23:47	1
Diphenylamine	ND	H	9.9	0.48	ug/L		08/29/19 12:28	09/12/19 23:47	1
Hexadecane	91	H	9.9	0.35	ug/L		08/29/19 12:28	09/12/19 23:47	1
N-Nitrosodimethylamine	ND	H	9.9	0.61	ug/L		08/29/19 12:28	09/12/19 23:47	1
Pyridine	ND	H*	20	5.0	ug/L		08/29/19 12:28	09/12/19 23:47	1
1,2-Diphenylhydrazine(as Azobenzene)	ND	H	9.9	0.53	ug/L		08/29/19 12:28	09/12/19 23:47	1
3-Methylphenol	ND	H	9.9	0.39	ug/L		08/29/19 12:28	09/12/19 23:47	1
4-Methylphenol	ND	H	9.9	1.0	ug/L		08/29/19 12:28	09/12/19 23:47	1
Alachlor	ND	H	20	0.59	ug/L		08/29/19 12:28	09/12/19 23:47	1
Famphur	ND	H	99	0.78	ug/L		08/29/19 12:28	09/12/19 23:47	1
Indene	ND	H*	9.9	0.81	ug/L		08/29/19 12:28	09/12/19 23:47	1
Total Cresols	ND	H	9.9	0.39	ug/L		08/29/19 12:28	09/12/19 23:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol	40		17 - 71	08/29/19 12:28	09/12/19 23:47	1
Phenol-d5	37		10 - 52	08/29/19 12:28	09/12/19 23:47	1
2,4,6-Tribromophenol	46	X	52 - 123	08/29/19 12:28	09/12/19 23:47	1
2-Fluorobiphenyl	32	X	47 - 119	08/29/19 12:28	09/12/19 23:47	1
Nitrobenzene-d5	50		45 - 113	08/29/19 12:28	09/12/19 23:47	1
Terphenyl-d14	32	X	50 - 123	08/29/19 12:28	09/12/19 23:47	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: C19081073-004D

Date Collected: 08/21/19 09:40

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-11

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexadecane	320	H	37	1.3	ug/L		08/29/19 12:28	09/17/19 15:48	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorophenol	43	D	17 - 71				08/29/19 12:28	09/17/19 15:48	4
Phenol-d5	33	D	10 - 52				08/29/19 12:28	09/17/19 15:48	4
2,4,6-Tribromophenol	61	D	52 - 123				08/29/19 12:28	09/17/19 15:48	4
2-Fluorobiphenyl	59	D	47 - 119				08/29/19 12:28	09/17/19 15:48	4
Nitrobenzene-d5	71	D	45 - 113				08/29/19 12:28	09/17/19 15:48	4
Terphenyl-d14	34	DX	50 - 123				08/29/19 12:28	09/17/19 15:48	4

Client Sample ID: C19081073-006D

Date Collected: 08/21/19 10:15

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-17

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexadecane	190	H	35	1.2	ug/L		08/29/19 12:28	09/17/19 16:18	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorophenol	51	D	17 - 71				08/29/19 12:28	09/17/19 16:18	4
Phenol-d5	45	D	10 - 52				08/29/19 12:28	09/17/19 16:18	4
2,4,6-Tribromophenol	62	D	52 - 123				08/29/19 12:28	09/17/19 16:18	4
2-Fluorobiphenyl	46	DX	47 - 119				08/29/19 12:28	09/17/19 16:18	4
Nitrobenzene-d5	69	D	45 - 113				08/29/19 12:28	09/17/19 16:18	4
Terphenyl-d14	34	DX	50 - 123				08/29/19 12:28	09/17/19 16:18	4

Method: 245.1 - Mercury - Dissolved - Dissolved

Client Sample ID: C19081073-001C

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.7		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:43	1

Client Sample ID: C19081073-002C

Date Collected: 08/21/19 09:05

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:45	1

Client Sample ID: C19081073-003C

Date Collected: 08/21/19 09:20

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.20		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:48	1

Client Sample ID: C19081073-004C

Date Collected: 08/21/19 09:40

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.1		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:50	1

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-1

Method: 245.1 - Mercury - Dissolved - Dissolved

Client Sample ID: C19081073-005C

Date Collected: 08/21/19 09:45

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.4		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:52	1

Client Sample ID: C19081073-006C

Date Collected: 08/21/19 10:15

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.46		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:54	1

Client Sample ID: C19081073-007C

Date Collected: 08/21/19 10:30

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.11	J	0.20	0.027	ug/L		09/09/19 14:44	09/09/19 20:01	1

Client Sample ID: C19081073-008C

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-22

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.2		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 20:03	1

Client Sample ID: M3-54865

Date Collected: 08/23/19 11:20

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-25

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 20:05	1

Surrogate Summary

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

Job ID: 280-127755-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (70-127)	TOL (80-125)	BFB (78-120)	DBFM (77-120)
280-127755-3	C19081073-001F	97	96	93	99
280-127755-6	C19081073-002F	96	96	95	99
280-127755-9	C19081073-003F	97	95	93	100
280-127755-12	C19081073-004F	98	96	93	99
280-127755-15	C19081073-005F	97	98	93	98
280-127755-18	C19081073-006F	99	96	93	98
280-127755-21	C19081073-007F	98	97	93	100
280-127755-24	C19081073-008F	99	97	94	99
LCS 280-469518/4	Lab Control Sample	97	96	95	102
LCSD 280-469518/5	Lab Control Sample Dup	96	95	94	101
MB 280-469518/8	Method Blank	97	97	94	100

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		2FP (17-71)	PHL (10-52)	TBP (52-123)	FBP (47-119)	NBZ (45-113)	TPHL (50-123)
280-127755-2	C19081073-001D	28	26	34 X	26 X	36 X	27 X
280-127755-5	C19081073-002D	46	35	76	60	74	68
280-127755-8	C19081073-003D	55	43	78	63	75	72
280-127755-11	C19081073-004D	41	33	65	56	73	31 X
280-127755-11 - DL	C19081073-004D	43 D	33 D	61 D	59 D	71 D	34 D X
280-127755-14	C19081073-005D	48	37	79	67	77	57
280-127755-17	C19081073-006D	48	42	58	41 X	62	31 X
280-127755-17 - DL	C19081073-006D	51 D	45 D	62 D	46 D X	69 D	34 D X
280-127755-20	C19081073-007D	50	40	68	59	67	59
280-127755-23	C19081073-008D	40	37	46 X	32 X	50	32 X
LCS 280-469200/2-A	Lab Control Sample	34	21	78	69	74	82
LCSD 280-469200/3-A	Lab Control Sample Dup	28	18	64	54	59	68
MB 280-469200/1-A	Method Blank	35	22	70	60	71	81

Surrogate Legend

2FP = 2-Fluorophenol
PHL = Phenol-d5
TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPHL = Terphenyl-d14

Eurofins TestAmerica, Denver

QC Sample Results

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

Job ID: 280-127755-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-469518/8
Matrix: Water
Analysis Batch: 469518

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Tetrahydrofuran	ND		7.0	2.0	ug/L			09/03/19 09:10	1
Surrogate	%Recovery	MB MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		70 - 127					09/03/19 09:10	1
Toluene-d8 (Surr)	97		80 - 125					09/03/19 09:10	1
4-Bromofluorobenzene (Surr)	94		78 - 120					09/03/19 09:10	1
Dibromofluoromethane (Surr)	100		77 - 120					09/03/19 09:10	1

Lab Sample ID: LCS 280-469518/4
Matrix: Water
Analysis Batch: 469518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Tetrahydrofuran	50.0	40.3		ug/L		81	42 - 136
Surrogate	%Recovery	LCS LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		70 - 127				
Toluene-d8 (Surr)	96		80 - 125				
4-Bromofluorobenzene (Surr)	95		78 - 120				
Dibromofluoromethane (Surr)	102		77 - 120				

Lab Sample ID: LCSD 280-469518/5
Matrix: Water
Analysis Batch: 469518

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
Tetrahydrofuran	50.0	42.8		ug/L		86	42 - 136	6	30
Surrogate	%Recovery	LCSD LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		70 - 127						
Toluene-d8 (Surr)	95		80 - 125						
4-Bromofluorobenzene (Surr)	94		78 - 120						
Dibromofluoromethane (Surr)	101		77 - 120						

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-469200/1-A
Matrix: Water
Analysis Batch: 470328

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469200

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		10	0.41	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,2,4,5-Tetrachlorobenzene	ND		10	0.24	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,2,4-Trichlorobenzene	ND		5.0	0.37	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,2-Dichlorobenzene	ND		5.0	0.30	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,3-Dichlorobenzene	ND		10	2.0	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,4-Dichlorobenzene	ND		5.0	0.30	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,4-Dioxane	ND		20	0.71	ug/L		08/29/19 12:28	09/12/19 15:26	1

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QC Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-469200/1-A
Matrix: Water
Analysis Batch: 470328

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469200

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,4,6-Trichlorophenol	ND		10	0.74	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,4-Dichlorophenol	ND		10	0.68	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,2'-oxybis[1-chloropropane]	ND		10	0.42	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,3,4,6-Tetrachlorophenol	ND		50	0.96	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,4,5-Trichlorophenol	ND		10	0.52	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,4-Dimethylphenol	ND		10	0.67	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,4-Dinitrotoluene	ND		10	0.93	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,6-Dinitrotoluene	ND		10	0.72	ug/L		08/29/19 12:28	09/12/19 15:26	1
2-Chloronaphthalene	ND		4.0	0.46	ug/L		08/29/19 12:28	09/12/19 15:26	1
2-Chlorophenol	ND		10	0.43	ug/L		08/29/19 12:28	09/12/19 15:26	1
2-Methylnaphthalene	ND		4.0	0.41	ug/L		08/29/19 12:28	09/12/19 15:26	1
2-Methylphenol	ND		10	0.56	ug/L		08/29/19 12:28	09/12/19 15:26	1
3 & 4 Methylphenol	ND		10	1.0	ug/L		08/29/19 12:28	09/12/19 15:26	1
2-Nitroaniline	ND		10	0.90	ug/L		08/29/19 12:28	09/12/19 15:26	1
2-Nitrophenol	ND		10	0.62	ug/L		08/29/19 12:28	09/12/19 15:26	1
3,3'-Dichlorobenzidine	ND		50	0.83	ug/L		08/29/19 12:28	09/12/19 15:26	1
3-Nitroaniline	ND		10	0.78	ug/L		08/29/19 12:28	09/12/19 15:26	1
4,6-Dinitro-2-methylphenol	ND		50	5.9	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Bromophenyl phenyl ether	ND		10	0.41	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Chloro-3-methylphenol	ND		10	0.45	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Chloroaniline	ND		10	0.56	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Chlorophenyl phenyl ether	ND		10	0.63	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Nitroaniline	ND		10	0.84	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Nitrophenol	ND		10	1.0	ug/L		08/29/19 12:28	09/12/19 15:26	1
Acenaphthene	ND		4.0	0.45	ug/L		08/29/19 12:28	09/12/19 15:26	1
Acenaphthylene	ND		4.0	0.50	ug/L		08/29/19 12:28	09/12/19 15:26	1
Acetophenone	ND		10	0.52	ug/L		08/29/19 12:28	09/12/19 15:26	1
Anthracene	ND		4.0	1.1	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzaldehyde	ND		10	0.53	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzo[a]pyrene	ND		4.0	0.64	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzo[b]fluoranthene	ND		4.0	0.53	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzo[g,h,i]perylene	ND		4.0	0.79	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzo[k]fluoranthene	ND		4.0	0.56	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzo[a]anthracene	ND		4.0	0.58	ug/L		08/29/19 12:28	09/12/19 15:26	1
Bis(2-chloroethoxy)methane	ND		10	0.61	ug/L		08/29/19 12:28	09/12/19 15:26	1
Bis(2-chloroethyl)ether	ND		10	0.49	ug/L		08/29/19 12:28	09/12/19 15:26	1
Bis(2-ethylhexyl) phthalate	ND		10	1.1	ug/L		08/29/19 12:28	09/12/19 15:26	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		08/29/19 12:28	09/12/19 15:26	1
Caprolactam	ND		10	2.7	ug/L		08/29/19 12:28	09/12/19 15:26	1
Carbazole	ND		4.0	1.3	ug/L		08/29/19 12:28	09/12/19 15:26	1
Chrysene	ND		4.0	0.52	ug/L		08/29/19 12:28	09/12/19 15:26	1
Dibenz(a,h)anthracene	ND		4.0	0.65	ug/L		08/29/19 12:28	09/12/19 15:26	1
Di-n-butyl phthalate	ND		4.0	0.88	ug/L		08/29/19 12:28	09/12/19 15:26	1
Di-n-octyl phthalate	ND		5.0	1.6	ug/L		08/29/19 12:28	09/12/19 15:26	1
Dibenzofuran	ND		4.0	0.36	ug/L		08/29/19 12:28	09/12/19 15:26	1
Diethyl phthalate	ND		4.0	0.75	ug/L		08/29/19 12:28	09/12/19 15:26	1
Dimethyl phthalate	ND		4.0	1.3	ug/L		08/29/19 12:28	09/12/19 15:26	1
Fluoranthene	ND		4.0	0.64	ug/L		08/29/19 12:28	09/12/19 15:26	1
Fluorene	ND		4.0	0.49	ug/L		08/29/19 12:28	09/12/19 15:26	1

Eurofins TestAmerica, Denver

QC Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-469200/1-A
Matrix: Water
Analysis Batch: 470328

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 469200

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Hexachlorobenzene	ND		10	0.96	ug/L		08/29/19 12:28	09/12/19 15:26	1
Hexachlorobutadiene	ND		30	7.5	ug/L		08/29/19 12:28	09/12/19 15:26	1
Hexachloroethane	ND		30	7.6	ug/L		08/29/19 12:28	09/12/19 15:26	1
Indeno[1,2,3-cd]pyrene	ND		5.0	1.6	ug/L		08/29/19 12:28	09/12/19 15:26	1
Isophorone	ND		10	0.67	ug/L		08/29/19 12:28	09/12/19 15:26	1
N-Nitrosodi-n-propylamine	ND		10	0.56	ug/L		08/29/19 12:28	09/12/19 15:26	1
n-Nitrosodiphenylamine(as diphenylamine)	ND		10	0.61	ug/L		08/29/19 12:28	09/12/19 15:26	1
Naphthalene	ND		4.0	0.40	ug/L		08/29/19 12:28	09/12/19 15:26	1
Nitrobenzene	ND		10	0.43	ug/L		08/29/19 12:28	09/12/19 15:26	1
Pentachlorophenol	ND		50	5.5	ug/L		08/29/19 12:28	09/12/19 15:26	1
Phenanthrene	ND		4.0	0.28	ug/L		08/29/19 12:28	09/12/19 15:26	1
Phenol	ND		10	0.56	ug/L		08/29/19 12:28	09/12/19 15:26	1
Pyrene	ND		10	0.43	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,3-Dinitrobenzene	ND		10	0.97	ug/L		08/29/19 12:28	09/12/19 15:26	1
1-Methylnaphthalene	ND		4.0	0.35	ug/L		08/29/19 12:28	09/12/19 15:26	1
2,6-Dichlorophenol	ND		10	0.75	ug/L		08/29/19 12:28	09/12/19 15:26	1
Aniline	ND		10	0.88	ug/L		08/29/19 12:28	09/12/19 15:26	1
Azobenzene	ND		4.0	0.54	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzidine	ND		100	4.4	ug/L		08/29/19 12:28	09/12/19 15:26	1
Benzyl alcohol	ND		10	0.35	ug/L		08/29/19 12:28	09/12/19 15:26	1
Diphenylamine	ND		10	0.49	ug/L		08/29/19 12:28	09/12/19 15:26	1
Hexadecane	ND		10	0.35	ug/L		08/29/19 12:28	09/12/19 15:26	1
N-Nitrosodimethylamine	ND		10	0.62	ug/L		08/29/19 12:28	09/12/19 15:26	1
Pyridine	ND		20	5.0	ug/L		08/29/19 12:28	09/12/19 15:26	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		10	0.54	ug/L		08/29/19 12:28	09/12/19 15:26	1
3-Methylphenol	ND		10	0.40	ug/L		08/29/19 12:28	09/12/19 15:26	1
4-Methylphenol	ND		10	1.0	ug/L		08/29/19 12:28	09/12/19 15:26	1
Alachlor	ND		20	0.60	ug/L		08/29/19 12:28	09/12/19 15:26	1
Famphur	ND		100	0.80	ug/L		08/29/19 12:28	09/12/19 15:26	1
Indene	ND		10	0.82	ug/L		08/29/19 12:28	09/12/19 15:26	1
Total Cresols	ND		10	0.40	ug/L		08/29/19 12:28	09/12/19 15:26	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorophenol	35		17 - 71	08/29/19 12:28	09/12/19 15:26	1
Phenol-d5	22		10 - 52	08/29/19 12:28	09/12/19 15:26	1
2,4,6-Tribromophenol	70		52 - 123	08/29/19 12:28	09/12/19 15:26	1
2-Fluorobiphenyl	60		47 - 119	08/29/19 12:28	09/12/19 15:26	1
Nitrobenzene-d5	71		45 - 113	08/29/19 12:28	09/12/19 15:26	1
Terphenyl-d14	81		50 - 123	08/29/19 12:28	09/12/19 15:26	1

Lab Sample ID: LCS 280-469200/2-A
Matrix: Water
Analysis Batch: 470328

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 469200
%Rec.

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
1,1'-Biphenyl	70.0	43.0		ug/L		61	53 - 116
1,2,4,5-Tetrachlorobenzene	70.0	37.9		ug/L		54	52 - 100

Eurofins TestAmerica, Denver

QC Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-469200/2-A

Matrix: Water

Analysis Batch: 470328

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 469200

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
1,2,4-Trichlorobenzene	70.0	28.9	*	ug/L		41	47 - 103
1,2-Dichlorobenzene	70.0	29.9	*	ug/L		43	44 - 103
1,3-Dichlorobenzene	70.0	27.3	*	ug/L		39	42 - 100
1,4-Dichlorobenzene	70.0	28.3	*	ug/L		40	43 - 101
1,4-Dioxane	70.0	22.5		ug/L		32	20 - 63
2,4,6-Trichlorophenol	70.0	60.0		ug/L		86	52 - 132
2,4-Dichlorophenol	70.0	60.2		ug/L		86	60 - 108
2,2'-oxybis[1-chloropropane]	70.0	65.7		ug/L		94	49 - 114
2,3,4,6-Tetrachlorophenol	70.0	58.9		ug/L		84	53 - 129
2,4,5-Trichlorophenol	70.0	57.9		ug/L		83	51 - 121
2,4-Dimethylphenol	70.0	56.5		ug/L		81	54 - 105
2,4-Dinitrotoluene	70.0	63.5		ug/L		91	52 - 134
2,6-Dinitrotoluene	70.0	62.7		ug/L		90	52 - 132
2-Chloronaphthalene	70.0	40.5		ug/L		58	52 - 116
2-Chlorophenol	70.0	48.4		ug/L		69	50 - 105
2-Methylnaphthalene	70.0	39.2		ug/L		56	55 - 101
2-Methylphenol	70.0	41.8		ug/L		60	43 - 94
3 & 4 Methylphenol	70.0	39.5		ug/L		56	34 - 88
2-Nitroaniline	70.0	64.5		ug/L		92	42 - 142
2-Nitrophenol	70.0	55.4		ug/L		79	58 - 110
3,3'-Dichlorobenzidine	160	122		ug/L		76	56 - 112
3-Nitroaniline	70.0	52.5		ug/L		75	34 - 118
4,6-Dinitro-2-methylphenol	140	123		ug/L		88	66 - 126
4-Bromophenyl phenyl ether	70.0	59.3		ug/L		85	60 - 109
4-Chloro-3-methylphenol	70.0	63.1		ug/L		90	63 - 107
4-Chloroaniline	70.0	51.8		ug/L		74	41 - 93
4-Chlorophenyl phenyl ether	70.0	56.1		ug/L		80	57 - 120
4-Nitroaniline	70.0	59.3		ug/L		85	55 - 123
4-Nitrophenol	140	51.1		ug/L		37	15 - 60
Acenaphthene	70.0	51.5		ug/L		74	52 - 122
Acenaphthylene	70.0	48.5		ug/L		69	58 - 112
Acetophenone	70.0	56.1		ug/L		80	58 - 108
Anthracene	70.0	61.1		ug/L		87	62 - 113
Benzaldehyde	80.0	37.2		ug/L		47	25 - 91
Benzo[a]pyrene	70.0	59.4		ug/L		85	61 - 114
Benzo[b]fluoranthene	70.0	62.0		ug/L		89	61 - 110
Benzo[g,h,i]perylene	70.0	61.0		ug/L		87	67 - 111
Benzo[k]fluoranthene	70.0	60.9		ug/L		87	69 - 119
Benzo[a]anthracene	70.0	60.4		ug/L		86	55 - 115
Bis(2-chloroethoxy)methane	70.0	52.7		ug/L		75	61 - 107
Bis(2-chloroethyl)ether	70.0	49.9		ug/L		71	56 - 112
Bis(2-ethylhexyl) phthalate	70.0	60.2		ug/L		86	60 - 116
Butyl benzyl phthalate	70.0	60.2		ug/L		86	57 - 111
Caprolactam	80.0	15.0		ug/L		19	10 - 50
Carbazole	70.0	61.6		ug/L		88	69 - 109
Chrysene	70.0	59.1		ug/L		84	63 - 118
Dibenz(a,h)anthracene	70.0	63.3		ug/L		90	65 - 111
Di-n-butyl phthalate	70.0	63.3		ug/L		90	68 - 110
Di-n-octyl phthalate	70.0	62.6		ug/L		89	49 - 111

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QC Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-469200/2-A
 Matrix: Water
 Analysis Batch: 470328

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 469200
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Dibenzofuran	70.0	52.9		ug/L		76	58 - 116
Diethyl phthalate	70.0	66.4		ug/L		95	57 - 121
Dimethyl phthalate	70.0	64.2		ug/L		92	56 - 120
Fluoranthene	70.0	63.0		ug/L		90	68 - 111
Fluorene	70.0	59.4		ug/L		85	56 - 119
Hexachlorobenzene	70.0	59.7		ug/L		85	64 - 112
Hexachlorobutadiene	70.0	23.9	J *	ug/L		34	41 - 102
Hexachloroethane	70.0	22.4	J	ug/L		32	31 - 100
Indeno[1,2,3-cd]pyrene	70.0	62.3		ug/L		89	56 - 100
Isophorone	70.0	59.0		ug/L		84	59 - 100
N-Nitrosodi-n-propylamine	70.0	60.1		ug/L		86	59 - 106
n-Nitrosodiphenylamine(as diphenylamine)	70.0	60.8		ug/L		87	64 - 112
Naphthalene	70.0	39.7		ug/L		57	53 - 105
Nitrobenzene	70.0	56.9		ug/L		81	56 - 106
Pentachlorophenol	140	94.9		ug/L		68	48 - 121
Phenanthrene	70.0	61.7		ug/L		88	63 - 113
Phenol	70.0	18.3		ug/L		26	11 - 52
Pyrene	70.0	58.3		ug/L		83	62 - 114
1,3-Dinitrobenzene	70.0	64.0		ug/L		91	66 - 124
1-Methylnaphthalene	70.0	40.9		ug/L		58	57 - 100
2,6-Dichlorophenol	70.0	60.5		ug/L		86	56 - 104
Aniline	70.0	37.9		ug/L		54	16 - 94
Azobenzene	70.0	57.1		ug/L		82	59 - 124
Benzidine	160	56.1	J	ug/L		35	5 - 93
Benzyl alcohol	70.0	40.4		ug/L		58	34 - 91
Diphenylamine	59.5	52.5		ug/L		88	62 - 118
Hexadecane	70.0	57.3		ug/L		82	23 - 134
N-Nitrosodimethylamine	70.0	24.2		ug/L		35	13 - 70
Pyridine	140	43.5		ug/L		31	10 - 69
1,2-Diphenylhydrazine(as Azobenzene)	70.8	57.7		ug/L		82	59 - 124
3-Methylphenol	70.0	39.5		ug/L		56	34 - 88
4-Methylphenol	70.0	39.5		ug/L		56	34 - 88
Indene	80.0	36.2	*	ug/L		45	46 - 108
Total Cresols	140	81.3		ug/L		58	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Fluorophenol	34		17 - 71
Phenol-d5	21		10 - 52
2,4,6-Tribromophenol	78		52 - 123
2-Fluorobiphenyl	69		47 - 119
Nitrobenzene-d5	74		45 - 113
Terphenyl-d14	82		50 - 123

QC Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-469200/3-A

Matrix: Water

Analysis Batch: 470328

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 469200

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
1,1'-Biphenyl	70.0	34.2	*	ug/L		49	53 - 116	23	31	
1,2,4,5-Tetrachlorobenzene	70.0	29.6	*	ug/L		42	52 - 100	25	32	
1,2,4-Trichlorobenzene	70.0	22.3	*	ug/L		32	47 - 103	26	42	
1,2-Dichlorobenzene	70.0	24.2	*	ug/L		35	44 - 103	21	44	
1,3-Dichlorobenzene	70.0	21.7	*	ug/L		31	42 - 100	23	46	
1,4-Dichlorobenzene	70.0	22.9	*	ug/L		33	43 - 101	21	45	
1,4-Dioxane	70.0	18.3	J	ug/L		26	20 - 63	21	35	
2,4,6-Trichlorophenol	70.0	49.7		ug/L		71	52 - 132	19	32	
2,4-Dichlorophenol	70.0	47.2		ug/L		67	60 - 108	24	34	
2,2'-oxybis[1-chloropropane]	70.0	54.8		ug/L		78	49 - 114	18	35	
2,3,4,6-Tetrachlorophenol	70.0	47.4	J	ug/L		68	53 - 129	22	36	
2,4,5-Trichlorophenol	70.0	47.1		ug/L		67	51 - 121	20	33	
2,4-Dimethylphenol	70.0	49.1		ug/L		70	54 - 105	14	31	
2,4-Dinitrotoluene	70.0	52.2		ug/L		75	52 - 134	19	34	
2,6-Dinitrotoluene	70.0	50.8		ug/L		73	52 - 132	21	37	
2-Chloronaphthalene	70.0	31.8	*	ug/L		45	52 - 116	24	31	
2-Chlorophenol	70.0	40.7		ug/L		58	50 - 105	17	36	
2-Methylnaphthalene	70.0	30.5	*	ug/L		44	55 - 101	25	33	
2-Methylphenol	70.0	36.2		ug/L		52	43 - 94	14	33	
3 & 4 Methylphenol	70.0	33.6		ug/L		48	34 - 88	16	32	
2-Nitroaniline	70.0	54.3		ug/L		78	42 - 142	17	34	
2-Nitrophenol	70.0	44.7		ug/L		64	58 - 110	21	39	
3,3'-Dichlorobenzidine	160	101		ug/L		63	56 - 112	18	50	
3-Nitroaniline	70.0	45.8		ug/L		65	34 - 118	14	38	
4,6-Dinitro-2-methylphenol	140	99.5		ug/L		71	66 - 126	21	39	
4-Bromophenyl phenyl ether	70.0	46.9		ug/L		67	60 - 109	23	31	
4-Chloro-3-methylphenol	70.0	52.5		ug/L		75	63 - 107	18	35	
4-Chloroaniline	70.0	44.8		ug/L		64	41 - 93	14	49	
4-Chlorophenyl phenyl ether	70.0	46.0		ug/L		66	57 - 120	20	33	
4-Nitroaniline	70.0	50.7		ug/L		72	55 - 123	16	35	
4-Nitrophenol	140	44.1		ug/L		32	15 - 60	15	34	
Acenaphthene	70.0	42.1		ug/L		60	52 - 122	20	30	
Acenaphthylene	70.0	39.9	*	ug/L		57	58 - 112	20	31	
Acetophenone	70.0	46.5		ug/L		66	58 - 108	19	34	
Anthracene	70.0	49.1		ug/L		70	62 - 113	22	31	
Benzaldehyde	80.0	35.6		ug/L		45	25 - 91	4	42	
Benzo[a]pyrene	70.0	48.5		ug/L		69	61 - 114	20	33	
Benzo[b]fluoranthene	70.0	50.3		ug/L		72	61 - 110	21	37	
Benzo[g,h,i]perylene	70.0	50.5		ug/L		72	67 - 111	19	33	
Benzo[k]fluoranthene	70.0	49.2		ug/L		70	69 - 119	21	31	
Benzo[a]anthracene	70.0	48.8		ug/L		70	55 - 115	21	33	
Bis(2-chloroethoxy)methane	70.0	43.3		ug/L		62	61 - 107	20	34	
Bis(2-chloroethyl)ether	70.0	41.7		ug/L		60	56 - 112	18	36	
Bis(2-ethylhexyl) phthalate	70.0	48.9		ug/L		70	60 - 116	21	35	
Butyl benzyl phthalate	70.0	49.0		ug/L		70	57 - 111	21	33	
Caprolactam	80.0	12.8		ug/L		16	10 - 50	15	35	
Carbazole	70.0	49.9		ug/L		71	69 - 109	21	31	
Chrysene	70.0	48.1		ug/L		69	63 - 118	20	32	

Eurofins TestAmerica, Denver

QC Sample Results

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

Job ID: 280-127755-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-469200/3-A
 Matrix: Water
 Analysis Batch: 470328

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 469200

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
Dibenz(a,h)anthracene	70.0	53.1		ug/L		76	65 - 111	18	34
Di-n-butyl phthalate	70.0	49.4		ug/L		71	68 - 110	25	30
Di-n-octyl phthalate	70.0	50.2		ug/L		72	49 - 111	22	30
Dibenzofuran	70.0	43.4		ug/L		62	58 - 116	20	31
Diethyl phthalate	70.0	54.9		ug/L		78	57 - 121	19	34
Dimethyl phthalate	70.0	52.7		ug/L		75	56 - 120	20	32
Fluoranthene	70.0	49.9		ug/L		71	68 - 111	23	33
Fluorene	70.0	48.4		ug/L		69	56 - 119	20	30
Hexachlorobenzene	70.0	47.7		ug/L		68	64 - 112	22	33
Hexachlorobutadiene	70.0	17.2	J *	ug/L		25	41 - 102	33	49
Hexachloroethane	70.0	17.4	J *	ug/L		25	31 - 100	25	50
Indeno[1,2,3-cd]pyrene	70.0	51.1		ug/L		73	56 - 100	20	37
Isophorone	70.0	47.6		ug/L		68	59 - 100	22	32
N-Nitrosodi-n-propylamine	70.0	48.8		ug/L		70	59 - 106	21	33
n-Nitrosodiphenylamine(as diphenylamine)	70.0	50.2		ug/L		72	64 - 112	19	33
Naphthalene	70.0	31.9	*	ug/L		46	53 - 105	22	35
Nitrobenzene	70.0	46.6		ug/L		67	56 - 106	20	34
Pentachlorophenol	140	74.1		ug/L		53	48 - 121	25	35
Phenanthrene	70.0	49.1		ug/L		70	63 - 113	23	31
Phenol	70.0	15.1		ug/L		22	11 - 52	19	34
Pyrene	70.0	48.4		ug/L		69	62 - 114	18	31
1,3-Dinitrobenzene	70.0	52.1		ug/L		74	66 - 124	20	37
1-Methylnaphthalene	70.0	31.9	*	ug/L		46	57 - 100	25	32
2,6-Dichlorophenol	70.0	47.4		ug/L		68	56 - 104	24	33
Aniline	70.0	32.4		ug/L		46	16 - 94	16	45
Azobenzene	70.0	46.9		ug/L		67	59 - 124	19	31
Benzidine	160	61.2	J	ug/L		38	5 - 93	9	50
Benzyl alcohol	70.0	33.7		ug/L		48	34 - 91	18	35
Diphenylamine	59.5	44.1		ug/L		74	62 - 118	17	50
Hexadecane	70.0	46.5		ug/L		66	23 - 134	21	31
N-Nitrosodimethylamine	70.0	21.1		ug/L		30	13 - 70	14	37
Pyridine	140	31.3	*	ug/L		22	10 - 69	33	26
1,2-Diphenylhydrazine(as Azobenzene)	70.8	47.5		ug/L		67	59 - 124	19	30
3-Methylphenol	70.0	33.6		ug/L		48	34 - 88	16	32
4-Methylphenol	70.0	33.6		ug/L		48	34 - 88	16	32
Indene	80.0	30.6	*	ug/L		38	46 - 108	17	40
Total Cresols	140	69.8		ug/L		50		15	

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
2-Fluorophenol	28		17 - 71
Phenol-d5	18		10 - 52
2,4,6-Tribromophenol	64		52 - 123
2-Fluorobiphenyl	54		47 - 119
Nitrobenzene-d5	59		45 - 113
Terphenyl-d14	68		50 - 123

QC Sample Results

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

Job ID: 280-127755-1

Method: 245.1 - Mercury - Dissolved

Lab Sample ID: MB 280-470040/1-A
Matrix: Water
Analysis Batch: 470161

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 470040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.027	ug/L		09/09/19 14:44	09/09/19 19:39	1

Lab Sample ID: LCS 280-470040/2-A
Matrix: Water
Analysis Batch: 470161

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 470040
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	5.00	4.87		ug/L		97	90 - 110

QC Association Summary

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

Job ID: 280-127755-1

GC/MS VOA

Analysis Batch: 469518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-3	C19081073-001F	Total/NA	Water	8260B	
280-127755-6	C19081073-002F	Total/NA	Water	8260B	
280-127755-9	C19081073-003F	Total/NA	Water	8260B	
280-127755-12	C19081073-004F	Total/NA	Water	8260B	
280-127755-15	C19081073-005F	Total/NA	Water	8260B	
280-127755-18	C19081073-006F	Total/NA	Water	8260B	
280-127755-21	C19081073-007F	Total/NA	Water	8260B	
280-127755-24	C19081073-008F	Total/NA	Water	8260B	
MB 280-469518/8	Method Blank	Total/NA	Water	8260B	
LCS 280-469518/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-469518/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 469200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-2	C19081073-001D	Total/NA	Water	3510C	
280-127755-5	C19081073-002D	Total/NA	Water	3510C	
280-127755-8	C19081073-003D	Total/NA	Water	3510C	
280-127755-11	C19081073-004D	Total/NA	Water	3510C	
280-127755-11 - DL	C19081073-004D	Total/NA	Water	3510C	
280-127755-14	C19081073-005D	Total/NA	Water	3510C	
280-127755-17 - DL	C19081073-006D	Total/NA	Water	3510C	
280-127755-17	C19081073-006D	Total/NA	Water	3510C	
280-127755-20	C19081073-007D	Total/NA	Water	3510C	
280-127755-23	C19081073-008D	Total/NA	Water	3510C	
MB 280-469200/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-469200/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-469200/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 470328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-2	C19081073-001D	Total/NA	Water	8270C	469200
280-127755-5	C19081073-002D	Total/NA	Water	8270C	469200
280-127755-8	C19081073-003D	Total/NA	Water	8270C	469200
280-127755-11	C19081073-004D	Total/NA	Water	8270C	469200
280-127755-14	C19081073-005D	Total/NA	Water	8270C	469200
280-127755-17	C19081073-006D	Total/NA	Water	8270C	469200
280-127755-20	C19081073-007D	Total/NA	Water	8270C	469200
280-127755-23	C19081073-008D	Total/NA	Water	8270C	469200
MB 280-469200/1-A	Method Blank	Total/NA	Water	8270C	469200
LCS 280-469200/2-A	Lab Control Sample	Total/NA	Water	8270C	469200
LCSD 280-469200/3-A	Lab Control Sample Dup	Total/NA	Water	8270C	469200

Analysis Batch: 470907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-11 - DL	C19081073-004D	Total/NA	Water	8270C	469200
280-127755-17 - DL	C19081073-006D	Total/NA	Water	8270C	469200

QC Association Summary

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

Job ID: 280-127755-1

Metals

Prep Batch: 470040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-1	C19081073-001C	Dissolved	Water	245.1	
280-127755-4	C19081073-002C	Dissolved	Water	245.1	
280-127755-7	C19081073-003C	Dissolved	Water	245.1	
280-127755-10	C19081073-004C	Dissolved	Water	245.1	
280-127755-13	C19081073-005C	Dissolved	Water	245.1	
280-127755-16	C19081073-006C	Dissolved	Water	245.1	
280-127755-19	C19081073-007C	Dissolved	Water	245.1	
280-127755-22	C19081073-008C	Dissolved	Water	245.1	
280-127755-25	M3-54865	Dissolved	Water	245.1	
MB 280-470040/1-A	Method Blank	Total/NA	Water	245.1	
LCS 280-470040/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 470161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-1	C19081073-001C	Dissolved	Water	245.1	470040
280-127755-4	C19081073-002C	Dissolved	Water	245.1	470040
280-127755-7	C19081073-003C	Dissolved	Water	245.1	470040
280-127755-10	C19081073-004C	Dissolved	Water	245.1	470040
280-127755-13	C19081073-005C	Dissolved	Water	245.1	470040
280-127755-16	C19081073-006C	Dissolved	Water	245.1	470040
280-127755-19	C19081073-007C	Dissolved	Water	245.1	470040
280-127755-22	C19081073-008C	Dissolved	Water	245.1	470040
280-127755-25	M3-54865	Dissolved	Water	245.1	470040
MB 280-470040/1-A	Method Blank	Total/NA	Water	245.1	470040
LCS 280-470040/2-A	Lab Control Sample	Total/NA	Water	245.1	470040

Lab Chronicle

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

Job ID: 280-127755-1

Client Sample ID: C19081073-001C

Lab Sample ID: 280-127755-1

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 19:43	MRJ	TAL DEN

Client Sample ID: C19081073-001D

Lab Sample ID: 280-127755-2

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			996.8 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 20:21	AJE	TAL DEN

Client Sample ID: C19081073-001F

Lab Sample ID: 280-127755-3

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 14:28	TAW	TAL DEN

Client Sample ID: C19081073-002C

Lab Sample ID: 280-127755-4

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 19:45	MRJ	TAL DEN

Client Sample ID: C19081073-002D

Lab Sample ID: 280-127755-5

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1084.7 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 20:51	AJE	TAL DEN

Client Sample ID: C19081073-002F

Lab Sample ID: 280-127755-6

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 14:50	TAW	TAL DEN

Lab Chronicle

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

Job ID: 280-127755-1

Client Sample ID: C19081073-003C

Lab Sample ID: 280-127755-7

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 19:48	MRJ	TAL DEN

Client Sample ID: C19081073-003D

Lab Sample ID: 280-127755-8

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1117.2 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 21:20	AJE	TAL DEN

Client Sample ID: C19081073-003F

Lab Sample ID: 280-127755-9

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 15:11	TAW	TAL DEN

Client Sample ID: C19081073-004C

Lab Sample ID: 280-127755-10

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 19:50	MRJ	TAL DEN

Client Sample ID: C19081073-004D

Lab Sample ID: 280-127755-11

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1076.6 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 21:49	AJE	TAL DEN
Total/NA	Prep	3510C	DL		1076.6 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C	DL	4			470907	09/17/19 15:48	AJE	TAL DEN

Client Sample ID: C19081073-004F

Lab Sample ID: 280-127755-12

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 15:32	TAW	TAL DEN

Eurofins TestAmerica, Denver

Lab Chronicle

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

Job ID: 280-127755-1

Client Sample ID: C19081073-005C

Lab Sample ID: 280-127755-13

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 19:52	MRJ	TAL DEN

Client Sample ID: C19081073-005D

Lab Sample ID: 280-127755-14

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1084.3 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 22:19	AJE	TAL DEN

Client Sample ID: C19081073-005F

Lab Sample ID: 280-127755-15

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 15:53	TAW	TAL DEN

Client Sample ID: C19081073-006C

Lab Sample ID: 280-127755-16

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 19:54	MRJ	TAL DEN

Client Sample ID: C19081073-006D

Lab Sample ID: 280-127755-17

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1141.5 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 22:48	AJE	TAL DEN
Total/NA	Prep	3510C	DL		1141.5 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C	DL	4			470907	09/17/19 16:18	AJE	TAL DEN

Client Sample ID: C19081073-006F

Lab Sample ID: 280-127755-18

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 16:14	TAW	TAL DEN

Lab Chronicle

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

Job ID: 280-127755-1

Client Sample ID: C19081073-007C

Lab Sample ID: 280-127755-19

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 20:01	MRJ	TAL DEN

Client Sample ID: C19081073-007D

Lab Sample ID: 280-127755-20

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1100.7 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 23:17	AJE	TAL DEN

Client Sample ID: C19081073-007F

Lab Sample ID: 280-127755-21

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 16:35	TAW	TAL DEN

Client Sample ID: C19081073-008C

Lab Sample ID: 280-127755-22

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 20:03	MRJ	TAL DEN

Client Sample ID: C19081073-008D

Lab Sample ID: 280-127755-23

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1012.8 mL	1 mL	469200	08/29/19 12:28	AZG	TAL DEN
Total/NA	Analysis	8270C		1			470328	09/12/19 23:47	AJE	TAL DEN

Client Sample ID: C19081073-008F

Lab Sample ID: 280-127755-24

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	469518	09/03/19 16:57	TAW	TAL DEN

Lab Chronicle

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

Job ID: 280-127755-1

Client Sample ID: M3-54865

Lab Sample ID: 280-127755-25

Date Collected: 08/23/19 11:20

Matrix: Water

Date Received: 08/28/19 10:45

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	470040	09/09/19 14:44	MRJ	TAL DEN
Dissolved	Analysis	245.1		1			470161	09/09/19 20:05	MRJ	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: 280-127755-1

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	10-31-19
A2LA	DoD	2907.01	10-31-19
A2LA	ISO/IEC 17025	2907.01	10-31-19
A2LA	ISO/IEC 17025	2907.01	10-31-19
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	01-08-20
Alaska (UST)	State Program	UST-30	01-08-20
Arizona	State	AZ0713	12-20-19
Arizona	State Program	AZ0713	12-20-19
Arkansas DEQ	State	19-047-0	06-01-20
Arkansas DEQ	State Program	88-0687	06-01-20
California	State	2513	01-08-20
California	State Program	2513	01-08-20
Connecticut	State	PH-0686	09-30-20
Connecticut	State Program	PH-0686	09-30-20
Florida	NELAP	E87667	06-30-20
Florida	NELAP	E87667-57	06-30-20
Georgia	State Program	N/A	01-08-20
Illinois	NELAP	200017	04-30-20
Illinois	NELAP	2000172019-1	04-30-20
Iowa	State Program	370	12-01-20
Kansas	NELAP	E-10166	04-30-20
Louisiana	NELAP	02096	06-30-20
Louisiana	NELAP	30785	06-30-20
Maine	State Program	CO0002	03-03-21
Minnesota	NELAP	8-999-405	12-31-19
Minnesota	NELAP	1545373	08-05-20
Minnesota	NELAP	1545373	12-31-19
Nevada	State	CO000262020-1	09-18-19
Nevada	State Program	CO0026	07-31-20
New Hampshire	NELAP	205310	04-28-20
New Jersey	NELAP	CO004	06-30-20
New Jersey	NELAP	190002	06-30-20
New York	NELAP	11964	04-01-20
New York	NELAP	59923	04-01-20
North Carolina (WWW/SW)	State Program	358	12-31-19
North Dakota	State Program	R-034	01-08-20
Oklahoma	State Program	8614	08-31-20
Oregon	NELAP	4025	01-08-20
Oregon	NELAP	4025-011	01-08-20
Pennsylvania	NELAP	68-00664	07-31-20
Pennsylvania	NELAP	013	08-01-20
South Carolina	State Program	72002001	01-08-20
Texas	NELAP	T104704183-18-15	09-30-19
Texas	NELAP	T104704183-18-15	09-30-19
US Fish & Wildlife	Federal		07-31-20
USDA	Federal		03-26-21
Utah	NELAP	CO00026	07-31-20
Utah	NELAP	CO000262019-11	07-31-20
Virginia	NELAP	460232	06-14-20

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

Eurofins TestAmerica, Denver

Accreditation/Certification Summary

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

Job ID: 280-127755-1

Laboratory: Eurofins TestAmerica, Denver (Continued)

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

Authority	Program	Identification Number	Expiration Date
Virginia	NELAP	10490	06-14-20
Virginia	NELAP	10490	06-14-20
Washington	State	C583-19	08-05-20
Washington	State Program	C583	08-03-20
West Virginia DEP	State Program	354	11-30-19
Wisconsin	State	999615430	08-31-20
Wisconsin	State Program	999615430	08-31-20
Wyoming (UST)	A2LA	2907.01	10-31-19

Energy Laboratories, Inc.

2393 Salt Creek Hwy
 Casper, WY 82601-9601
 307.235.0515



C19081073

CHAIN-OF-CUSTODY RECORD

PO: _____

Earliest HT Expires: Wed, 8/28/2019 0835 Test Codes: SVOC-3510C-8270	Earliest Due Date: 9/27/2019 # Bus. Days Until Due: 24
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Subcontractor:
 Test America
 4955 Yarrow St
 Arvada, CO 80002
 TEL: 3037360100
 FAX:
 Acct #: 3037360100

Subcontractor's Client

Requested Tests															
CVA-HG-245-W-D	PRP-HG-245-1	SVOC-3510C-8270	SVOC-8270-W	VOC-8280-THF-W											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	C19081073-001C	Aqueous	08/21/19 08:35 A	1 - 250ML-P-F-HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-001D	Aqueous	08/21/19 08:35 A	2 - 1L-AG-NM-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-001F	Aqueous	08/21/19 08:35 A	3 - 40ML-CG-VOA-HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	C19081073-002D	Aqueous	08/21/19 09:05 A	2 - 1L-AG-NM-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-002F	Aqueous	08/21/19 09:05 A	3 - 40ML-CG-VOA-HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-003C	Aqueous	08/21/19 09:20 A	1 - 250ML-P-F-HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-003D	Aqueous	08/21/19 09:20 A	2 - 1L-AG-NM-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-003F	Aqueous	08/21/19 09:20 A	3 - 40ML-CG-VOA-HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

QC Level:

11E(2)

Project 28019578



280-127755 Chain of Custody

Relinquished by: <i>Candace [Signature]</i>	Date/Time: <i>8/23/19 8:48</i>	Received by: <i>[Signature]</i>	Date/Time: <i>8/28/19 8:45</i>
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/28/19 2:30</i>	Received by: _____	Date/Time: <i>1045</i>
Shipped By: <i>UPS</i>	Custody Seal: <input checked="" type="radio"/> Y <input type="radio"/> N	Intact: <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <i>2.5, 7.6, 28</i> °C
			Temp Blank: <input type="radio"/> Y <input checked="" type="radio"/> N
			On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N

Energy Laboratories, Inc.

2393 Salt Creek Hwy
 Casper, WY 82601-9601
 307.235.0515

CHAIN-OF-CUSTODY RECORD

PO: _____
 -

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

Subcontractor:

Test America
 4955 Yarrow St
 Arvada, CO 80002
 TEL: 3037360100
 FAX:
 Acct #: 3037360100

Subcontractor's Client

Requested Tests														
CVA-HG-245-W-D	PRP-HG-245.1	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THF-W										
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	C19081073-004C	Aqueous	08/21/19 09:40 A	1 - 250ML-P-F-HNO3
<input type="checkbox"/>	C19081073-004D	Aqueous	08/21/19 09:40 A	2 - 1L-AG-NM-UP
<input type="checkbox"/>	C19081073-004F	Aqueous	08/21/19 09:40 A	3 - 40ML-CG-VOA-HCL
<input type="checkbox"/>	C19081073-005C	Aqueous	08/21/19 09:45 A	1 - 250ML-P-F-HNO3
<input type="checkbox"/>	C19081073-005D	Aqueous	08/21/19 09:45 A	2 - 1L-AG-NM-UP
<input type="checkbox"/>	C19081073-005F	Aqueous	08/21/19 09:45 A	3 - 40ML-CG-VOA-HCL
<input type="checkbox"/>	C19081073-006C	Aqueous	08/21/19 10:15 A	1 - 250ML-P-F-HNO3
<input type="checkbox"/>	C19081073-006D	Aqueous	08/21/19 10:15 A	2 - 1L-AG-NM-UP
<input type="checkbox"/>	C19081073-006F	Aqueous	08/21/19 10:15 A	3 - 40ML-CG-VOA-HCL

Comments:

QC Level:
 11E(2)

Project 28019578

Relinquished by: <u><i>Cindy Empersack 8/23/19, 848</i></u>	Date/Time: <u><i>8/23/19, 848</i></u>	Received by: <u><i>[Signature]</i></u>	Date/Time: <u><i>8/28/19 1045</i></u>
Relinquished by: <u><i>[Signature]</i></u>	Date/Time: <u><i>8/28/19 2:30</i></u>	Received by: _____	Date/Time: _____

Shipped By: <u><i>UPS</i></u>	Custody Seal: <input checked="" type="radio"/> Y <input type="radio"/> N	Intact: <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <u><i>25, 7.6, 2.8 °C</i></u>	Temp Blank: <input type="radio"/> Y <input checked="" type="radio"/> N	On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N
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Energy Laboratories, Inc.

2393 Salt Creek Hwy
 Casper, WY 82601-9601
 307.235.0515

PO: _____

CHAIN-OF-CUSTODY RECORD

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

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	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THF-W											
1	1														
		1	1												
				1											
1	1														
		1	1												
				1											

C19081073-007C	Aqueous	08/21/19 10:30 A	1 - 250ML-P-F-HNO3
C19081073-007D	Aqueous	08/21/19 10:30 A	2 - 1L-AG-NM-UP
C19081073-007F	Aqueous	08/21/19 10:30 A	3 - 40ML-CG-VOA-HCL
C19081073-008C	Aqueous	08/21/19 08:35 A	1 - 250ML-P-F-HNO3
C19081073-008D	Aqueous	08/21/19 08:35 A	2 - 1L-AG-NM-UP
C19081073-008F	Aqueous	08/21/19 08:35 A	3 - 40ML-CG-VOA-HCL

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Comments:

QC Level:

11E(2)

Project 28019578

Relinquished by: <i>Cassidy P. ...</i>	Date/Time: <i>8/23/19 8:48</i>	Received by: <i>[Signature]</i>	Date/Time: <i>8/28/19 10:45</i>
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/28/19 2:30</i>	Received by: _____	

Shipped By: <i>UPS</i>	Custody Seal: <input checked="" type="radio"/> Y <input type="radio"/> N	Intact: <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <i>2.5, 7.6, 28 °C</i>	Temp Blank: <input type="radio"/> Y <input checked="" type="radio"/> N	On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N
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Page 97 @ 12/28/2019

Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-127755-1

Login Number: 127755

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Petunin, Peter

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	True	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
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.	False	Refer to Job Narrative for details.
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.	True	
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

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

Laboratory Job ID: 280-127755-2
Client Project/Site: 11(e) Byproduct Material

For:
Energy Laboratories, Inc.
2393 North Salt Creek Highway
PO BOX 247
Casper, Wyoming 82601

Attn: Ms. Tessa Parke



Authorized for release by:
10/30/2019 1:58:52 PM

Ivan Vania, Project Manager II
(314)298-8566
ivan.vania@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 280-127755-2

Qualifiers

Metals

Qualifier

Qualifier Description

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

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

Job ID: 280-127755-2

Job ID: 280-127755-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Energy Laboratories, Inc.

Project: 11(e) Byproduct Material

Report Number: 280-127755-2

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 8/28/2019 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 2.8° C and 7.6° C.

Receipt Exceptions

The following sample was received by the laboratory; however, it was not listed on the Chain-of-Custody (COC): M3-54865 (280-127755-25). The sample was logged per the information stated on the sample container.

The following samples were received at the laboratory outside the required temperature criteria: C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20), and C19081073-008D (280-127755-23).

DISSOLVED METALS (ICP/MS)

Samples C19081073-001C (280-127755-1), C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), C19081073-008C (280-127755-22) and M3-54865 (280-127755-25) were analyzed for Dissolved Metals (ICP/MS) in accordance with 200.8. The samples were prepared on 10/24/2019 and analyzed on 10/26/2019 and 10/29/2019.

Preparation Batch 160-447588, Analytical Batch 160-447983:

The serial dilution was outside control limits for Calcium indicating a potential matrix interference. : (240-119832-R-1-C SD)

The MS/MSD/serial dilution was analyzed on a different job within the preparation batch. The sample chosen for batch QC had a different analyte list and QC requirements. As a result, the MS/MSD/serial dilution for Arsenic, Cobalt, Copper, Iron, Manganese, Molybdenum, Nickel, Selenium, and Zinc was not applied to this job. Method performance is demonstrated by acceptable LCS recovery: (240-119832-R-1-D MS), (240-119832-R-1-E MSD), and (240-119832-R-1-C SD).

The following samples were diluted to bring the concentration of target analytes within the calibration range. Elevated reporting limits (RLs) are provided: C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), and C19081073-008C (280-127755-22).

Preparation Batch 160-447588, Analytical Batch 160-448112:

Due to insufficient sample volume a dilution was performed for the following samples: C19081073-001C (280-127755-1),

Case Narrative

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

Job ID: 280-127755-2

Job ID: 280-127755-2 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), and C19081073-008C (280-127755-22).

The following samples were diluted to bring the concentration of target analytes within the calibration range. In addition, the samples caused internal standard failure when analyzed at a lesser dilution. Elevated reporting limits (RLs) are provided: C19081073-001C (280-127755-1), C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), and C19081073-008C (280-127755-22).

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

Method Summary

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

Job ID: 280-127755-2

Method	Method Description	Protocol	Laboratory
200.8	ICPMS Dissolved Metals by 200.8	EPA	TAL SL
200.7/200.8	Preparation, Metals	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-127755-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-127755-1	C19081073-001C	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-4	C19081073-002C	Water	08/21/19 09:05	08/28/19 10:45	
280-127755-7	C19081073-003C	Water	08/21/19 09:20	08/28/19 10:45	
280-127755-10	C19081073-004C	Water	08/21/19 09:40	08/28/19 10:45	
280-127755-13	C19081073-005C	Water	08/21/19 09:45	08/28/19 10:45	
280-127755-16	C19081073-006C	Water	08/21/19 10:15	08/28/19 10:45	
280-127755-19	C19081073-007C	Water	08/21/19 10:30	08/28/19 10:45	
280-127755-22	C19081073-008C	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-25	M3-54865	Water	08/23/19 11:20	08/28/19 10:45	

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-001C

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	270		3.7	1.5	mg/L		10/24/19 13:54	10/29/19 01:25	500
Beryllium	0.93		0.18	0.074	mg/L		10/24/19 13:54	10/29/19 01:25	500
Cadmium	5.4		0.18	0.074	mg/L		10/24/19 13:54	10/29/19 01:25	500
Calcium	720		74	35	mg/L		10/24/19 13:54	10/29/19 01:25	500
Chromium	15		3.7	1.5	mg/L		10/24/19 13:54	10/29/19 01:25	500
Cobalt	66		0.74	0.33	mg/L		10/24/19 13:54	10/29/19 01:25	500
Copper	1700		1.1	0.70	mg/L		10/24/19 13:54	10/29/19 01:25	500
Iron	9100		18	7.4	mg/L		10/24/19 13:54	10/29/19 01:25	500
Lead	22		1.1	0.37	mg/L		10/24/19 13:54	10/29/19 01:25	500
Magnesium	9200		18	7.4	mg/L		10/24/19 13:54	10/29/19 01:25	500
Manganese	540		1.5	0.55	mg/L		10/24/19 13:54	10/29/19 01:25	500
Molybdenum	120		1.8	0.74	mg/L		10/24/19 13:54	10/29/19 01:25	500
Nickel	110		1.8	0.74	mg/L		10/24/19 13:54	10/29/19 01:25	500
Potassium	2600		37	17	mg/L		10/24/19 13:54	10/29/19 01:25	500
Selenium	10		1.8	0.74	mg/L		10/24/19 13:54	10/29/19 01:25	500
Silver	0.79		0.74	0.33	mg/L		10/24/19 13:54	10/29/19 01:25	500
Sodium	28000		37	18	mg/L		10/24/19 13:54	10/29/19 01:25	500
Thallium	ND		0.74	0.33	mg/L		10/24/19 13:54	10/29/19 01:25	500
Uranium	81		0.37	0.15	mg/L		10/24/19 13:54	10/29/19 01:25	500
Vanadium	1400		3.7	1.5	mg/L		10/24/19 13:54	10/29/19 01:25	500
Zinc	550		7.4	2.8	mg/L		10/24/19 13:54	10/29/19 01:25	500

Client Sample ID: C19081073-002C

Date Collected: 08/21/19 09:05

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:24	50
Beryllium	0.28		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Cadmium	6.5		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Calcium	480		5.0	2.4	mg/L		10/24/19 13:54	10/26/19 06:24	50
Chromium	2.1		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:24	50
Cobalt	54		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:24	50
Copper	160		0.75	0.48	mg/L		10/24/19 13:54	10/29/19 01:31	500
Iron	3600		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:24	50
Lead	0.59		0.075	0.025	mg/L		10/24/19 13:54	10/26/19 06:24	50
Magnesium	3700		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:24	50
Manganese	170		0.10	0.038	mg/L		10/24/19 13:54	10/26/19 06:24	50
Molybdenum	3.2		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Nickel	140		1.3	0.50	mg/L		10/24/19 13:54	10/29/19 01:31	500
Potassium	710		2.5	1.1	mg/L		10/24/19 13:54	10/26/19 06:24	50
Selenium	1.3		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Silver	ND		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:24	50
Sodium	4600		2.5	1.3	mg/L		10/24/19 13:54	10/26/19 06:24	50
Thallium	0.39		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:24	50
Uranium	29		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:24	50
Vanadium	500		2.5	1.0	mg/L		10/24/19 13:54	10/29/19 01:31	500
Zinc	850		5.0	1.9	mg/L		10/24/19 13:54	10/29/19 01:31	500

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-003C

Date Collected: 08/21/19 09:20

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.38		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:31	50
Beryllium	0.35		0.13	0.050	mg/L		10/24/19 13:54	10/29/19 01:38	500
Cadmium	7.4		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:31	50
Calcium	510		5.0	2.4	mg/L		10/24/19 13:54	10/26/19 06:31	50
Chromium	0.23	J	0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:31	50
Cobalt	64		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:31	50
Copper	35		0.075	0.048	mg/L		10/24/19 13:54	10/26/19 06:31	50
Iron	2500		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:31	50
Lead	ND		0.075	0.025	mg/L		10/24/19 13:54	10/26/19 06:31	50
Magnesium	10000		13	5.0	mg/L		10/24/19 13:54	10/29/19 01:38	500
Manganese	1000		1.0	0.38	mg/L		10/24/19 13:54	10/29/19 01:38	500
Molybdenum	0.55		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:31	50
Nickel	150		1.3	0.50	mg/L		10/24/19 13:54	10/29/19 01:38	500
Potassium	630		2.5	1.1	mg/L		10/24/19 13:54	10/26/19 06:31	50
Selenium	2.9		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:31	50
Silver	0.11		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:31	50
Sodium	14000		25	13	mg/L		10/24/19 13:54	10/29/19 01:38	500
Thallium	0.17		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:31	50
Uranium	19		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:31	50
Vanadium	54		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:31	50
Zinc	950		5.0	1.9	mg/L		10/24/19 13:54	10/29/19 01:38	500

Client Sample ID: C19081073-004C

Date Collected: 08/21/19 09:40

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	63		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:37	50
Beryllium	0.42		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Cadmium	2.5		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Calcium	510		50	24	mg/L		10/24/19 13:54	10/29/19 01:45	500
Chromium	7.2		2.5	1.0	mg/L		10/24/19 13:54	10/29/19 01:45	500
Cobalt	28		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:37	50
Copper	580		0.75	0.48	mg/L		10/24/19 13:54	10/29/19 01:45	500
Iron	3200		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:37	50
Lead	9.0		0.075	0.025	mg/L		10/24/19 13:54	10/26/19 06:37	50
Magnesium	4100		13	5.0	mg/L		10/24/19 13:54	10/29/19 01:45	500
Manganese	210		0.10	0.038	mg/L		10/24/19 13:54	10/26/19 06:37	50
Molybdenum	19		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Nickel	50		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Potassium	1200		25	11	mg/L		10/24/19 13:54	10/29/19 01:45	500
Selenium	3.7		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Silver	0.31		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:37	50
Sodium	15000		25	13	mg/L		10/24/19 13:54	10/29/19 01:45	500
Thallium	0.090		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:37	50
Uranium	35		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:37	50
Vanadium	150		2.5	1.0	mg/L		10/24/19 13:54	10/29/19 01:45	500
Zinc	280		5.0	1.9	mg/L		10/24/19 13:54	10/29/19 01:45	500

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-005C

Date Collected: 08/21/19 09:45

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	52		0.36	0.14	mg/L		10/24/19 13:54	10/26/19 06:44	50
Beryllium	0.37		0.018	0.0071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Cadmium	1.9		0.018	0.0071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Calcium	520		71	34	mg/L		10/24/19 13:54	10/29/19 01:51	500
Chromium	6.5		3.6	1.4	mg/L		10/24/19 13:54	10/29/19 01:51	500
Cobalt	25		0.071	0.032	mg/L		10/24/19 13:54	10/26/19 06:44	50
Copper	500		1.1	0.68	mg/L		10/24/19 13:54	10/29/19 01:51	500
Iron	2500		1.8	0.71	mg/L		10/24/19 13:54	10/26/19 06:44	50
Lead	4.2		0.11	0.036	mg/L		10/24/19 13:54	10/26/19 06:44	50
Magnesium	3800		18	7.1	mg/L		10/24/19 13:54	10/29/19 01:51	500
Manganese	190		0.14	0.054	mg/L		10/24/19 13:54	10/26/19 06:44	50
Molybdenum	8.4		0.18	0.071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Nickel	46		0.18	0.071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Potassium	1000		36	16	mg/L		10/24/19 13:54	10/29/19 01:51	500
Selenium	3.1		0.18	0.071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Silver	0.23		0.071	0.032	mg/L		10/24/19 13:54	10/26/19 06:44	50
Sodium	13000		36	18	mg/L		10/24/19 13:54	10/29/19 01:51	500
Thallium	0.055	J	0.071	0.032	mg/L		10/24/19 13:54	10/26/19 06:44	50
Uranium	38		0.036	0.014	mg/L		10/24/19 13:54	10/26/19 06:44	50
Vanadium	130		3.6	1.4	mg/L		10/24/19 13:54	10/29/19 01:51	500
Zinc	210		0.71	0.27	mg/L		10/24/19 13:54	10/26/19 06:44	50

Client Sample ID: C19081073-006C

Date Collected: 08/21/19 10:15

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	140		0.50	0.20	mg/L		10/24/19 13:54	10/26/19 06:51	50
Beryllium	0.64		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:51	50
Cadmium	2.0		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:51	50
Calcium	670		100	48	mg/L		10/24/19 13:54	10/29/19 01:58	500
Chromium	12		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 01:58	500
Cobalt	44		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:51	50
Copper	830		1.5	0.95	mg/L		10/24/19 13:54	10/29/19 01:58	500
Iron	5800		2.5	1.0	mg/L		10/24/19 13:54	10/26/19 06:51	50
Lead	16		0.15	0.050	mg/L		10/24/19 13:54	10/26/19 06:51	50
Magnesium	6500		25	10	mg/L		10/24/19 13:54	10/29/19 01:58	500
Manganese	320		0.20	0.075	mg/L		10/24/19 13:54	10/26/19 06:51	50
Molybdenum	29		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:51	50
Nickel	78		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:51	50
Potassium	1900		50	23	mg/L		10/24/19 13:54	10/29/19 01:58	500
Selenium	6.6		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:51	50
Silver	0.17		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:51	50
Sodium	18000		50	25	mg/L		10/24/19 13:54	10/29/19 01:58	500
Thallium	ND		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:51	50
Uranium	36		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:51	50
Vanadium	710		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 01:58	500
Zinc	280		1.0	0.38	mg/L		10/24/19 13:54	10/26/19 06:51	50

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-007C

Date Collected: 08/21/19 10:30

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	89		0.50	0.20	mg/L		10/24/19 13:54	10/26/19 06:58	50
Beryllium	0.47		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:58	50
Cadmium	2.0		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:58	50
Calcium	550		100	48	mg/L		10/24/19 13:54	10/29/19 02:05	500
Chromium	9.1		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 02:05	500
Cobalt	31		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:58	50
Copper	550		1.5	0.95	mg/L		10/24/19 13:54	10/29/19 02:05	500
Iron	4400		2.5	1.0	mg/L		10/24/19 13:54	10/26/19 06:58	50
Lead	7.8		0.15	0.050	mg/L		10/24/19 13:54	10/26/19 06:58	50
Magnesium	4800		25	10	mg/L		10/24/19 13:54	10/29/19 02:05	500
Manganese	240		0.20	0.075	mg/L		10/24/19 13:54	10/26/19 06:58	50
Molybdenum	27		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:58	50
Nickel	59		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:58	50
Potassium	1400		50	23	mg/L		10/24/19 13:54	10/29/19 02:05	500
Selenium	4.7		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:58	50
Silver	0.17		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:58	50
Sodium	13000		50	25	mg/L		10/24/19 13:54	10/29/19 02:05	500
Thallium	0.087	J	0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:58	50
Uranium	31		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:58	50
Vanadium	760		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 02:05	500
Zinc	280		1.0	0.38	mg/L		10/24/19 13:54	10/26/19 06:58	50

Client Sample ID: C19081073-008C

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-22

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	230		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 07:25	50
Beryllium	0.90		0.063	0.025	mg/L		10/24/19 13:54	10/26/19 07:25	50
Cadmium	4.8		0.063	0.025	mg/L		10/24/19 13:54	10/26/19 07:25	50
Calcium	620		25	12	mg/L		10/24/19 13:54	10/26/19 07:25	50
Chromium	12		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 07:25	50
Cobalt	60		0.25	0.11	mg/L		10/24/19 13:54	10/26/19 07:25	50
Copper	1500		3.8	2.4	mg/L		10/24/19 13:54	10/29/19 02:12	500
Iron	7800		6.3	2.5	mg/L		10/24/19 13:54	10/26/19 07:25	50
Lead	22		0.38	0.13	mg/L		10/24/19 13:54	10/26/19 07:25	50
Magnesium	7000		6.3	2.5	mg/L		10/24/19 13:54	10/26/19 07:25	50
Manganese	470		0.50	0.19	mg/L		10/24/19 13:54	10/26/19 07:25	50
Molybdenum	110		0.63	0.25	mg/L		10/24/19 13:54	10/26/19 07:25	50
Nickel	90		0.63	0.25	mg/L		10/24/19 13:54	10/26/19 07:25	50
Potassium	1900		13	5.6	mg/L		10/24/19 13:54	10/26/19 07:25	50
Selenium	7.9		0.63	0.25	mg/L		10/24/19 13:54	10/26/19 07:25	50
Silver	0.69		0.25	0.11	mg/L		10/24/19 13:54	10/26/19 07:25	50
Sodium	21000		13	6.3	mg/L		10/24/19 13:54	10/26/19 07:25	50
Thallium	0.13	J	0.25	0.11	mg/L		10/24/19 13:54	10/26/19 07:25	50
Uranium	77		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 07:25	50
Vanadium	1300		13	5.0	mg/L		10/24/19 13:54	10/29/19 02:12	500
Zinc	490		2.5	0.94	mg/L		10/24/19 13:54	10/26/19 07:25	50

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: M3-54865
Date Collected: 08/23/19 11:20
Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-25
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Beryllium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Cadmium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Calcium	0.22		0.20	0.096	mg/L		10/24/19 13:54	10/29/19 02:18	2
Chromium	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Cobalt	0.0011	J	0.0020	0.00090	mg/L		10/24/19 13:54	10/29/19 02:18	2
Copper	0.021		0.0030	0.0019	mg/L		10/24/19 13:54	10/29/19 02:18	2
Iron	0.12		0.050	0.020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Lead	ND		0.0030	0.0010	mg/L		10/24/19 13:54	10/29/19 02:18	2
Magnesium	0.18		0.050	0.020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Manganese	0.0084		0.0040	0.0015	mg/L		10/24/19 13:54	10/29/19 02:18	2
Molybdenum	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Nickel	0.0022	J	0.0050	0.0020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Potassium	0.048	J	0.10	0.045	mg/L		10/24/19 13:54	10/29/19 02:18	2
Selenium	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Silver	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/29/19 02:18	2
Sodium	0.62		0.10	0.050	mg/L		10/24/19 13:54	10/29/19 02:18	2
Thallium	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/29/19 02:18	2
Uranium	0.0015		0.0010	0.00040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Vanadium	0.0063	J	0.010	0.0040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Zinc	0.014	J	0.020	0.0075	mg/L		10/24/19 13:54	10/29/19 02:18	2

QC Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8

Lab Sample ID: MB 160-447588/1-A
Matrix: Water
Analysis Batch: 447983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447588

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Beryllium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Cadmium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Calcium	ND		0.20	0.096	mg/L		10/24/19 13:54	10/26/19 06:03	2
Chromium	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Cobalt	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/26/19 06:03	2
Copper	ND		0.0030	0.0019	mg/L		10/24/19 13:54	10/26/19 06:03	2
Iron	ND		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Lead	ND		0.0030	0.0010	mg/L		10/24/19 13:54	10/26/19 06:03	2
Magnesium	ND		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Manganese	ND		0.0040	0.0015	mg/L		10/24/19 13:54	10/26/19 06:03	2
Molybdenum	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Nickel	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Potassium	ND		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:03	2
Selenium	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Silver	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/26/19 06:03	2
Sodium	ND		0.10	0.050	mg/L		10/24/19 13:54	10/26/19 06:03	2
Thallium	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/26/19 06:03	2
Uranium	ND		0.0010	0.00040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Vanadium	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Zinc	ND		0.020	0.0075	mg/L		10/24/19 13:54	10/26/19 06:03	2

Lab Sample ID: LCS 160-447588/2-A
Matrix: Water
Analysis Batch: 447983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447588
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Beryllium	0.100	0.0965		mg/L		96	85 - 115
Cadmium	1.00	1.05		mg/L		105	85 - 115
Calcium	10.0	10.5		mg/L		105	85 - 115
Chromium	1.00	0.959		mg/L		96	85 - 115
Cobalt	1.00	1.00		mg/L		100	85 - 115
Copper	1.00	1.01		mg/L		101	85 - 115
Iron	10.0	9.81		mg/L		98	85 - 115
Lead	1.00	1.04		mg/L		104	85 - 115
Magnesium	10.0	9.86		mg/L		99	85 - 115
Manganese	1.00	1.04		mg/L		104	85 - 115
Molybdenum	0.500	0.531		mg/L		106	85 - 115
Nickel	1.00	0.974		mg/L		97	85 - 115
Potassium	10.0	9.60		mg/L		96	85 - 115
Selenium	0.500	0.468		mg/L		94	85 - 115
Silver	0.200	0.205		mg/L		102	85 - 115
Sodium	10.0	9.88		mg/L		99	85 - 115
Thallium	0.200	0.210		mg/L		105	85 - 115
Uranium	1.00	1.05		mg/L		105	85 - 115
Vanadium	1.00	0.969		mg/L		97	85 - 115
Zinc	1.00	0.948		mg/L		95	85 - 115

Eurofins TestAmerica, Denver

QC Association Summary

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

Job ID: 280-127755-2

Metals

Prep Batch: 447588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-1	C19081073-001C	Dissolved	Water	200.7/200.8	
280-127755-4	C19081073-002C	Dissolved	Water	200.7/200.8	
280-127755-7	C19081073-003C	Dissolved	Water	200.7/200.8	
280-127755-10	C19081073-004C	Dissolved	Water	200.7/200.8	
280-127755-13	C19081073-005C	Dissolved	Water	200.7/200.8	
280-127755-16	C19081073-006C	Dissolved	Water	200.7/200.8	
280-127755-19	C19081073-007C	Dissolved	Water	200.7/200.8	
280-127755-22	C19081073-008C	Dissolved	Water	200.7/200.8	
280-127755-25	M3-54865	Dissolved	Water	200.7/200.8	
MB 160-447588/1-A	Method Blank	Total/NA	Water	200.7/200.8	
LCS 160-447588/2-A	Lab Control Sample	Total/NA	Water	200.7/200.8	

Analysis Batch: 447983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-4	C19081073-002C	Dissolved	Water	200.8	447588
280-127755-7	C19081073-003C	Dissolved	Water	200.8	447588
280-127755-10	C19081073-004C	Dissolved	Water	200.8	447588
280-127755-13	C19081073-005C	Dissolved	Water	200.8	447588
280-127755-16	C19081073-006C	Dissolved	Water	200.8	447588
280-127755-19	C19081073-007C	Dissolved	Water	200.8	447588
280-127755-22	C19081073-008C	Dissolved	Water	200.8	447588
MB 160-447588/1-A	Method Blank	Total/NA	Water	200.8	447588
LCS 160-447588/2-A	Lab Control Sample	Total/NA	Water	200.8	447588

Analysis Batch: 448112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-1	C19081073-001C	Dissolved	Water	200.8	447588
280-127755-4	C19081073-002C	Dissolved	Water	200.8	447588
280-127755-7	C19081073-003C	Dissolved	Water	200.8	447588
280-127755-10	C19081073-004C	Dissolved	Water	200.8	447588
280-127755-13	C19081073-005C	Dissolved	Water	200.8	447588
280-127755-16	C19081073-006C	Dissolved	Water	200.8	447588
280-127755-19	C19081073-007C	Dissolved	Water	200.8	447588
280-127755-22	C19081073-008C	Dissolved	Water	200.8	447588
280-127755-25	M3-54865	Dissolved	Water	200.8	447588

Lab Chronicle

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

Job ID: 280-127755-2

Client Sample ID: C19081073-001C

Lab Sample ID: 280-127755-1

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			34 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:25	FLC	TAL SL

Client Sample ID: C19081073-002C

Lab Sample ID: 280-127755-4

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:24	FLC	TAL SL
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:31	FLC	TAL SL

Client Sample ID: C19081073-003C

Lab Sample ID: 280-127755-7

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:31	FLC	TAL SL
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:38	FLC	TAL SL

Client Sample ID: C19081073-004C

Lab Sample ID: 280-127755-10

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:37	FLC	TAL SL
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:45	FLC	TAL SL

Client Sample ID: C19081073-005C

Lab Sample ID: 280-127755-13

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			35 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:44	FLC	TAL SL
Dissolved	Prep	200.7/200.8			35 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:51	FLC	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

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

Job ID: 280-127755-2

Client Sample ID: C19081073-006C

Lab Sample ID: 280-127755-16

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:51	FLC	TAL SL
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:58	FLC	TAL SL

Client Sample ID: C19081073-007C

Lab Sample ID: 280-127755-19

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:58	FLC	TAL SL
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 02:05	FLC	TAL SL

Client Sample ID: C19081073-008C

Lab Sample ID: 280-127755-22

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			10 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 07:25	FLC	TAL SL
Dissolved	Prep	200.7/200.8			10 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 02:12	FLC	TAL SL

Client Sample ID: M3-54865

Lab Sample ID: 280-127755-25

Date Collected: 08/23/19 11:20

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		2			448112	10/29/19 02:18	FLC	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-127755-2

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	10-31-19
A2LA	ISO/IEC 17025	2907.01	10-31-19
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	01-08-20
Arizona	State	AZ0713	12-20-19
Arkansas DEQ	State	19-047-0	06-01-20
California	State	2513	01-08-20
Connecticut	State	PH-0686	09-30-20
Florida	NELAP	E87667-57	06-30-20
Georgia	State	4025-011	01-08-20
Georgia	State Program	N/A	01-08-20
Illinois	NELAP	2000172019-1	04-30-20
Iowa	State	IA#370	12-01-20
Kansas	NELAP	E-10166	04-30-20
Louisiana	NELAP	30785	06-30-20
Maine	State	2019011 (231)	03-03-21
Maine	State Program	CO0002	03-03-21
Minnesota	NELAP	1545373	12-31-19
Nevada	State	CO000262020-1	07-31-20
New Hampshire	NELAP	205310	04-28-20
New Hampshire	NELAP	205319	04-28-20
New Jersey	NELAP	190002	06-30-20
New York	NELAP	59923	04-01-20
North Carolina (WW/SW)	State	<cert No.>	12-31-19
North Carolina (WW/SW)	State Program	358	12-31-19
North Dakota	State	R-034	01-08-20
Oregon	NELAP	4025-011	01-08-20
Pennsylvania	NELAP	013	08-01-20
South Carolina	State	72002001	01-08-20
South Carolina	State Program	72002001	01-08-20
Texas	NELAP	T104704183-19-17	09-30-20
US Fish & Wildlife	Federal		07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal		03-26-21
USDA	US Federal Programs	P330-18-00099	03-26-21
Utah	NELAP	CO000262019-11	07-31-20
Virginia	NELAP	10490	06-14-20
Washington	State	C583-19	08-05-20
West Virginia DEP	State	354	11-30-19
West Virginia DEP	State Program	354	11-30-19
Wisconsin	State	999615430	08-31-20
Wyoming (UST)	A2LA	2907.01	10-31-19
Wyoming (UST)	A2LA	2907.01	10-31-21

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

Accreditation/Certification Summary

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

Job ID: 280-127755-2

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19
Iowa	State	373	09-17-20
Iowa	State Program	373	12-01-20
Kansas	NELAP	E-10236	10-31-19 *
Kentucky (DW)	State	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
Washington	State Program	C592	08-30-20
West Virginia DEP	State	381	10-31-19
West Virginia DEP	State Program	381	10-31-19 *

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

Energy Laboratories, Inc.

2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515



C19081073

PO: _____

CHAIN-OF-CUSTODY RECORD

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

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

Subcontractor's Client

		Requested Tests																		
		CVA-HG-245-W-D	PRP-HG-245-1	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THF-W														
<input type="checkbox"/>	C19081073-001C	Aqueous	08/21/19 08:35 A	1 - 250ML-P-F-HNO3	1	1														
<input type="checkbox"/>	C19081073-001D	Aqueous	08/21/19 08:35 A	2 - 1L-AG-NM-UP			1	1												
<input type="checkbox"/>	C19081073-001F	Aqueous	08/21/19 08:35 A	3 - 40ML-CG-VOA-HCL					1											
<input type="checkbox"/>	C19081073-002C	Aqueous	08/21/19 09:05 A	1 - 250ML-P-F-HNO3	1	1														
<input type="checkbox"/>	C19081073-002D	Aqueous	08/21/19 09:05 A	2 - 1L-AG-NM-UP			1	1												
<input type="checkbox"/>	C19081073-002F	Aqueous	08/21/19 09:05 A	3 - 40ML-CG-VOA-HCL					1											
<input type="checkbox"/>	C19081073-003C	Aqueous	08/21/19 09:20 A	1 - 250ML-P-F-HNO3	1	1														
<input type="checkbox"/>	C19081073-003D	Aqueous	08/21/19 09:20 A	2 - 1L-AG-NM-UP			1	1												
<input type="checkbox"/>	C19081073-003F	Aqueous	08/21/19 09:20 A	3 - 40ML-CG-VOA-HCL					1											

Comments:

QC Level:
11E(2)

Project 28019578



280-127755 Chain of Custody

Relinquished by: <i>Candace</i>	Date/Time: <i>8/23/19 8:48</i>	Received by: <i>[Signature]</i>	Date/Time: <i>8/28/19 08:45</i>
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/28/19 2:30</i>	Received by: <i>[Signature]</i>	Date/Time: <i>10:45</i>
Shipped By: <u>UPS</u>	Custody Seal: <input checked="" type="radio"/> Y <input type="radio"/> N	Intact: <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <u>25.7628 °C</u>
		Temp Blank: <input type="radio"/> Y <input checked="" type="radio"/> N	On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N

Energy Laboratories, Inc.

2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515

CHAIN-OF-CUSTODY RECORD

PO: _____

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

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	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THF-W												
<input type="checkbox"/>	C19081073-004C	Aqueous	08/21/19 09:40 A	1 - 250ML-P-F-HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-004D	Aqueous	08/21/19 09:40 A	2 - 1L-AG-NM-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-004F	Aqueous	08/21/19 09:40 A	3 - 40ML-CG-VOA-HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-005C	Aqueous	08/21/19 09:45 A	1 - 250ML-P-F-HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-005D	Aqueous	08/21/19 09:45 A	2 - 1L-AG-NM-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-005F	Aqueous	08/21/19 09:45 A	3 - 40ML-CG-VOA-HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-006C	Aqueous	08/21/19 10:15 A	1 - 250ML-P-F-HNO3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-006D	Aqueous	08/21/19 10:15 A	2 - 1L-AG-NM-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	C19081073-006F	Aqueous	08/21/19 10:15 A	3 - 40ML-CG-VOA-HCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 20 of 25

Comments:

QC Level:

11E(2)

Project 28019578

Relinquished by: <i>Casidy Dimpersack 8/23/19, 848</i>	Date/Time: <i>8/23/19, 848</i>	Received by: <i>[Signature]</i>	Date/Time: <i>8/28/19 1045</i>
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/28/19 2:30</i>	Received by: _____	Date/Time: _____
Shipped By: <i>UPS</i>	Custody Seal: <input checked="" type="radio"/> Y <input type="radio"/> N	Intact: <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <i>25.7, 26.2, 28.8 °C</i>
		Temp Blank: <input type="radio"/> Y <input checked="" type="radio"/> N	On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N

Page 120 of 172

Energy Laboratories, Inc.

2393 Salt Creek Hwy
 Casper, WY 82601-9601
 307.235.0515

CHAIN-OF-CUSTODY RECORD

PO: _____

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

Subcontractor:

Test America
 4955 Yarrow St
 Arvada, CO 80002
 TEL: 3037360100
 FAX:
 Acct #: 3037360100

Subcontractor's Client

Requested Tests															
CVA-HG-245-W-D	PRP-HG-245-1	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THF-W											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C19081073-007C	Aqueous	08/21/19 10:30 A	1 - 250ML-P-F-HNO3
C19081073-007D	Aqueous	08/21/19 10:30 A	2 - 1L-AG-NM-UP
C19081073-007F	Aqueous	08/21/19 10:30 A	3 - 40ML-CG-VOA-HCL
C19081073-008C	Aqueous	08/21/19 08:35 A	1 - 250ML-P-F-HNO3
C19081073-008D	Aqueous	08/21/19 08:35 A	2 - 1L-AG-NM-UP
C19081073-008F	Aqueous	08/21/19 08:35 A	3 - 40ML-CG-VOA-HCL

Comments:

QC Level:
 11E(2)

Project 28019578

Relinquished by: <i>Cassidy</i>	Date/Time: <i>8/23/19 8:48</i>	Received by: <i>[Signature]</i>	Date/Time: <i>8/28/19 10:45</i>
Relinquished by: <i>[Signature]</i>	Date/Time: <i>8/29/19 2:30</i>	Received by: _____	_____

Shipped By: <i>UPS</i>	Custody Seal: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Receipt Temp: <i>2.5, 7.6, 28</i> °C	Temp Blank: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	On Ice: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
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Energy Laboratories Inc Workorder Summary



C19081073

Energy Fuels Resources (USA) Inc

Samp	Client Sample ID	Collection	Date Due	Matrix	Frac	RT	Done	Test Code	Hold	MS	SEL	Storage
T	Analyte								MDL	PQL	MCL	Units
				C	<input type="checkbox"/>	<input type="checkbox"/>	200.7.8-W-D		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	LG-2-000
A	Arsenic								0.0001	0.001	0	ug/L
A	Beryllium								0.0001	0.001	0	ug/L
A	Cadmium								0.00005	0.001	0	ug/L
A	Calcium								0.03	1	0	
A	Chromium								0.0005	0.005	0	ug/L
A	Cobalt								0.00005	0.005	0	ug/L
A	Copper								0.0001	0.005	0	ug/L
A	Iron								0.001	0.02	0	ug/L
A	Lead								0.00005	0.001	0	ug/L
A	Magnesium								0.05	1	0	
A	Manganese								0.00005	0.001	0	ug/L
A	Molybdenum								0.00005	0.001	0	ug/L
A	Nickel								0.0001	0.005	0	ug/L
A	Potassium								0.0001	1	0	
A	Selenium								0.05	0.001	0	ug/L
A	Silver								0.4	0.001	0	ug/L
A	Sodium								0.0001	1	0	
A	Thallium								0.0005	0.0005	0	ug/L
A	Tin								0.0004	0.05	0	ug/L
A	Uranium								0.00002	0.0003	0	ug/L
A	Vanadium								0.0005	0.01	0	ug/L
A	Zinc								0.001	0.01	0	ug/L

Eurofins TestAmerica, Denver

4955 Yarrow Street
 Arvada, CO 80002
 Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing
 TestAmerica

Client Information (Sub Contract Lab)				Sampler:		Lab PM: Vania, Ivan H		Carrier Tracking No(s):		COC No: 280-502172.1			
Client Contact: Shipping/Receiving				Phone:		E-Mail: ivan.vania@testamericainc.com		State of Origin: Wyoming		Page: Page 1 of 1			
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note):						Job #: 280-127755-2			
Address: 13715 Rider Trail North, City: Earth City State, Zip: MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:				Due Date Requested: 10/28/2019		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:	
Project Name: 11(e) Byproduct Material				TAT Requested (days):									
Site:				PO #:		Field Filtered Sample (Yes or No)		Performance/MSD (Yes or No)		Total Number of containers			
Project #: 28019578				WO #:		200.8/FIELD_FLTRD (MOD) 200.8 DISSOLVED							
SSOW#:													
Sample Identification - Client ID (Lab ID)			Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, Orwaste/oil, BT=Trace, A=Air)	Field Filtered Sample (Yes or No)	Performance/MSD (Yes or No)	Special Instructions/Note:				
									Preservation Code:				
C19081073-001C (280-127755-1)			8/21/19	08:35 Mountain	Water	Water	X				1		
C19081073-002C (280-127755-4)			8/21/19	09:05 Mountain	Water	Water	X				1		
C19081073-003C (280-127755-7)			8/21/19	09:20 Mountain	Water	Water	X				1		
C19081073-004C (280-127755-10)			8/21/19	09:40 Mountain	Water	Water	X				1		
C19081073-005C (280-127755-13)			8/21/19	09:45 Mountain	Water	Water	X				1		
C19081073-006C (280-127755-16)			8/21/19	10:15 Mountain	Water	Water	X				1		
C19081073-007C (280-127755-19)			8/21/19	10:30 Mountain	Water	Water	X				1		
C19081073-008C (280-127755-22)			8/21/19	08:35 Mountain	Water	Water	X				1		
M3-54865 (280-127755-25)			8/23/19	11:20 Mountain	Water	Water	X				1		
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.</p>													
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Level 1 radioactive						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:							
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:					
Relinquished by:				Date/Time: 10/16/19 1420		Company: TADEN		Received by:		Date/Time: 10/17/19 08:55			
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:				Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:							

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Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-127755-2

Login Number: 127755

List Source: Eurofins TestAmerica, Denver

List Number: 1

Creator: Petunin, Peter

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	True	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
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.	False	Refer to Job Narrative for details.
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.	True	
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-127755-2

Login Number: 127755
List Number: 2
Creator: McKinney, Gerrod E

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/21/19 01:47 PM

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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
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?	N/A	
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.	True	
Sample Preservation Verified.	True	
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.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

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

Laboratory Job ID: 280-127755-2
Client Project/Site: 11(e) Byproduct Material
Revision: 1

For:
Energy Laboratories, Inc.
2393 North Salt Creek Highway
PO BOX 247
Casper, Wyoming 82601

Attn: Ms. Tessa Parke



Authorized for release by:
11/25/2019 1:08:03 PM

Ivan Vania, Project Manager II
(314)298-8566
ivan.vania@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 280-127755-2

Qualifiers

Metals

Qualifier

Qualifier Description

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.

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Case Narrative

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

Job ID: 280-127755-2

Job ID: 280-127755-2

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Energy Laboratories, Inc.

Project: 11(e) Byproduct Material

Report Number: 280-127755-2 - Revision 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.

This revision adds results for Sn.

RECEIPT

The samples were received on 8/28/2019 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.5° C, 2.8° C and 7.6° C.

Receipt Exceptions

The following sample was received by the laboratory; however, it was not listed on the Chain-of-Custody (COC): M3-54865 (280-127755-25). The sample was logged per the information stated on the sample container.

The following samples were received at the laboratory outside the required temperature criteria: C19081073-005D (280-127755-14), C19081073-006D (280-127755-17), C19081073-007D (280-127755-20), and C19081073-008D (280-127755-23).

DISSOLVED METALS (ICP/MS)

Samples C19081073-001C (280-127755-1), C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), C19081073-008C (280-127755-22) and M3-54865 (280-127755-25) were analyzed for Dissolved Metals (ICP/MS) in accordance with 200.8. The samples were prepared on 10/24/2019 and analyzed on 10/26/2019 and 10/29/2019.

Preparation Batch 160-447588, Analytical Batch 160-447983:

The serial dilution was outside control limits for Calcium indicating a potential matrix interference. : (240-119832-R-1-C SD)

The MS/MSD/serial dilution was analyzed on a different job within the preparation batch. The sample chosen for batch QC had a different analyte list and QC requirements. As a result, the MS/MSD/serial dilution for Arsenic, Cobalt, Copper, Iron, Manganese, Molybdenum, Nickel, Selenium, and Zinc was not applied to this job. Method performance is demonstrated by acceptable LCS recovery: (240-119832-R-1-D MS), (240-119832-R-1-E MSD), and (240-119832-R-1-C SD).

The following samples were diluted to bring the concentration of target analytes within the calibration range. Elevated reporting limits (RLs) are provided: C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), and C19081073-008C (280-127755-22).

Case Narrative

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

Job ID: 280-127755-2

Job ID: 280-127755-2 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

Preparation Batch 160-447588, Analytical Batch 160-448112:

Due to insufficient sample volume a dilution was performed for the following samples: C19081073-001C (280-127755-1), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), and C19081073-008C (280-127755-22).

The following samples were diluted to bring the concentration of target analytes within the calibration range. In addition, the samples caused internal standard failure when analyzed at a lesser dilution. Elevated reporting limits (RLs) are provided: C19081073-001C (280-127755-1), C19081073-002C (280-127755-4), C19081073-003C (280-127755-7), C19081073-004C (280-127755-10), C19081073-005C (280-127755-13), C19081073-006C (280-127755-16), C19081073-007C (280-127755-19), and C19081073-008C (280-127755-22).

No additional 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: 280-127755-2

Client Sample ID: C19081073-001C

Lab Sample ID: 280-127755-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	120		1.8	0.74	mg/L	500	200.8		Dissolved
Uranium	81		0.37	0.15	mg/L	500	200.8		Dissolved
Arsenic	270		3.7	1.5	mg/L	500	200.8		Dissolved
Beryllium	0.93		0.18	0.074	mg/L	500	200.8		Dissolved
Cadmium	5.4		0.18	0.074	mg/L	500	200.8		Dissolved
Calcium	720		74	35	mg/L	500	200.8		Dissolved
Chromium	15		3.7	1.5	mg/L	500	200.8		Dissolved
Cobalt	66		0.74	0.33	mg/L	500	200.8		Dissolved
Copper	1700		1.1	0.70	mg/L	500	200.8		Dissolved
Iron	9100		18	7.4	mg/L	500	200.8		Dissolved
Lead	22		1.1	0.37	mg/L	500	200.8		Dissolved
Magnesium	9200		18	7.4	mg/L	500	200.8		Dissolved
Manganese	540		1.5	0.55	mg/L	500	200.8		Dissolved
Nickel	110		1.8	0.74	mg/L	500	200.8		Dissolved
Potassium	2600		37	17	mg/L	500	200.8		Dissolved
Sodium	28000		37	18	mg/L	500	200.8		Dissolved
Selenium	10		1.8	0.74	mg/L	500	200.8		Dissolved
Silver	0.79		0.74	0.33	mg/L	500	200.8		Dissolved
Vanadium	1400		3.7	1.5	mg/L	500	200.8		Dissolved
Zinc	550		7.4	2.8	mg/L	500	200.8		Dissolved
Tin	0.54	J	0.74	0.44	mg/L	500	200.8		Dissolved

Client Sample ID: C19081073-002C

Lab Sample ID: 280-127755-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	3.2		0.13	0.050	mg/L	50	200.8		Dissolved
Uranium	29		0.025	0.010	mg/L	50	200.8		Dissolved
Arsenic	23		0.25	0.10	mg/L	50	200.8		Dissolved
Beryllium	0.28		0.013	0.0050	mg/L	50	200.8		Dissolved
Cadmium	6.5		0.013	0.0050	mg/L	50	200.8		Dissolved
Calcium	480		5.0	2.4	mg/L	50	200.8		Dissolved
Chromium	2.1		0.25	0.10	mg/L	50	200.8		Dissolved
Cobalt	54		0.050	0.023	mg/L	50	200.8		Dissolved
Copper	160		0.75	0.48	mg/L	500	200.8		Dissolved
Iron	3600		1.3	0.50	mg/L	50	200.8		Dissolved
Lead	0.59		0.075	0.025	mg/L	50	200.8		Dissolved
Magnesium	3700		1.3	0.50	mg/L	50	200.8		Dissolved
Manganese	170		0.10	0.038	mg/L	50	200.8		Dissolved
Nickel	140		1.3	0.50	mg/L	500	200.8		Dissolved
Potassium	710		2.5	1.1	mg/L	50	200.8		Dissolved
Sodium	4600		2.5	1.3	mg/L	50	200.8		Dissolved
Selenium	1.3		0.13	0.050	mg/L	50	200.8		Dissolved
Thallium	0.39		0.050	0.023	mg/L	50	200.8		Dissolved
Vanadium	500		2.5	1.0	mg/L	500	200.8		Dissolved
Zinc	850		5.0	1.9	mg/L	500	200.8		Dissolved

Client Sample ID: C19081073-003C

Lab Sample ID: 280-127755-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.55		0.13	0.050	mg/L	50	200.8		Dissolved
Uranium	19		0.025	0.010	mg/L	50	200.8		Dissolved
Arsenic	0.38		0.25	0.10	mg/L	50	200.8		Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

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

Job ID: 280-127755-2

Client Sample ID: C19081073-003C (Continued)

Lab Sample ID: 280-127755-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Beryllium	0.35		0.13	0.050	mg/L	500	200.8		Dissolved
Cadmium	7.4		0.013	0.0050	mg/L	50	200.8		Dissolved
Calcium	510		5.0	2.4	mg/L	50	200.8		Dissolved
Chromium	0.23	J	0.25	0.10	mg/L	50	200.8		Dissolved
Cobalt	64		0.050	0.023	mg/L	50	200.8		Dissolved
Copper	35		0.075	0.048	mg/L	50	200.8		Dissolved
Iron	2500		1.3	0.50	mg/L	50	200.8		Dissolved
Magnesium	10000		13	5.0	mg/L	500	200.8		Dissolved
Manganese	1000		1.0	0.38	mg/L	500	200.8		Dissolved
Nickel	150		1.3	0.50	mg/L	500	200.8		Dissolved
Potassium	630		2.5	1.1	mg/L	50	200.8		Dissolved
Sodium	14000		25	13	mg/L	500	200.8		Dissolved
Selenium	2.9		0.13	0.050	mg/L	50	200.8		Dissolved
Silver	0.11		0.050	0.023	mg/L	50	200.8		Dissolved
Thallium	0.17		0.050	0.023	mg/L	50	200.8		Dissolved
Vanadium	54		0.25	0.10	mg/L	50	200.8		Dissolved
Zinc	950		5.0	1.9	mg/L	500	200.8		Dissolved

Client Sample ID: C19081073-004C

Lab Sample ID: 280-127755-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	19		0.13	0.050	mg/L	50	200.8		Dissolved
Uranium	35		0.025	0.010	mg/L	50	200.8		Dissolved
Arsenic	63		0.25	0.10	mg/L	50	200.8		Dissolved
Beryllium	0.42		0.013	0.0050	mg/L	50	200.8		Dissolved
Cadmium	2.5		0.013	0.0050	mg/L	50	200.8		Dissolved
Calcium	510		50	24	mg/L	500	200.8		Dissolved
Chromium	7.2		2.5	1.0	mg/L	500	200.8		Dissolved
Cobalt	28		0.050	0.023	mg/L	50	200.8		Dissolved
Copper	580		0.75	0.48	mg/L	500	200.8		Dissolved
Iron	3200		1.3	0.50	mg/L	50	200.8		Dissolved
Lead	9.0		0.075	0.025	mg/L	50	200.8		Dissolved
Magnesium	4100		13	5.0	mg/L	500	200.8		Dissolved
Manganese	210		0.10	0.038	mg/L	50	200.8		Dissolved
Nickel	50		0.13	0.050	mg/L	50	200.8		Dissolved
Potassium	1200		25	11	mg/L	500	200.8		Dissolved
Sodium	15000		25	13	mg/L	500	200.8		Dissolved
Selenium	3.7		0.13	0.050	mg/L	50	200.8		Dissolved
Silver	0.31		0.050	0.023	mg/L	50	200.8		Dissolved
Thallium	0.090		0.050	0.023	mg/L	50	200.8		Dissolved
Vanadium	150		2.5	1.0	mg/L	500	200.8		Dissolved
Zinc	280		5.0	1.9	mg/L	500	200.8		Dissolved
Tin	0.077		0.050	0.030	mg/L	50	200.8		Dissolved

Client Sample ID: C19081073-005C

Lab Sample ID: 280-127755-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	8.4		0.18	0.071	mg/L	50	200.8		Dissolved
Uranium	38		0.036	0.014	mg/L	50	200.8		Dissolved
Arsenic	52		0.36	0.14	mg/L	50	200.8		Dissolved
Beryllium	0.37		0.018	0.0071	mg/L	50	200.8		Dissolved
Cadmium	1.9		0.018	0.0071	mg/L	50	200.8		Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

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

Job ID: 280-127755-2

Client Sample ID: C19081073-005C (Continued)

Lab Sample ID: 280-127755-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	520		71	34	mg/L	500	200.8		Dissolved
Chromium	6.5		3.6	1.4	mg/L	500	200.8		Dissolved
Cobalt	25		0.071	0.032	mg/L	50	200.8		Dissolved
Copper	500		1.1	0.68	mg/L	500	200.8		Dissolved
Iron	2500		1.8	0.71	mg/L	50	200.8		Dissolved
Lead	4.2		0.11	0.036	mg/L	50	200.8		Dissolved
Magnesium	3800		18	7.1	mg/L	500	200.8		Dissolved
Manganese	190		0.14	0.054	mg/L	50	200.8		Dissolved
Nickel	46		0.18	0.071	mg/L	50	200.8		Dissolved
Potassium	1000		36	16	mg/L	500	200.8		Dissolved
Sodium	13000		36	18	mg/L	500	200.8		Dissolved
Selenium	3.1		0.18	0.071	mg/L	50	200.8		Dissolved
Silver	0.23		0.071	0.032	mg/L	50	200.8		Dissolved
Thallium	0.055	J	0.071	0.032	mg/L	50	200.8		Dissolved
Vanadium	130		3.6	1.4	mg/L	500	200.8		Dissolved
Zinc	210		0.71	0.27	mg/L	50	200.8		Dissolved

Client Sample ID: C19081073-006C

Lab Sample ID: 280-127755-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	29		0.25	0.10	mg/L	50	200.8		Dissolved
Uranium	36		0.050	0.020	mg/L	50	200.8		Dissolved
Arsenic	140		0.50	0.20	mg/L	50	200.8		Dissolved
Beryllium	0.64		0.025	0.010	mg/L	50	200.8		Dissolved
Cadmium	2.0		0.025	0.010	mg/L	50	200.8		Dissolved
Calcium	670		100	48	mg/L	500	200.8		Dissolved
Chromium	12		5.0	2.0	mg/L	500	200.8		Dissolved
Cobalt	44		0.10	0.045	mg/L	50	200.8		Dissolved
Copper	830		1.5	0.95	mg/L	500	200.8		Dissolved
Iron	5800		2.5	1.0	mg/L	50	200.8		Dissolved
Lead	16		0.15	0.050	mg/L	50	200.8		Dissolved
Magnesium	6500		25	10	mg/L	500	200.8		Dissolved
Manganese	320		0.20	0.075	mg/L	50	200.8		Dissolved
Nickel	78		0.25	0.10	mg/L	50	200.8		Dissolved
Potassium	1900		50	23	mg/L	500	200.8		Dissolved
Sodium	18000		50	25	mg/L	500	200.8		Dissolved
Selenium	6.6		0.25	0.10	mg/L	50	200.8		Dissolved
Silver	0.17		0.10	0.045	mg/L	50	200.8		Dissolved
Vanadium	710		5.0	2.0	mg/L	500	200.8		Dissolved
Zinc	280		1.0	0.38	mg/L	50	200.8		Dissolved
Tin	0.34		0.10	0.060	mg/L	50	200.8		Dissolved

Client Sample ID: C19081073-007C

Lab Sample ID: 280-127755-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	27		0.25	0.10	mg/L	50	200.8		Dissolved
Uranium	31		0.050	0.020	mg/L	50	200.8		Dissolved
Arsenic	89		0.50	0.20	mg/L	50	200.8		Dissolved
Beryllium	0.47		0.025	0.010	mg/L	50	200.8		Dissolved
Cadmium	2.0		0.025	0.010	mg/L	50	200.8		Dissolved
Calcium	550		100	48	mg/L	500	200.8		Dissolved
Chromium	9.1		5.0	2.0	mg/L	500	200.8		Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

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

Job ID: 280-127755-2

Client Sample ID: C19081073-007C (Continued)

Lab Sample ID: 280-127755-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	31		0.10	0.045	mg/L	50		200.8	Dissolved
Copper	550		1.5	0.95	mg/L	500		200.8	Dissolved
Iron	4400		2.5	1.0	mg/L	50		200.8	Dissolved
Lead	7.8		0.15	0.050	mg/L	50		200.8	Dissolved
Magnesium	4800		25	10	mg/L	500		200.8	Dissolved
Manganese	240		0.20	0.075	mg/L	50		200.8	Dissolved
Nickel	59		0.25	0.10	mg/L	50		200.8	Dissolved
Potassium	1400		50	23	mg/L	500		200.8	Dissolved
Sodium	13000		50	25	mg/L	500		200.8	Dissolved
Selenium	4.7		0.25	0.10	mg/L	50		200.8	Dissolved
Silver	0.17		0.10	0.045	mg/L	50		200.8	Dissolved
Thallium	0.087	J	0.10	0.045	mg/L	50		200.8	Dissolved
Vanadium	760		5.0	2.0	mg/L	500		200.8	Dissolved
Zinc	280		1.0	0.38	mg/L	50		200.8	Dissolved
Tin	0.20		0.10	0.060	mg/L	50		200.8	Dissolved

Client Sample ID: C19081073-008C

Lab Sample ID: 280-127755-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	110		0.63	0.25	mg/L	50		200.8	Dissolved
Uranium	77		0.13	0.050	mg/L	50		200.8	Dissolved
Arsenic	230		1.3	0.50	mg/L	50		200.8	Dissolved
Beryllium	0.90		0.063	0.025	mg/L	50		200.8	Dissolved
Cadmium	4.8		0.063	0.025	mg/L	50		200.8	Dissolved
Calcium	620		25	12	mg/L	50		200.8	Dissolved
Chromium	12		1.3	0.50	mg/L	50		200.8	Dissolved
Cobalt	60		0.25	0.11	mg/L	50		200.8	Dissolved
Copper	1500		3.8	2.4	mg/L	500		200.8	Dissolved
Iron	7800		6.3	2.5	mg/L	50		200.8	Dissolved
Lead	22		0.38	0.13	mg/L	50		200.8	Dissolved
Magnesium	7000		6.3	2.5	mg/L	50		200.8	Dissolved
Manganese	470		0.50	0.19	mg/L	50		200.8	Dissolved
Nickel	90		0.63	0.25	mg/L	50		200.8	Dissolved
Potassium	1900		13	5.6	mg/L	50		200.8	Dissolved
Sodium	21000		13	6.3	mg/L	50		200.8	Dissolved
Selenium	7.9		0.63	0.25	mg/L	50		200.8	Dissolved
Silver	0.69		0.25	0.11	mg/L	50		200.8	Dissolved
Thallium	0.13	J	0.25	0.11	mg/L	50		200.8	Dissolved
Vanadium	1300		13	5.0	mg/L	500		200.8	Dissolved
Zinc	490		2.5	0.94	mg/L	50		200.8	Dissolved
Tin	0.46		0.25	0.15	mg/L	50		200.8	Dissolved

Client Sample ID: M3-54865

Lab Sample ID: 280-127755-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Uranium	0.0015		0.0010	0.00040	mg/L	2		200.8	Dissolved
Calcium	0.22		0.20	0.096	mg/L	2		200.8	Dissolved
Cobalt	0.0011	J	0.0020	0.00090	mg/L	2		200.8	Dissolved
Copper	0.021		0.0030	0.0019	mg/L	2		200.8	Dissolved
Iron	0.12		0.050	0.020	mg/L	2		200.8	Dissolved
Magnesium	0.18		0.050	0.020	mg/L	2		200.8	Dissolved
Manganese	0.0084		0.0040	0.0015	mg/L	2		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Detection Summary

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

Job ID: 280-127755-2

Client Sample ID: M3-54865 (Continued)

Lab Sample ID: 280-127755-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Nickel	0.0022	J	0.0050	0.0020	mg/L	2			200.8	Dissolved
Potassium	0.048	J	0.10	0.045	mg/L	2			200.8	Dissolved
Sodium	0.62		0.10	0.050	mg/L	2			200.8	Dissolved
Vanadium	0.0063	J	0.010	0.0040	mg/L	2			200.8	Dissolved
Zinc	0.014	J	0.020	0.0075	mg/L	2			200.8	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: 280-127755-2

Method	Method Description	Protocol	Laboratory
200.8	ICPMS Dissolved Metals by 200.8	EPA	TAL SL
200.7/200.8	Preparation, Metals	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

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

Job ID: 280-127755-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-127755-1	C19081073-001C	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-4	C19081073-002C	Water	08/21/19 09:05	08/28/19 10:45	
280-127755-7	C19081073-003C	Water	08/21/19 09:20	08/28/19 10:45	
280-127755-10	C19081073-004C	Water	08/21/19 09:40	08/28/19 10:45	
280-127755-13	C19081073-005C	Water	08/21/19 09:45	08/28/19 10:45	
280-127755-16	C19081073-006C	Water	08/21/19 10:15	08/28/19 10:45	
280-127755-19	C19081073-007C	Water	08/21/19 10:30	08/28/19 10:45	
280-127755-22	C19081073-008C	Water	08/21/19 08:35	08/28/19 10:45	
280-127755-25	M3-54865	Water	08/23/19 11:20	08/28/19 10:45	

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-001C

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	120		1.8	0.74	mg/L		10/24/19 13:54	10/29/19 01:25	500
Uranium	81		0.37	0.15	mg/L		10/24/19 13:54	10/29/19 01:25	500
Arsenic	270		3.7	1.5	mg/L		10/24/19 13:54	10/29/19 01:25	500
Beryllium	0.93		0.18	0.074	mg/L		10/24/19 13:54	10/29/19 01:25	500
Cadmium	5.4		0.18	0.074	mg/L		10/24/19 13:54	10/29/19 01:25	500
Calcium	720		74	35	mg/L		10/24/19 13:54	10/29/19 01:25	500
Chromium	15		3.7	1.5	mg/L		10/24/19 13:54	10/29/19 01:25	500
Cobalt	66		0.74	0.33	mg/L		10/24/19 13:54	10/29/19 01:25	500
Copper	1700		1.1	0.70	mg/L		10/24/19 13:54	10/29/19 01:25	500
Iron	9100		18	7.4	mg/L		10/24/19 13:54	10/29/19 01:25	500
Lead	22		1.1	0.37	mg/L		10/24/19 13:54	10/29/19 01:25	500
Magnesium	9200		18	7.4	mg/L		10/24/19 13:54	10/29/19 01:25	500
Manganese	540		1.5	0.55	mg/L		10/24/19 13:54	10/29/19 01:25	500
Nickel	110		1.8	0.74	mg/L		10/24/19 13:54	10/29/19 01:25	500
Potassium	2600		37	17	mg/L		10/24/19 13:54	10/29/19 01:25	500
Sodium	28000		37	18	mg/L		10/24/19 13:54	10/29/19 01:25	500
Selenium	10		1.8	0.74	mg/L		10/24/19 13:54	10/29/19 01:25	500
Silver	0.79		0.74	0.33	mg/L		10/24/19 13:54	10/29/19 01:25	500
Thallium	ND		0.74	0.33	mg/L		10/24/19 13:54	10/29/19 01:25	500
Vanadium	1400		3.7	1.5	mg/L		10/24/19 13:54	10/29/19 01:25	500
Zinc	550		7.4	2.8	mg/L		10/24/19 13:54	10/29/19 01:25	500
Tin	0.54	J	0.74	0.44	mg/L		10/24/19 13:54	10/29/19 01:25	500

Client Sample ID: C19081073-002C

Date Collected: 08/21/19 09:05

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	3.2		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Uranium	29		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:24	50
Arsenic	23		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:24	50
Beryllium	0.28		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Cadmium	6.5		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Calcium	480		5.0	2.4	mg/L		10/24/19 13:54	10/26/19 06:24	50
Chromium	2.1		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:24	50
Cobalt	54		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:24	50
Copper	160		0.75	0.48	mg/L		10/24/19 13:54	10/29/19 01:31	500
Iron	3600		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:24	50
Lead	0.59		0.075	0.025	mg/L		10/24/19 13:54	10/26/19 06:24	50
Magnesium	3700		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:24	50
Manganese	170		0.10	0.038	mg/L		10/24/19 13:54	10/26/19 06:24	50
Nickel	140		1.3	0.50	mg/L		10/24/19 13:54	10/29/19 01:31	500
Potassium	710		2.5	1.1	mg/L		10/24/19 13:54	10/26/19 06:24	50
Sodium	4600		2.5	1.3	mg/L		10/24/19 13:54	10/26/19 06:24	50
Selenium	1.3		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:24	50
Silver	ND		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:24	50
Thallium	0.39		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:24	50
Vanadium	500		2.5	1.0	mg/L		10/24/19 13:54	10/29/19 01:31	500
Zinc	850		5.0	1.9	mg/L		10/24/19 13:54	10/29/19 01:31	500
Tin	ND		0.050	0.030	mg/L		10/24/19 13:54	10/26/19 06:24	50

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-003C

Date Collected: 08/21/19 09:20

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.55		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:31	50
Uranium	19		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:31	50
Arsenic	0.38		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:31	50
Beryllium	0.35		0.13	0.050	mg/L		10/24/19 13:54	10/29/19 01:38	500
Cadmium	7.4		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:31	50
Calcium	510		5.0	2.4	mg/L		10/24/19 13:54	10/26/19 06:31	50
Chromium	0.23	J	0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:31	50
Cobalt	64		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:31	50
Copper	35		0.075	0.048	mg/L		10/24/19 13:54	10/26/19 06:31	50
Iron	2500		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:31	50
Lead	ND		0.075	0.025	mg/L		10/24/19 13:54	10/26/19 06:31	50
Magnesium	10000		13	5.0	mg/L		10/24/19 13:54	10/29/19 01:38	500
Manganese	1000		1.0	0.38	mg/L		10/24/19 13:54	10/29/19 01:38	500
Nickel	150		1.3	0.50	mg/L		10/24/19 13:54	10/29/19 01:38	500
Potassium	630		2.5	1.1	mg/L		10/24/19 13:54	10/26/19 06:31	50
Sodium	14000		25	13	mg/L		10/24/19 13:54	10/29/19 01:38	500
Selenium	2.9		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:31	50
Silver	0.11		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:31	50
Thallium	0.17		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:31	50
Vanadium	54		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:31	50
Zinc	950		5.0	1.9	mg/L		10/24/19 13:54	10/29/19 01:38	500
Tin	ND		0.050	0.030	mg/L		10/24/19 13:54	10/26/19 06:31	50

Client Sample ID: C19081073-004C

Date Collected: 08/21/19 09:40

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-10

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	19		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Uranium	35		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:37	50
Arsenic	63		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:37	50
Beryllium	0.42		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Cadmium	2.5		0.013	0.0050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Calcium	510		50	24	mg/L		10/24/19 13:54	10/29/19 01:45	500
Chromium	7.2		2.5	1.0	mg/L		10/24/19 13:54	10/29/19 01:45	500
Cobalt	28		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:37	50
Copper	580		0.75	0.48	mg/L		10/24/19 13:54	10/29/19 01:45	500
Iron	3200		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 06:37	50
Lead	9.0		0.075	0.025	mg/L		10/24/19 13:54	10/26/19 06:37	50
Magnesium	4100		13	5.0	mg/L		10/24/19 13:54	10/29/19 01:45	500
Manganese	210		0.10	0.038	mg/L		10/24/19 13:54	10/26/19 06:37	50
Nickel	50		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Potassium	1200		25	11	mg/L		10/24/19 13:54	10/29/19 01:45	500
Sodium	15000		25	13	mg/L		10/24/19 13:54	10/29/19 01:45	500
Selenium	3.7		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 06:37	50
Silver	0.31		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:37	50
Thallium	0.090		0.050	0.023	mg/L		10/24/19 13:54	10/26/19 06:37	50
Vanadium	150		2.5	1.0	mg/L		10/24/19 13:54	10/29/19 01:45	500
Zinc	280		5.0	1.9	mg/L		10/24/19 13:54	10/29/19 01:45	500
Tin	0.077		0.050	0.030	mg/L		10/24/19 13:54	10/26/19 06:37	50

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-005C

Date Collected: 08/21/19 09:45

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-13

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	8.4		0.18	0.071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Uranium	38		0.036	0.014	mg/L		10/24/19 13:54	10/26/19 06:44	50
Arsenic	52		0.36	0.14	mg/L		10/24/19 13:54	10/26/19 06:44	50
Beryllium	0.37		0.018	0.0071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Cadmium	1.9		0.018	0.0071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Calcium	520		71	34	mg/L		10/24/19 13:54	10/29/19 01:51	500
Chromium	6.5		3.6	1.4	mg/L		10/24/19 13:54	10/29/19 01:51	500
Cobalt	25		0.071	0.032	mg/L		10/24/19 13:54	10/26/19 06:44	50
Copper	500		1.1	0.68	mg/L		10/24/19 13:54	10/29/19 01:51	500
Iron	2500		1.8	0.71	mg/L		10/24/19 13:54	10/26/19 06:44	50
Lead	4.2		0.11	0.036	mg/L		10/24/19 13:54	10/26/19 06:44	50
Magnesium	3800		18	7.1	mg/L		10/24/19 13:54	10/29/19 01:51	500
Manganese	190		0.14	0.054	mg/L		10/24/19 13:54	10/26/19 06:44	50
Nickel	46		0.18	0.071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Potassium	1000		36	16	mg/L		10/24/19 13:54	10/29/19 01:51	500
Sodium	13000		36	18	mg/L		10/24/19 13:54	10/29/19 01:51	500
Selenium	3.1		0.18	0.071	mg/L		10/24/19 13:54	10/26/19 06:44	50
Silver	0.23		0.071	0.032	mg/L		10/24/19 13:54	10/26/19 06:44	50
Thallium	0.055	J	0.071	0.032	mg/L		10/24/19 13:54	10/26/19 06:44	50
Vanadium	130		3.6	1.4	mg/L		10/24/19 13:54	10/29/19 01:51	500
Zinc	210		0.71	0.27	mg/L		10/24/19 13:54	10/26/19 06:44	50
Tin	ND		0.071	0.043	mg/L		10/24/19 13:54	10/26/19 06:44	50

Client Sample ID: C19081073-006C

Date Collected: 08/21/19 10:15

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-16

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	29		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:51	50
Uranium	36		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:51	50
Arsenic	140		0.50	0.20	mg/L		10/24/19 13:54	10/26/19 06:51	50
Beryllium	0.64		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:51	50
Cadmium	2.0		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:51	50
Calcium	670		100	48	mg/L		10/24/19 13:54	10/29/19 01:58	500
Chromium	12		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 01:58	500
Cobalt	44		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:51	50
Copper	830		1.5	0.95	mg/L		10/24/19 13:54	10/29/19 01:58	500
Iron	5800		2.5	1.0	mg/L		10/24/19 13:54	10/26/19 06:51	50
Lead	16		0.15	0.050	mg/L		10/24/19 13:54	10/26/19 06:51	50
Magnesium	6500		25	10	mg/L		10/24/19 13:54	10/29/19 01:58	500
Manganese	320		0.20	0.075	mg/L		10/24/19 13:54	10/26/19 06:51	50
Nickel	78		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:51	50
Potassium	1900		50	23	mg/L		10/24/19 13:54	10/29/19 01:58	500
Sodium	18000		50	25	mg/L		10/24/19 13:54	10/29/19 01:58	500
Selenium	6.6		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:51	50
Silver	0.17		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:51	50
Thallium	ND		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:51	50
Vanadium	710		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 01:58	500
Zinc	280		1.0	0.38	mg/L		10/24/19 13:54	10/26/19 06:51	50
Tin	0.34		0.10	0.060	mg/L		10/24/19 13:54	10/26/19 06:51	50

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: C19081073-007C

Date Collected: 08/21/19 10:30

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-19

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	27		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:58	50
Uranium	31		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:58	50
Arsenic	89		0.50	0.20	mg/L		10/24/19 13:54	10/26/19 06:58	50
Beryllium	0.47		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:58	50
Cadmium	2.0		0.025	0.010	mg/L		10/24/19 13:54	10/26/19 06:58	50
Calcium	550		100	48	mg/L		10/24/19 13:54	10/29/19 02:05	500
Chromium	9.1		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 02:05	500
Cobalt	31		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:58	50
Copper	550		1.5	0.95	mg/L		10/24/19 13:54	10/29/19 02:05	500
Iron	4400		2.5	1.0	mg/L		10/24/19 13:54	10/26/19 06:58	50
Lead	7.8		0.15	0.050	mg/L		10/24/19 13:54	10/26/19 06:58	50
Magnesium	4800		25	10	mg/L		10/24/19 13:54	10/29/19 02:05	500
Manganese	240		0.20	0.075	mg/L		10/24/19 13:54	10/26/19 06:58	50
Nickel	59		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:58	50
Potassium	1400		50	23	mg/L		10/24/19 13:54	10/29/19 02:05	500
Sodium	13000		50	25	mg/L		10/24/19 13:54	10/29/19 02:05	500
Selenium	4.7		0.25	0.10	mg/L		10/24/19 13:54	10/26/19 06:58	50
Silver	0.17		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:58	50
Thallium	0.087	J	0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:58	50
Vanadium	760		5.0	2.0	mg/L		10/24/19 13:54	10/29/19 02:05	500
Zinc	280		1.0	0.38	mg/L		10/24/19 13:54	10/26/19 06:58	50
Tin	0.20		0.10	0.060	mg/L		10/24/19 13:54	10/26/19 06:58	50

Client Sample ID: C19081073-008C

Date Collected: 08/21/19 08:35

Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-22

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	110		0.63	0.25	mg/L		10/24/19 13:54	10/26/19 07:25	50
Uranium	77		0.13	0.050	mg/L		10/24/19 13:54	10/26/19 07:25	50
Arsenic	230		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 07:25	50
Beryllium	0.90		0.063	0.025	mg/L		10/24/19 13:54	10/26/19 07:25	50
Cadmium	4.8		0.063	0.025	mg/L		10/24/19 13:54	10/26/19 07:25	50
Calcium	620		25	12	mg/L		10/24/19 13:54	10/26/19 07:25	50
Chromium	12		1.3	0.50	mg/L		10/24/19 13:54	10/26/19 07:25	50
Cobalt	60		0.25	0.11	mg/L		10/24/19 13:54	10/26/19 07:25	50
Copper	1500		3.8	2.4	mg/L		10/24/19 13:54	10/29/19 02:12	500
Iron	7800		6.3	2.5	mg/L		10/24/19 13:54	10/26/19 07:25	50
Lead	22		0.38	0.13	mg/L		10/24/19 13:54	10/26/19 07:25	50
Magnesium	7000		6.3	2.5	mg/L		10/24/19 13:54	10/26/19 07:25	50
Manganese	470		0.50	0.19	mg/L		10/24/19 13:54	10/26/19 07:25	50
Nickel	90		0.63	0.25	mg/L		10/24/19 13:54	10/26/19 07:25	50
Potassium	1900		13	5.6	mg/L		10/24/19 13:54	10/26/19 07:25	50
Sodium	21000		13	6.3	mg/L		10/24/19 13:54	10/26/19 07:25	50
Selenium	7.9		0.63	0.25	mg/L		10/24/19 13:54	10/26/19 07:25	50
Silver	0.69		0.25	0.11	mg/L		10/24/19 13:54	10/26/19 07:25	50
Thallium	0.13	J	0.25	0.11	mg/L		10/24/19 13:54	10/26/19 07:25	50
Vanadium	1300		13	5.0	mg/L		10/24/19 13:54	10/29/19 02:12	500
Zinc	490		2.5	0.94	mg/L		10/24/19 13:54	10/26/19 07:25	50
Tin	0.46		0.25	0.15	mg/L		10/24/19 13:54	10/26/19 07:25	50

Eurofins TestAmerica, Denver

Client Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 - Dissolved

Client Sample ID: M3-54865
 Date Collected: 08/23/19 11:20
 Date Received: 08/28/19 10:45

Lab Sample ID: 280-127755-25
 Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Uranium	0.0015		0.0010	0.00040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Arsenic	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Beryllium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Cadmium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Calcium	0.22		0.20	0.096	mg/L		10/24/19 13:54	10/29/19 02:18	2
Chromium	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Cobalt	0.0011	J	0.0020	0.00090	mg/L		10/24/19 13:54	10/29/19 02:18	2
Copper	0.021		0.0030	0.0019	mg/L		10/24/19 13:54	10/29/19 02:18	2
Iron	0.12		0.050	0.020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Lead	ND		0.0030	0.0010	mg/L		10/24/19 13:54	10/29/19 02:18	2
Magnesium	0.18		0.050	0.020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Manganese	0.0084		0.0040	0.0015	mg/L		10/24/19 13:54	10/29/19 02:18	2
Nickel	0.0022	J	0.0050	0.0020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Potassium	0.048	J	0.10	0.045	mg/L		10/24/19 13:54	10/29/19 02:18	2
Sodium	0.62		0.10	0.050	mg/L		10/24/19 13:54	10/29/19 02:18	2
Selenium	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/29/19 02:18	2
Silver	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/29/19 02:18	2
Thallium	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/29/19 02:18	2
Vanadium	0.0063	J	0.010	0.0040	mg/L		10/24/19 13:54	10/29/19 02:18	2
Zinc	0.014	J	0.020	0.0075	mg/L		10/24/19 13:54	10/29/19 02:18	2
Tin	ND		0.0020	0.0012	mg/L		10/24/19 13:54	10/29/19 02:18	2

QC Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8

Lab Sample ID: MB 160-447588/1-A
Matrix: Water
Analysis Batch: 447983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447588

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Molybdenum	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Uranium	ND		0.0010	0.00040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Arsenic	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Beryllium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Cadmium	ND		0.00050	0.00020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Calcium	ND		0.20	0.096	mg/L		10/24/19 13:54	10/26/19 06:03	2
Chromium	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Cobalt	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/26/19 06:03	2
Copper	ND		0.0030	0.0019	mg/L		10/24/19 13:54	10/26/19 06:03	2
Iron	ND		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Lead	ND		0.0030	0.0010	mg/L		10/24/19 13:54	10/26/19 06:03	2
Magnesium	ND		0.050	0.020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Manganese	ND		0.0040	0.0015	mg/L		10/24/19 13:54	10/26/19 06:03	2
Nickel	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Potassium	ND		0.10	0.045	mg/L		10/24/19 13:54	10/26/19 06:03	2
Sodium	ND		0.10	0.050	mg/L		10/24/19 13:54	10/26/19 06:03	2
Selenium	ND		0.0050	0.0020	mg/L		10/24/19 13:54	10/26/19 06:03	2
Silver	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/26/19 06:03	2
Thallium	ND		0.0020	0.00090	mg/L		10/24/19 13:54	10/26/19 06:03	2
Vanadium	ND		0.010	0.0040	mg/L		10/24/19 13:54	10/26/19 06:03	2
Zinc	ND		0.020	0.0075	mg/L		10/24/19 13:54	10/26/19 06:03	2
Tin	ND		0.0020	0.0012	mg/L		10/24/19 13:54	10/26/19 06:03	2

Lab Sample ID: LCS 160-447588/2-A
Matrix: Water
Analysis Batch: 447983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447588

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Molybdenum	0.500	0.531		mg/L		106	85 - 115	
Uranium	1.00	1.05		mg/L		105	85 - 115	
Arsenic	1.00	0.970		mg/L		97	85 - 115	
Beryllium	0.100	0.0965		mg/L		96	85 - 115	
Cadmium	1.00	1.05		mg/L		105	85 - 115	
Calcium	10.0	10.5		mg/L		105	85 - 115	
Chromium	1.00	0.959		mg/L		96	85 - 115	
Cobalt	1.00	1.00		mg/L		100	85 - 115	
Copper	1.00	1.01		mg/L		101	85 - 115	
Iron	10.0	9.81		mg/L		98	85 - 115	
Lead	1.00	1.04		mg/L		104	85 - 115	
Magnesium	10.0	9.86		mg/L		99	85 - 115	
Manganese	1.00	1.04		mg/L		104	85 - 115	
Nickel	1.00	0.974		mg/L		97	85 - 115	
Potassium	10.0	9.60		mg/L		96	85 - 115	
Sodium	10.0	9.88		mg/L		99	85 - 115	
Selenium	0.500	0.468		mg/L		94	85 - 115	
Silver	0.200	0.205		mg/L		102	85 - 115	
Thallium	0.200	0.210		mg/L		105	85 - 115	
Vanadium	1.00	0.969		mg/L		97	85 - 115	
Zinc	1.00	0.948		mg/L		95	85 - 115	

Eurofins TestAmerica, Denver

QC Sample Results

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

Job ID: 280-127755-2

Method: 200.8 - ICPMS Dissolved Metals by 200.8 (Continued)

Lab Sample ID: LCS 160-447588/2-A
Matrix: Water
Analysis Batch: 447983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447588
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Tin	1.00	1.00		mg/L		100	85 - 115

QC Association Summary

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

Job ID: 280-127755-2

Metals

Prep Batch: 447588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-1	C19081073-001C	Dissolved	Water	200.7/200.8	
280-127755-4	C19081073-002C	Dissolved	Water	200.7/200.8	
280-127755-7	C19081073-003C	Dissolved	Water	200.7/200.8	
280-127755-10	C19081073-004C	Dissolved	Water	200.7/200.8	
280-127755-13	C19081073-005C	Dissolved	Water	200.7/200.8	
280-127755-16	C19081073-006C	Dissolved	Water	200.7/200.8	
280-127755-19	C19081073-007C	Dissolved	Water	200.7/200.8	
280-127755-22	C19081073-008C	Dissolved	Water	200.7/200.8	
280-127755-25	M3-54865	Dissolved	Water	200.7/200.8	
MB 160-447588/1-A	Method Blank	Total/NA	Water	200.7/200.8	
LCS 160-447588/2-A	Lab Control Sample	Total/NA	Water	200.7/200.8	

Analysis Batch: 447983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-4	C19081073-002C	Dissolved	Water	200.8	447588
280-127755-7	C19081073-003C	Dissolved	Water	200.8	447588
280-127755-10	C19081073-004C	Dissolved	Water	200.8	447588
280-127755-13	C19081073-005C	Dissolved	Water	200.8	447588
280-127755-16	C19081073-006C	Dissolved	Water	200.8	447588
280-127755-19	C19081073-007C	Dissolved	Water	200.8	447588
280-127755-22	C19081073-008C	Dissolved	Water	200.8	447588
MB 160-447588/1-A	Method Blank	Total/NA	Water	200.8	447588
LCS 160-447588/2-A	Lab Control Sample	Total/NA	Water	200.8	447588

Analysis Batch: 448112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-127755-1	C19081073-001C	Dissolved	Water	200.8	447588
280-127755-4	C19081073-002C	Dissolved	Water	200.8	447588
280-127755-7	C19081073-003C	Dissolved	Water	200.8	447588
280-127755-10	C19081073-004C	Dissolved	Water	200.8	447588
280-127755-13	C19081073-005C	Dissolved	Water	200.8	447588
280-127755-16	C19081073-006C	Dissolved	Water	200.8	447588
280-127755-19	C19081073-007C	Dissolved	Water	200.8	447588
280-127755-22	C19081073-008C	Dissolved	Water	200.8	447588
280-127755-25	M3-54865	Dissolved	Water	200.8	447588

Lab Chronicle

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

Job ID: 280-127755-2

Client Sample ID: C19081073-001C

Lab Sample ID: 280-127755-1

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			34 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:25	FLC	TAL SL

Client Sample ID: C19081073-002C

Lab Sample ID: 280-127755-4

Date Collected: 08/21/19 09:05

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:24	FLC	TAL SL
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:31	FLC	TAL SL

Client Sample ID: C19081073-003C

Lab Sample ID: 280-127755-7

Date Collected: 08/21/19 09:20

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:31	FLC	TAL SL
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:38	FLC	TAL SL

Client Sample ID: C19081073-004C

Lab Sample ID: 280-127755-10

Date Collected: 08/21/19 09:40

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:37	FLC	TAL SL
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:45	FLC	TAL SL

Client Sample ID: C19081073-005C

Lab Sample ID: 280-127755-13

Date Collected: 08/21/19 09:45

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			35 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:44	FLC	TAL SL
Dissolved	Prep	200.7/200.8			35 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:51	FLC	TAL SL

Eurofins TestAmerica, Denver

Lab Chronicle

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

Job ID: 280-127755-2

Client Sample ID: C19081073-006C

Lab Sample ID: 280-127755-16

Date Collected: 08/21/19 10:15

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:51	FLC	TAL SL
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 01:58	FLC	TAL SL

Client Sample ID: C19081073-007C

Lab Sample ID: 280-127755-19

Date Collected: 08/21/19 10:30

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 06:58	FLC	TAL SL
Dissolved	Prep	200.7/200.8			25 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 02:05	FLC	TAL SL

Client Sample ID: C19081073-008C

Lab Sample ID: 280-127755-22

Date Collected: 08/21/19 08:35

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			10 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		50			447983	10/26/19 07:25	FLC	TAL SL
Dissolved	Prep	200.7/200.8			10 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		500			448112	10/29/19 02:12	FLC	TAL SL

Client Sample ID: M3-54865

Lab Sample ID: 280-127755-25

Date Collected: 08/23/19 11:20

Matrix: Water

Date Received: 08/28/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	200.7/200.8			50 mL	50 mL	447588	10/24/19 13:54	LAM	TAL SL
Dissolved	Analysis	200.8		2			448112	10/29/19 02:18	FLC	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

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

Job ID: 280-127755-2

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	01-08-20
Arizona	State	AZ0713	12-20-19
Arkansas DEQ	State	19-047-0	06-01-20
California	State	2513	01-08-20
Connecticut	State	PH-0686	09-30-20
Florida	NELAP	E87667-57	06-30-20
Georgia	State	4025-011	01-08-20
Illinois	NELAP	2000172019-1	04-30-20
Iowa	State	IA#370	12-01-20
Kansas	NELAP	E-10166	04-30-20
Louisiana	NELAP	30785	06-30-20
Maine	State	2019011 (231)	03-03-21
Minnesota	NELAP	1545373	12-31-19
Nevada	State	CO000262020-1	07-31-20
New Hampshire	NELAP	205319	04-28-20
New Jersey	NELAP	190002	06-30-20
New York	NELAP	59923	04-01-20
North Carolina (WW/SW)	State	<cert No.>	12-31-19
North Dakota	State	R-034	01-08-20
Oregon	NELAP	4025-011	01-08-20
Pennsylvania	NELAP	013	08-01-20
South Carolina	State	72002001	01-08-20
Texas	NELAP	T104704183-19-17	09-30-20
US Fish & Wildlife	Federal		07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal		03-26-21
USDA	US Federal Programs	P330-18-00099	03-26-21
Utah	NELAP	CO000262019-11	07-31-20
Virginia	NELAP	10490	06-14-20
Washington	State	C583-19	08-05-20
Wisconsin	State	999615430	08-31-20
Wyoming (UST)	A2LA	2907.01	10-31-21

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

Eurofins TestAmerica, Denver

Accreditation/Certification Summary

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

Job ID: 280-127755-2

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19
Iowa	State	373	09-17-20
Kentucky (DW)	State	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	11-03-19
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-19

Energy Laboratories Inc Workorder Summary



C19081073

Energy Fuels Resources (USA) Inc

Samp / Client Sample ID	Collection	Date Due	Matrix	Frac	RT	Done	Test Code	Hold	MS	SEL	Storage
								MDL	PQL	MCL	Units

[REDACTED]

C 200.7.8-W-D LG-2-000

A	Analyte	MDL	PQL	MCL	Units
A	Arsenic	0.0001	0.001	0	ug/L
A	Beryllium	0.0001	0.001	0	ug/L
A	Cadmium	0.00005	0.001	0	ug/L
A	Calcium	0.03	1	0	
A	Chromium	0.0005	0.005	0	ug/L
A	Cobalt	0.00005	0.005	0	ug/L
A	Copper	0.0001	0.005	0	ug/L
A	Iron	0.001	0.02	0	ug/L
A	Lead	0.00005	0.001	0	ug/L
A	Magnesium	0.05	1	0	
A	Manganese	0.00005	0.001	0	ug/L
A	Molybdenum	0.00005	0.001	0	ug/L
A	Nickel	0.0001	0.005	0	ug/L
A	Potassium	0.0001	1	0	
A	Selenium	0.05	0.001	0	ug/L
A	Silver	0.4	0.001	0	ug/L
A	Sodium	0.0001	1	0	
A	Thallium	0.0005	0.0005	0	ug/L
A	Tin	0.0004	0.05	0	ug/L
A	Uranium	0.00002	0.0003	0	ug/L
A	Vanadium	0.0005	0.01	0	ug/L
A	Zinc	0.001	0.01	0	ug/L

Energy Laboratories, Inc.

2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515



C19081073

CHAIN-OF-CUSTODY RECORD

PO: _____

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

Subcontractor:

Test America
4955 Yarrow St
Arvada, CO 80002
TEL: 3037360100
FAX:
Acct #: 3037360100

Subcontractor's Client

Requested Tests															
CVA-HG-245-W-D	PRP-HG-245.1	SVOC-3510C-8270	SVOC-8270-W	VOC-8280-THF-W											
C19081073-001C	Aqueous	08/21/19 08:35 A	1 - 250ML-P-F-HNO3	1	1										
C19081073-001D	Aqueous	08/21/19 08:35 A	2 - 1L-AG-NM-UP			1	1								
C19081073-001F	Aqueous	08/21/19 08:35 A	3 - 40ML-CG-VOA-HCL					1							
C19081073-002C	Aqueous	08/21/19 09:05 A	1 - 250ML-P-F-HNO3	1	1										
C19081073-002D	Aqueous	08/21/19 09:05 A	2 - 1L-AG-NM-UP			1	1								
C19081073-002F	Aqueous	08/21/19 09:05 A	3 - 40ML-CG-VOA-HCL					1							
C19081073-003C	Aqueous	08/21/19 09:20 A	1 - 250ML-P-F-HNO3	1	1										
C19081073-003D	Aqueous	08/21/19 09:20 A	2 - 1L-AG-NM-UP			1	1								
C19081073-003F	Aqueous	08/21/19 09:20 A	3 - 40ML-CG-VOA-HCL					1							

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Comments:

QC Level:

11E(2)

Project 28019578



280-127755 Chain of Custody

Relinquished by: <i>Candice P. ...</i>		Date/Time: <i>8/23/19 848</i>	Received by: <i>[Signature]</i>		Date/Time: <i>8/28/19 0845</i>
Relinquished by: <i>[Signature]</i>		Date/Time: <i>8/28/19 2130</i>	Received by: _____		Date/Time: <i>1045</i>
Shipped By: <i>UPS</i>	Custody Seal: <input checked="" type="radio"/> Y <input type="radio"/> N	Intact: <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <i>2.5, 7.6, 28 °C</i>	Temp Blank: <input type="radio"/> Y <input checked="" type="radio"/> N	On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N

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Energy Laboratories, Inc.

2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515

CHAIN-OF-CUSTODY RECORD

Page 2 of 3
23-Aug-19

PO: _____

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019 # Bus. Days Until Due: 24
Test Codes: SVOC-3510C-8270	

Subcontractor:

Test America
4955 Yarrow St
Arvada, CO 80002
TEL: 3037360100
FAX:
Acct #: 3037360100

Subcontractor's Client

		Requested Tests																	
		CVA-HG-245-W-D	PRP-HG-245.1	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THE-W													
C19081073-004C	Aqueous	08/21/19 09:40 A	1 - 250ML-P-F-HNO3	1	1														
C19081073-004D	Aqueous	08/21/19 09:40 A	2 - 1L-AG-NM-UP			1	1												
C19081073-004F	Aqueous	08/21/19 09:40 A	3 - 40ML-CG-VOA-HCL					1											
C19081073-005C	Aqueous	08/21/19 09:45 A	1 - 250ML-P-F-HNO3	1	1														
C19081073-005D	Aqueous	08/21/19 09:45 A	2 - 1L-AG-NM-UP			1	1												
C19081073-005F	Aqueous	08/21/19 09:45 A	3 - 40ML-CG-VOA-HCL					1											
C19081073-006C	Aqueous	08/21/19 10:15 A	1 - 250ML-P-F-HNO3	1	1														
C19081073-006D	Aqueous	08/21/19 10:15 A	2 - 1L-AG-NM-UP			1	1												
C19081073-006F	Aqueous	08/21/19 10:15 A	3 - 40ML-CG-VOA-HCL					1											

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Comments:

QC Level:
11E(2)

Project 28019578

Relinquished by: <i>Cindy Empersbach 8/23/19, 848</i>	Date/Time	Received by: <i>[Signature]</i>	Date/Time
Relinquished by: <i>[Signature] 8/28/19 2:30</i>		Received by:	

Shipped By: <i>UPS</i>	Custody Seal Y N	Intact Y N	Receipt Temp: <i>25.7, 27.8 °C</i>	Temp Blank Y N	On Ice Y N
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Energy Laboratories, Inc.

2393 Salt Creek Hwy
Casper, WY 82601-9601
307.235.0515

PO: _____
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CHAIN-OF-CUSTODY RECORD

Page 3 of 3
23-Aug-19

Earliest HT Expires: Wed, 8/28/2019 0835	Earliest Due Date: 9/27/2019
Test Codes: SVOC-3510C-8270	# Bus. Days Until Due: 24

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	SVOC-3510C-8270	SVOC-8270-W	VOC-8260-THF-W											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C19081073-007C	Aqueous	08/21/19 10:30 A	1 - 250ML-P-F-HNO3
C19081073-007D	Aqueous	08/21/19 10:30 A	2 - 1L-AG-NM-UP
C19081073-007F	Aqueous	08/21/19 10:30 A	3 - 40ML-CG-VOA-HCL
C19081073-008C	Aqueous	08/21/19 08:35 A	1 - 250ML-P-F-HNO3
C19081073-008D	Aqueous	08/21/19 08:35 A	2 - 1L-AG-NM-UP
C19081073-008F	Aqueous	08/21/19 08:35 A	3 - 40ML-CG-VOA-HCL

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Comments:

QC Level:
11E(2)

Project 28019578

Relinquished by: <u><i>Cindy [Signature]</i></u>	Date/Time: <u><i>8/23/19 848</i></u>	Received by: <u><i>[Signature]</i></u>	Date/Time: <u><i>8/28/19 1045</i></u>
Relinquished by: <u><i>[Signature]</i></u>	Date/Time: <u><i>8/28/19 230</i></u>	Received by: _____	_____

Shipped By: <u><i>UPS</i></u>	Custody Seal <input checked="" type="radio"/> Y <input type="radio"/> N	Intact <input checked="" type="radio"/> Y <input type="radio"/> N	Receipt Temp: <u><i>2.5, 7.6, 28</i></u> °C	Temp Blank <input type="radio"/> Y <input checked="" type="radio"/> N	On Ice <input checked="" type="radio"/> Y <input type="radio"/> N
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Eurofins TestAmerica, Denver

4955 Yarrow Street
 Arvada, CO 80002
 Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record



Environment Testing
 TestAmerica

Client Information (Sub Contract Lab)		Sampler:		Lab PM: Vania, Ivan H		Carrier Tracking No(s):		COC No: 280-502172.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: ivan.vania@testamericainc.com		State of Origin: Wyoming		Page: Page 1 of 1			
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note):				Job #: 280-127755-2			
Address: 13715 Rider Trail North,		Due Date Requested: 10/28/2019		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4.5 L - EDA Z - other (specify) Other:	
City: Earth City		TAT Requested (days):									
State, Zip: MO, 63045		PO #:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 200.8FIELD_FLTRD (MOD) 200.8 DISSOLVED		Total Number of containers		Special Instructions/Note:			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:									
Email:		Project #: 28019578		SSOW#:							
Project Name: 11(e) Byproduct Material											
Site:											
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, Or waste/soil, BT=Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	200.8FIELD_FLTRD (MOD) 200.8 DISSOLVED	Total Number of containers	Special Instructions/Note:	
				Preservation Code:							
C19081073-001C (280-127755-1)		8/21/19	08:35 Mountain		Water		X		1		
C19081073-002C (280-127755-4)		8/21/19	09:05 Mountain		Water		X		1		
C19081073-003C (280-127755-7)		8/21/19	09:20 Mountain		Water		X		1		
C19081073-004C (280-127755-10)		8/21/19	09:40 Mountain		Water		X		1		
C19081073-005C (280-127755-13)		8/21/19	09:45 Mountain		Water		X		1		
C19081073-006C (280-127755-16)		8/21/19	10:15 Mountain		Water		X		1		
C19081073-007C (280-127755-19)		8/21/19	10:30 Mountain		Water		X		1		
C19081073-008C (280-127755-22)		8/21/19	08:35 Mountain		Water		X		1		
M3-54865 (280-127755-25)		8/23/19	11:20 Mountain		Water		X		1		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Level 1 radioactive		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	
		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Date:	Time:
Relinquished by:	Date/Time: 10/16/19 1420	Company: TADEN	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	

Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-127755-2

Login Number: 127755
List Number: 1
Creator: Petunin, Peter

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	True	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
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.	False	Refer to Job Narrative for details.
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.	True	
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Energy Laboratories, Inc.

Job Number: 280-127755-2

Login Number: 127755
List Number: 2
Creator: McKinney, Gerrod E

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/21/19 01:47 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
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?	N/A	
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.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
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: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Analytical Run: MANTECH_190823A
Lab ID: ICV		Initial Calibration Verification Standard								08/23/19 09:38
pH		6.91	s.u.	0.010	101	98	102			
Method: A2320 B										Batch: R250228
Lab ID: MBLK		Method Blank								08/23/19 15:48
Alkalinity, Total as CaCO3		ND	mg/L	2				Run: MANTECH_190823A		
Lab ID: LCS		Laboratory Control Sample								08/23/19 15:56
Alkalinity, Total as CaCO3		253	mg/L	5.0	101	90	110	Run: MANTECH_190823A		
Lab ID: C19081073-005ADUP		Sample Duplicate								08/23/19 16:02
Alkalinity, Total as CaCO3		ND	mg/L	5.0				Run: MANTECH_190823A		10

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2510 B								Analytical Run: PHSC_101-C_190823A		
Lab ID: SC 100	Initial Calibration Verification Standard									
Conductivity @ 25 C		99.0	umhos/cm	5.0	99	90	110			08/23/19 09:11
Lab ID: SC 5000								08/23/19 09:15		
Initial Calibration Verification Standard										
Conductivity @ 25 C		4930	umhos/cm	5.0	99	90	110			
Lab ID: SC 20000								08/23/19 09:17		
Initial Calibration Verification Standard										
Conductivity @ 25 C		20100	umhos/cm	5.0	101	90	110			
Method: A2510 B								Batch: R250189		
Lab ID: SC 50000	Initial Calibration Verification Standard									
Conductivity @ 25 C		49700	umhos/cm	5.0	99	90	110			08/23/19 09:20
Lab ID: MBLK								08/23/19 10:56		
Method Blank										
Conductivity @ 25 C		0.5	umhos/cm							
Lab ID: C19081073-002ADUP								08/23/19 11:37		
Sample Duplicate										
Conductivity @ 25 C		55700	umhos/cm	5.0				0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										
Batch: TDS190823A										
Lab ID: MB-25_190823A		Method Blank								
Solids, Total Dissolved TDS @ 180 C		1.0	mg/L							
										Run: ORG_BAL3_C_190823A 08/23/19 14:00
Lab ID: LCS-26_190823A		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	101	90	110			08/23/19 14:00
										Run: ORG_BAL3_C_190823A 08/23/19 14:01
Lab ID: C19081058-003A DUP		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		624	mg/L	10				0.7	5	
Method: A2540 C										
Batch: TDS190826A										
Lab ID: MB-1_190826A		Method Blank								
Solids, Total Dissolved TDS @ 180 C		2	mg/L							Run: ORG_BAL3_C_190826A 08/26/19 15:22
Lab ID: LCS-2_190826A		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		1000	mg/L	10	100	90	110			08/26/19 15:23
										Run: ORG_BAL3_C_190826A 08/26/19 15:24
Lab ID: C19080975-002B DUP		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		181	mg/L	10				0.4	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C										Batch: R250269
Lab ID: LCS		Laboratory Control Sample								Run: MANTECH_190826A 08/26/19 17:18
Fluoride		2.12	mg/L	0.10	106	90	110			
Lab ID: MBLK		Method Blank								Run: MANTECH_190826A 08/26/19 17:22
Fluoride		ND	mg/L	0.02						
Lab ID: C19081073-004AMS		Sample Matrix Spike								Run: MANTECH_190826A 08/26/19 18:39
Fluoride		1850	mg/L	51	20	90	110			S
Lab ID: C19081073-005ADUP		Sample Duplicate								Run: MANTECH_190826A 08/26/19 18:47
Fluoride		1480	mg/L	50				3.7	10	
Method: A4500-F C										Batch: R250918
Lab ID: LCS		Laboratory Control Sample								Run: MANTECH_190913A 09/13/19 13:26
Fluoride		1.96	mg/L	0.10	98	90	110			
Lab ID: MBLK		Method Blank								Run: MANTECH_190913A 09/13/19 13:31
Fluoride		ND	mg/L	0.02						
Lab ID: C19090430-001AMS		Sample Matrix Spike								Run: MANTECH_190913A 09/13/19 13:47
Fluoride		2.16	mg/L	0.10	101	90	110			
Lab ID: C19090430-002ADUP		Sample Duplicate								Run: MANTECH_190913A 09/13/19 13:53
Fluoride		0.180	mg/L	0.10				5.4	10	
Method: A4500-F C										Batch: R251103
Lab ID: LCS		Laboratory Control Sample								Run: MANTECH_190918A 09/18/19 13:47
Fluoride		1.89	mg/L	0.10	94	90	110			
Lab ID: MBLK		Method Blank								Run: MANTECH_190918A 09/18/19 13:52
Fluoride		ND	mg/L	0.02						
Lab ID: C19090613-001AMS		Sample Matrix Spike								Run: MANTECH_190918A 09/18/19 14:11
Fluoride		2.00	mg/L	0.10	86	90	110			S
Lab ID: C19090613-002ADUP		Sample Duplicate								Run: MANTECH_190918A 09/18/19 14:16
Fluoride		0.430	mg/L	0.10				0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-H B										Analytical Run: PHSC_101-C_190823A	
Lab ID: 6.86	2	Initial Calibration Verification Standard								08/23/19 09:08	
pH		6.87	s.u.	0.010	100	98	102				
pH Measurement Temp		19.4	°C			0	0				
Method: A4500-H B										Batch: R250189	
Lab ID: C19081073-002ADUP	2	Sample Duplicate								08/23/19 11:37	
pH		3.07	s.u.	0.010				0.0	1.5		
pH Measurement Temp		16.6	°C								

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E300.0 Analytical Run: IC3-C_190909A											
Lab ID: ICV	2	Initial Calibration Verification Standard									09/09/19 17:02
Chloride		9.82	mg/L	1.0	98	90	110				
Sulfate		38.7	mg/L	1.0	97	90	110				
Method: E300.0 Batch: R250799											
Lab ID: ICB	2	Method Blank									Run: IC3-C_190909A 09/09/19 17:21
Chloride		ND	mg/L	0.05							
Sulfate		0.2	mg/L	0.1							
Lab ID: LFB	2	Laboratory Fortified Blank									Run: IC3-C_190909A 09/09/19 17:41
Chloride		9.86	mg/L	1.0	99	90	110				
Sulfate		38.7	mg/L	1.0	97	90	110				
Lab ID: C19090268-001AMS	2	Sample Matrix Spike									Run: IC3-C_190909A 09/10/19 11:16
Chloride		16.4	mg/L	1.0	103	80	120				
Sulfate		55.8	mg/L	1.0	101	80	120				
Lab ID: C19090268-001AMSD	2	Sample Matrix Spike Duplicate									Run: IC3-C_190909A 09/10/19 12:14
Chloride		16.3	mg/L	1.0	103	80	120	0.4	20		
Sulfate		55.7	mg/L	1.0	101	80	120	0.2	20		
Method: E300.0 Analytical Run: IC3-C_190912A											
Lab ID: ICV	2	Initial Calibration Verification Standard									09/12/19 11:59
Chloride		9.87	mg/L	1.0	99	90	110				
Sulfate		39.0	mg/L	1.0	97	90	110				
Method: E300.0 Batch: R250929											
Lab ID: ICB	2	Method Blank									Run: IC3-C_190912A 09/12/19 12:18
Chloride		ND	mg/L	0.05							
Sulfate		0.2	mg/L	0.1							
Lab ID: LFB	2	Laboratory Fortified Blank									Run: IC3-C_190912A 09/12/19 12:37
Chloride		9.97	mg/L	1.0	100	90	110				
Sulfate		39.1	mg/L	1.0	98	90	110				
Lab ID: C19090430-001AMS	2	Sample Matrix Spike									Run: IC3-C_190912A 09/13/19 20:55
Chloride		26.3	mg/L	1.0	103	80	120				
Sulfate		266	mg/L	1.0	99	80	120				
Lab ID: C19090430-001AMSD	2	Sample Matrix Spike Duplicate									Run: IC3-C_190912A 09/13/19 21:15
Chloride		26.3	mg/L	1.0	103	80	120	0.1	20		
Sulfate		266	mg/L	1.0	100	80	120	0.2	20		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1								Analytical Run: FIA201-C_190826B		
Lab ID: ICV	Initial Calibration Verification Standard									
Nitrogen, Ammonia as N		0.996	mg/L	0.050	100	90	110			08/26/19 17:15
Method: E350.1								Batch: R250266		
Lab ID: MBLK	Method Blank									
Nitrogen, Ammonia as N		ND	mg/L	0.03						Run: FIA201-C_190826B 08/26/19 17:14
Lab ID: LFB	Laboratory Fortified Blank									
Nitrogen, Ammonia as N		0.941	mg/L	0.050	95	90	110			Run: FIA201-C_190826B 08/26/19 17:16
Lab ID: C19081073-005BMS	Sample Matrix Spike									
Nitrogen, Ammonia as N		30000	mg/L	1300	96	90	110			Run: FIA201-C_190826B 08/26/19 18:11
Lab ID: C19081073-005BMSD	Sample Matrix Spike Duplicate									
Nitrogen, Ammonia as N		30800	mg/L	1300	99	90	110	2.5	10	Run: FIA201-C_190826B 08/26/19 18:13

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Energy Fuels Resources (USA) Inc

Work Order: C19081073

Report Date: 09/19/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E353.2								Analytical Run: FIA201-C_190827A			
Lab ID: ICV		Initial Calibration Verification Standard						08/27/19 11:30			
Nitrogen, Nitrate+Nitrite as N		1.04	mg/L	0.010	104	90	110				
Method: E353.2								Batch: R250300			
Lab ID: MBLK		Method Blank						Run: FIA201-C_190827A			
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.010						08/27/19 11:32	
Lab ID: LFB		Laboratory Fortified Blank						Run: FIA201-C_190827A			
Nitrogen, Nitrate+Nitrite as N		0.951	mg/L	0.010	96	90	110			08/27/19 11:33	
Lab ID: C19081063-004AMS		Sample Matrix Spike						Run: FIA201-C_190827A			
Nitrogen, Nitrate+Nitrite as N		1.68	mg/L	0.010	98	90	110			08/27/19 11:53	
Lab ID: C19081063-004AMSD		Sample Matrix Spike Duplicate						Run: FIA201-C_190827A			
Nitrogen, Nitrate+Nitrite as N		1.69	mg/L	0.010	99	90	110	0.6	10	08/27/19 11:54	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Energy Fuels Resources (USA) Inc

C19081073

Login completed by: Casie C. Peppersack

Date Received: 8/22/2019

Reviewed by: Kasey Vidick

Received by: cns

Reviewed Date: 8/26/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	0.0°C On Ice		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

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.

Contact and Corrective Action Comments:

Additional temperatures 0.3, 4.0, 25.3, 27.0. Headspace noted on check list of which vials have headspace. 8/22/19 CP



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	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	Receive Report <input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email
Purchase Order	Quote C5645	Bottle Order

Report Information (if different than Account Information)

Company/Name Energy Fuels		
Contact	Tanner Holliday	
Phone	(435) 678-4115	
Mailing Address	PO Box 809	
City, State, Zip	Blanding, Utah 84511	
Email	tholliday@gmail.com	
Receive Report	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	
Special Report/Formats:	<input checked="" type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT <small>(contact laboratory)</small> <input type="checkbox"/> Other STD EFR1	

Comments

Samples HAVE NOT BEEN FILTERED

Project Information

Project Name, PWSID, Permit, etc. Annual Tails 2019	
Sampler Name Tanner Holliday	Sampler Phone (435) 678-4115
Sample Origin State Utah	EPA/State Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
URANIUM MINING CLIENTS MUST indicate sample type. <input type="checkbox"/> NOT Source or Byproduct Material <input checked="" type="checkbox"/> Source/Processed Ore (Ground or Refined) **CALL BEFORE SENDING <input checked="" type="checkbox"/> 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

Analysis Requested									
Quote C5645									

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 <small>(Name, Location, Interval, etc.)</small>	Collection		Number of Containers	Matrix <small>(See Codes Above)</small>	Quote C5645	See Attached	RUSH TAT	ELI LAB ID <small>Laboratory Use Only</small>
	Date	Time						
1 Cell 1	8/21/19	0835	11	O	X			C19081073
2 Cell 2 Slimes	8/21/19	0905	11	O	X			
3 Cell 3	8/21/19	0920	11	O	X			
4 Cell 4A	8/21/19	0940	11	O	X			
5 Cell 4A LDS	8/21/19	0945	11	O	X			
6 Cell 4B	8/21/19	1015	11	O	X			
7 Cell 4B LDS	8/21/19	1030	11	O	X			
8 Cell 65	8/21/19	0835	11	O	X			
9								
10								

Custody Record MUST be signed	Relinquished by (print) Tanner Holliday	Date/Time 8/21/2019 1500	Signature <i>Tanner Holliday</i>	Received by (print) Laura Armstrong	Date/Time 8/21/19 1500	Signature <i>Laura Armstrong</i>
	Relinquished by (print) Laura Armstrong	Date/Time 8/22/19 1345	Signature <i>Laura Armstrong</i>	Received by Laboratory (print)	Date/Time 8/22/19 145	Signature <i>[Signature]</i>

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 <small>(cash/check only)</small>

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 noted on your analytical report. ELI-COC-10/18 v.3

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

Analytical Quote

C19081073

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

TAT: 25 days
QC Level: STD

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

Semi-volatile Organic Compounds

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



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.



September 17, 2019

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

Re: Tailings 2019 Characterization
Work Order: 488668

Dear Ms. Weinel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 24, 2019. This revised data report has been prepared and reviewed in accordance with GEL's standard operating procedures. This package is revised to correct project name.

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
Project Manager

Purchase Order: DW16138
Enclosures



**Energy Fuels Resources (USA), Inc.
Tailings 2019 Characterization
SDG: 488668**

This package is revised to correct project name.

Receipt Narrative
for
Energy Fuels Resources (USA), Inc.
SDG: 488668

September 17, 2019

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 24, 2019 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:

<u>Laboratory ID</u>	<u>Client ID</u>
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	Cell 65

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: General Chemistry and Radiochemistry.

A handwritten signature in black ink that reads "Julie Robinson". The signature is written in a cursive, flowing style.

Julie Robinson
Project Manager

488668



CHAIN OF CUSTODY

Samples Shipped to: Gel Laboratories **Contact:** Tanner Holliday
2040 Savage Road Ph: 435 678 4115
Charleston, SC 29407 tholliday@energyfuels.com

Project	Samplers Name		Samplers Signature
Annual Tailings 2019	Tanner Holliday		<i>Tanner Holliday</i>
Sample ID	Date Collected	Time Collected	Laboratory Analysis Requested
Cell 1	8/21/2019	835	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 2 Slimes	8/21/2019	905	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 3	8/21/2019	920	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 4A	8/21/2019	940	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 4A LDS	8/21/2019	945	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 4B	8/21/2019	1015	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 4B LDS	8/21/2019	1030	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
Cell 65	8/21/2019	835	Dissolved Gross Alpha, Thorium (228, 230, 232) Uranium (233/234, 235/236, 238), Ra-226, specific gravity
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 432537			
Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time
<i>Tanner Holliday</i>	8/22/2019 11:30	<i>[Signature]</i>	8/21/19 9:35
Relinquished By:(Signature)	Date/Time	Received By:(Signature)	Date/Time

JA

SAMPLE RECEIPT & REVIEW FORM

Client: <u>DAMI</u>		SDG/AR/COC/Work Order: <u>488668</u>			
Received By: <u>GM</u>		Date Received: <u>8/24/19</u>			
Carrier and Tracking Number		Circle Applicable: FedEx Express FedEx Ground <input checked="" type="checkbox"/> UPS Field Services Courier Other <u>1Z 187 Y4Y 01 9659 3107</u>			
		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?		<input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___		
B) Did the client designate the samples are to be received as radioactive?		<input checked="" type="checkbox"/>	COC notation or radioactive stickers on containers equal client designation.		
C) Did the RSO classify the samples as radioactive?		<input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM / mR/Hr Classified as: Rad 1 <input checked="" type="checkbox"/> Rad 2 <input checked="" type="checkbox"/> Rad 3		
D) Did the client designate samples are hazardous?		<input checked="" type="checkbox"/>	COC notation or hazard labels on containers equal client designation.		
E) Did the RSO identify possible hazards?		<input checked="" type="checkbox"/>	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____		
Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*			<input checked="" type="checkbox"/>	Preservation Method: Wet Ice Ice Packs Dry ice <input checked="" type="checkbox"/> None Other: _____ *all temperatures are recorded in Celsius TEMP: <u>21°C</u>
4	Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: <u>LR1-19</u> Secondary Temperature Device Serial # (If Applicable): _____
5	Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			<input checked="" type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added, Lot#: _____
7	Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>			If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer)
					Do liquid VOA vials contain acid preservation? Yes ___ No ___ NA ___ (If unknown, select No)
					Are liquid VOA vials free of headspace? Yes ___ No ___ NA ___ Sample ID's and containers affected:
8	Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?			<input checked="" type="checkbox"/>	Circle Applicable: <u>No container count on COC</u> Other (describe)
12	Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>			
13	COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			Circle Applicable: Not relinquished Other (describe)
Comments (Use Continuation Form if needed):					

PM (or PMA) review: Initials ZHF Date 8/30/19 Page 1 of 1

GEL Laboratories LLC – Login Review Report

Report Date: 17-SEP-19

Work Order: 488668

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GEL Work Order/SDG: 488668 Annual Tailings 2019
 Client SDG: 488668
 Project Manager: Julie Robinson
 Project Name: DNMI00107 Tailings 2019 Characterization
 Purchase Order: DW16138
 Package Level: LEVEL3
 EDD Format: EIM_DNMI

Work Order Due Date: 14-SEP-19
 Package Due Date: 12-SEP-19
 EDD Due Date: 14-SEP-19
 Due Date: 14-SEP-19
 EMK

Collector: C
 Prelogin #: 20190895207
 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
488668001	Cell 1		21-AUG-19 08:35	24-AUG-19 09:35	-2	1	WATER		21		1		
488668002	Cell 2 Slimes		21-AUG-19 09:05	24-AUG-19 09:35	-2	1	WATER		21		1		
488668003	Cell 3		21-AUG-19 09:20	24-AUG-19 09:35	-2	1	WATER		21		1		
488668004	Cell 4A		21-AUG-19 09:40	24-AUG-19 09:35	-2	1	WATER		21		1		
488668005	Cell 4A LDS		21-AUG-19 09:45	24-AUG-19 09:35	-2	1	WATER		21		1		
488668006	Cell 4B		21-AUG-19 10:15	24-AUG-19 09:35	-2	1	WATER		21		1		
488668007	Cell 4B LDS		21-AUG-19 10:30	24-AUG-19 09:35	-2	1	WATER		21		1		
488668008	Cell 65		21-AUG-19 08:35	24-AUG-19 09:35	-2	1	WATER		21		1		

Client Sample ID	Status	Tests/Methods	Product Reference	Fax Date	PM Comments	Aux Data	Receive Codes
-001 Cell 1	REVV	ASTM D 5057 Specific Gravity			Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse		RAD2
	REVV	Rad 2 Aliquot for distribution throughout the lab					
	REVV	Alphaspec Th, Liquid					
	REVV	U- 233/234,U-235/236 and U-238	U-233/234,U-235/236				
	REVV	GFPC,Total Alpha Radium, Liquid	Gross Alpha				
	REVV	Lucas Cell, Ra226, liquid					
-002 Cell 2 Slimes	REVV	ASTM D 5057 Specific Gravity			Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse		RAD2
	REVV	Rad 2 Aliquot for distribution throughout the lab					
	REVV	Alphaspec Th, Liquid					
	REVV	U- 233/234,U-235/236 and U-238	U-233/234,U-235/236				
	REVV	GFPC,Total Alpha Radium, Liquid	Gross Alpha				
	REVV	Lucas Cell, Ra226, liquid					
-003 Cell 3	REVV	ASTM D 5057 Specific Gravity			Handle these samples carefully, they are low pH with high metals. Use container .02 for all analyse		RAD2
	REVV	Rad 2 Aliquot for distribution throughout the lab					
	REVV	Alphaspec Th, Liquid					
	REVV						

GEL Laboratories LLC – Login Review Report

	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 Filtration			
-004 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 Filtration			
-005 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 Filtration			
-006 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 Filtration			
-007 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 Filtration			
-008 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			

GEL Laboratories LLC – Login Review Report

Report Date: 17-SEP-19

Work Order: 488668

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REVV 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 Filtration

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

Method: DOE EML HASL-300, Th-01-RC Modified **Path:** High Rad
Product Description: Alphaspec Th, Liquid **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?
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 **Path:** High Rad
Product Description: U- 233/234,U-235/236 and U-238 **Product Reference:** U-233/234,U-235/236
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?
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 **Path:** High Rad
Product Description: GFPC,Total Alpha Radium, Liquid **Product Reference:** Gross Alpha
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?
	Gross Radium Alpha	1	pCi/L	REG	Y	Y	No

GEL Laboratories LLC – Login Review Report

Report Date: 17-SEP-19

Work Order: 488668

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Product: LUC26RAL **Workdef ID:** 1371099 **In Product Group?** No **Group Name:** **Group Reference:**
Method: EPA 903.1 Modified **Path:** High Rad
Product Description: Lucas Cell, Ra226, liquid **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?
13982-63-3	Radium-226	1	pCi/L	REG	Y	Y	No

Product: MISSGAS_L **Workdef ID:** 1370067 **In Product Group?** No **Group Name:** **Group Reference:**
Method: ASTM D 5057 **Path:** Standard
Product Description: ASTM D 5057 Specific Gravity **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?
	Specific Gravity	.1 none	none	REG	Y	Y	No

Product: RADALQT_L **Workdef ID:** 1371095 **In Product Group?** No **Group Name:** **Group Reference:**
Method: **Path:** Standard
Product Description: Rad 2 Aliquot for distribution throughout the lab **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?
							No

Product: LABFILT_L **Workdef ID:** 1473975 **In Product Group?** No **Group Name:** **Group Reference:**
Method: **Path:** Standard for High Rad Products Only
Product Description: Laboratory Filtration **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?
							No

GEL Laboratories LLC – Login Review Report

Report Date: 17-SEP-19
Work Order: 488668
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Action	Product Name	Description	Samples
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Contingent
Tests

Login Requirements:

Requirement	Include?	Comments
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Peer Review by: _____ Work Order (SDG#), PO# Checked? _____ C of C signed in receiver location? _____

List of current GEL Certifications as of 17 September 2019

State	Certification
Alaska	17-018
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
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	2019-013
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-19-15
Utah NELAP	SC000122019-28
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

**General Chemistry
Technical Case Narrative
Energy Fuels Resources
SDG #: 488668**

Product: Specific Gravity

Analytical Method: ASTM D 5057

Analytical Procedure: GL-GC-E-065 REV# 7

Analytical Batch: 1913001

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	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: 488668 GEL Work Order: 488668

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: 

Name: Kristen Mizzell

Date: 07 SEP 2019

Title: Team Leader

GEL LABORATORIES LLC

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

QC Summary

Report Date: September 17, 2019

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

Contact: Ms. Kathy Weinel

Workorder: 488668

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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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 #: 488668**

Product: Alphaspec Th, Liquid

Analytical Method: DOE EML HASL-300, Th-01-RC Modified

Analytical Procedure: GL-RAD-A-038 REV# 18

Analytical Batch: 1914167

Filtration Method: GL-RAD-A-026

Filtration Procedure: GL-RAD-A-026 REV# 17

Filtration Batch: 1912341

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	Cell 65
1204374680	Method Blank (MB)
1204374681	488668002(Cell 2 Slimes) Sample Duplicate (DUP)
1204374682	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
1204374680 (MB)	Thorium-228	Result -187 < MDA 729 > RDL 1 pCi/L
	Thorium-230	Result 422 < MDA 646 > RDL 1 pCi/L
	Thorium-232	Result 14.2 < MDA 409 > 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
1204374681 (Cell 2 SlimesDUP)	Thorium-228	Result -2.19 < MDA 222 > RDL 1 pCi/L
	Thorium-232	Result 86.5 < MDA 220 > RDL 1 pCi/L
488668002 (Cell 2 Slimes)	Thorium-228	Result 3.58 < MDA 553 > RDL 1 pCi/L
	Thorium-232	Result -36.3 < MDA 378 > RDL 1 pCi/L
488668003 (Cell 3)	Thorium-228	Result 196 < MDA 573 > RDL 1 pCi/L
	Thorium-232	Result 222 < MDA 286 > RDL 1 pCi/L

Technical Information

Recounts

Sample 1204374680 (MB) was recounted due to a suspected blank false positive. The recount is reported.

Miscellaneous Information

Manual Integration

Manual integration of alpha spectroscopy spectra 488668005 (Cell 4A LDS) was performed to fully separate counts in Regions of Interest which would have been biased.

Additional Comments

The tracer peak centroid for sample 488668005 (Cell 4A LDS) is greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peak is within the tracer region of interest.

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# 27

Analytical Batch: 1914171

Filtration Method: GL-RAD-A-026

Filtration Procedure: GL-RAD-A-026 REV# 17

Filtration Batch: 1912341

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	Cell 65
1204374683	Method Blank (MB)

1204374684
1204374685

488668002(Cell 2 Slimes) Sample Duplicate (DUP)
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
1204374683 (MB)	Uranium-233/234	Result 147 < MDA 492 > RDL 1 pCi/L
	Uranium-235/236	Result 3.22 < MDA 531 > RDL 1 pCi/L
	Uranium-238	Result -62.6 < MDA 430 > RDL 1 pCi/L

Sample (See Below) did not meet the detection limit due to the small sample aliquot used. The aliquot was reduced due to the high activity of other isotopes and in attempt to minimize interference.

Sample	Analyte	Value
488668003 (Cell 3)	Uranium-235/236	Result 109 < MDA 327 > RDL 1 pCi/L

Technical Information

Recounts

Samples 488668003 (Cell 3) and 488668004 (Cell 4A) were recounted due to high MDCs. The recounts are reported.

Miscellaneous Information

Additional Comments

The tracer peak centroid for sample 1204374683 (MB) is greater than 50 keV from the expected library energy value for the tracer; however, the tracer yield requirement was met and the tracer peak is within the tracer region of interest.

Product: GFPC, Total Alpha Radium, Liquid

Analytical Method: EPA 903.0

Analytical Procedure: GL-RAD-A-010 REV# 18

Analytical Batch: 1914172

Filtration Method: GL-RAD-A-026

Filtration Procedure: GL-RAD-A-026 REV# 17

Filtration Batch: 1912341

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

GEL Sample ID#	Client Sample Identification
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	Cell 65
1204374686	Method Blank (MB)
1204374687	488668003(Cell 3) Sample Duplicate (DUP)
1204374688	488668003(Cell 3) Matrix Spike (MS)
1204374689	488668003(Cell 3) Matrix Spike Duplicate (MSD)
1204374690	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
1204374687 (Cell 3DUP)	Gross Radium Alpha	RPD 32.6* (0.00%-20.00%) RER 1.95 (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
1204374686 (MB)	Gross Radium Alpha	Result 161 < MDA 189 > RDL 1 pCi/L

Samples 1204374687 (Cell 3DUP), 488668001 (Cell 1), 488668002 (Cell 2 Slimes), 488668003 (Cell 3), 488668004 (Cell 4A), 488668005 (Cell 4A LDS), 488668007 (Cell 4B LDS) and 488668008 (Cell 65) did not meet the client requested detection limit due to limited sample volume.

Technical Information

Recounts

Sample 1204374689 (Cell 3MSD) was recounted due to high recovery. The recount is reported.

Product: Lucas Cell, Ra226, liquid

Analytical Method: EPA 903.1 Modified

Analytical Procedure: GL-RAD-A-008 REV# 15

Analytical Batch: 1914039

Filtration Method: GL-RAD-A-026

Filtration Procedure: GL-RAD-A-026 REV# 17

Filtration Batch: 1912341

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	Cell 65
1204374364	Method Blank (MB)
1204374365	488668001(Cell 1) Sample Duplicate (DUP)
1204374366	488668001(Cell 1) Matrix Spike (MS)
1204374367	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
1204374365 (Cell 1DUP)	Radium-226	RPD 45.2* (0.00%-20.00%) RER 2.48 (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
1204374364 (MB)	Radium-226	Result 16.5 < MDA 25.3 > RDL 1 pCi/L

Technical Information

Recounts

Samples 1204374364 (MB), 1204374367 (LCS) and 488668005 (Cell 4A LDS) were degassed and recounted to verify sample results. Recounts are reported.

Product: Laboratory Filtration

Filtration Method: GL-RAD-A-026

Filtration Procedure: GL-RAD-A-026 REV# 17

Filtration Batch: 1912341

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

<u>GEL Sample ID#</u>	<u>Client Sample Identification</u>
488668001	Cell 1
488668002	Cell 2 Slimes
488668003	Cell 3
488668004	Cell 4A
488668005	Cell 4A LDS
488668006	Cell 4B
488668007	Cell 4B LDS
488668008	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: 488668 GEL Work Order: 488668

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: Theresa Austin

Date: 16 SEP 2019

Title: Group Leader

GEL LABORATORIES LLC

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

QC Summary

Report Date: September 16, 2019

Page 1 of

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

Contact: Ms. Kathy Weinel

Workorder: 488668

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
High Rad Testing											
Batch	1914039										
QC1204374365	488668001	DUP									
Radium-226		348		551	pCi/L	45.2*		(0%-20%)	MXH8	09/12/19	11:1
	Uncertainty	+/-28.0		+/-39.9							
QC1204374367	LCS										
Radium-226	1350			1180	pCi/L		86.9	(75%-125%)		09/16/19	11:2
	Uncertainty			+/-41.6							
QC1204374364	MB										
Radium-226			U	16.5	pCi/L					09/16/19	11:2
	Uncertainty			+/-8.23							
QC1204374366	488668001	MS									
Radium-226	1350	348		1510	pCi/L		85.5	(75%-125%)		09/12/19	11:0
	Uncertainty	+/-28.0		+/-64.6							
Batch	1914167										
QC1204374681	488668002	DUP									
Thorium-228	U	3.58	U	-2.19	pCi/L	N/A		N/A	JXB7	09/11/19	22:5
	Uncertainty	+/-128		+/-51.6							
Thorium-230		1750		2010	pCi/L	13.9		(0%-20%)			
	Uncertainty	+/-362		+/-256							
Thorium-232	U	-36.3	U	86.5	pCi/L	N/A		N/A			
	Uncertainty	+/-72.3		+/-72.9							
QC1204374682	LCS										
Thorium-228				19200	pCi/L					09/11/19	19:2
	Uncertainty			+/-1130							
Thorium-230				2420	pCi/L			(75%-125%)			
	Uncertainty			+/-414							
Thorium-232	19900			20300	pCi/L		102	(75%-125%)			
	Uncertainty			+/-1160							
QC1204374680	MB										
Thorium-228			U	-187	pCi/L					09/12/19	13:3
	Uncertainty			+/-135							

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QC Summary

Workorder: 488668

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
High Rad Testing											
Batch	1914167										
Thorium-230			U	422	pCi/L				JXB7	09/12/19	13:3
	Uncertainty			+/-226							
Thorium-232			U	14.2	pCi/L						
	Uncertainty			+/-98.3							
Batch	1914171										
QC1204374684	488668002 DUP										
Uranium-233/234		9300		9990	pCi/L	7.21		(0%-20%)	JXB7	09/11/19	19:2
	Uncertainty	+/-789		+/-876							
Uranium-235/236		484		279	pCi/L	53.6		(0% - 100%)			
	Uncertainty	+/-214		+/-188							
Uranium-238		9150		10400	pCi/L	12.4		(0%-20%)			
	Uncertainty	+/-781		+/-889							
QC1204374685	LCS										
Uranium-233/234				25100	pCi/L					09/11/19	19:2
	Uncertainty			+/-1350							
Uranium-235/236				1990	pCi/L						
	Uncertainty			+/-434							
Uranium-238	27300			28600	pCi/L		105	(75%-125%)			
	Uncertainty			+/-1430							
QC1204374683	MB										
Uranium-233/234			U	147	pCi/L					09/11/19	19:2
	Uncertainty			+/-149							
Uranium-235/236			U	3.22	pCi/L						
	Uncertainty			+/-122							
Uranium-238			U	-62.6	pCi/L						
	Uncertainty			+/-74.0							
Batch	1914172										
QC1204374687	488668003 DUP										
Gross Radium Alpha		3890		5400	pCi/L	32.6*		(0%-20%)	AXM6	09/12/19	16:5
	Uncertainty	+/-302		+/-406							
QC1204374690	LCS										
Gross Radium Alpha	1.11E+05			88700	pCi/L		79.9	(75%-125%)		09/12/19	17:1
	Uncertainty			+/-1400							

GEL LABORATORIES LLC

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QC Summary

Workorder: 488668

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
High Rad Testing											
Batch	1914172										
QC1204374686	MB										
Gross Radium Alpha			U	161	pCi/L				AXM6	09/12/19	16:5
	Uncertainty			+/-70.3							
QC1204374688	488668003 MS										
Gross Radium Alpha	1.12E+05	3890		98100	pCi/L		84.1	(75%-125%)		09/12/19	17:1
	Uncertainty	+/-302		+/-1540							
QC1204374689	488668003 MSD										
Gross Radium Alpha	1.12E+05	3890		1.09E+05	pCi/L	10.4	93.7	(0%-20%)		09/13/19	07:2
	Uncertainty	+/-302		+/-1340							

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

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QC Summary

Workorder: 488668

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
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- 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
Major Ions (mg/L)																	
Carbonate	<5	<1	ND	ND	<1	<1	<1	<1	<1	NS	<1	<1	<1	<1	<1	NS	<5
Bicarbonate	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS	<1	<1	<1	<1	<1	NS	<5
Calcium	630	307	483.8	604	635	711	577	426	768	NS	404	573	647	581	518	NS	720
Chloride	8000	6728	37340	9830	20700	7440	33800	78000	9900	NS	11600	25500	19200	19900	39300	NS	19800
Fluoride	<100	3005	31.72	0.3	0.4	28.4	69.2	62.9	4130	NS	2380	5880	2980	4290	5020	NS	3480
Magnesium	7900	5988	21220	6550	16200	5410	14300	16000	4470	NS	5530	12400	9210	9380	20800	NS	9200
Nitrogen-Ammonia	7800	3353	10628	5250	15200	8120	12900	9750	3900	NS	5700	5.4	7090	1040	9810	NS	10400
Nitrogen-Nitrate	<100	41.8	269.4	64.9	142	58	212	556	128	NS	53	192	124	152	328	NS	118
Potassium	NA	647	5698	1880	4140	1840	4510	9750	6580	NS	3010	7330	1970	2700	4790	NS	2600
Sodium	10000	8638	62600	13200	39000	16700	29500	41700	15900	NS	12200	32100	18900	23900	53500	NS	28000
Sulfate	190000	63667	287600	118000	232000	107000	182000	158000	100000	NS	124000	204000	212000	165000	253000	NS	169000
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
TDS	120000	94700	357400	131000	140000	130000	216000	342000	149000	NS	159000	334000	242000	231000	361000	NS	257000
Conductivity (umhos/cm)	NA	NA	NA	NA	365000	110000	112000	136000	94200	NS	113000	131000	123000	57600	110000	NS	119000
Metals (ug/L)																	
Arsenic	440000	121267	849000	271000	436000	74400	299000	25500	9800	NS	249000	377000	407000	391000	641000	NS	270000
Beryllium	780	475	2262	500	410	338	1270	3180	415	NS	448	1290	1030	749	1510	NS	930
Cadmium	6600	3990	29320	8790	9120	2940	13700	30700	2380	NS	3060	7710	6320	6730	14000	NS	5400
Chromium	13000	6365	29940	6760	18700	5620	22700	12100	8350	NS	13200	19600	14000	15900	21100	NS	15000
Cobalt	120000	NA	88240	23500	97500	16200	56000	53100	25500	NS	56500	82000	77200	91400	113000	NS	66000
Copper	740000	196667	881000	360000	168000	125000	483000	885000	544000	NS	3420000	3560000	4730000	3440000	4550000	NS	1700000
Iron	3400000	2820000	13480000	3280000	2390000	3400000	8940000	840000	1420000	NS	2520000	6680000	5650000	2300000	12200000	NS	9100000
Lead	<20000	3393	27420	11200	10600	9240	23600	17000	2810	NS	13500	16800	22500	23000	41000	NS	22000
Manganese	140000	162500	990200	206000	723000	173000	735000	1560000	188000	NS	162000	515000	713000	510000	936000	NS	540000
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
Molybdenum	240000	50550	415600	106000	142000	35300	235000	434000	16800	NS	68800	127000	97100	128000	239000	NS	120000
Nickel	370000	36950	40860	32000	156000	27500	43700	15000	39100	NS	129000	130000	170000	183000	167000	NS	110000
Selenium	<20000	1862	15420	13000	14800	5220	11600	8090	2690	NS	3970	7070	3950	5070	10700	NS	10000
Silver	<5000	NA	1559.2	449	558	155	1110	4310	329	NS	336	1390	1240	1240	2320	NS	790
Thallium	45000	NA	407.8	165	387	193	560	13	63.3	NS	876	1130	754	155	442	NS	<700
Tin	<5000	NA	6512	1240	2290	263	1500	<100	<100	NS	<17000	<100	<17000	<17000	<17000	NS	540
Uranium	105000	134517	788600	416000	578000	159000	838000	1450000	140000	NS	137000	363000	131000	102000	248000	NS	81000
Vanadium	280000	348000	2208200	1200000	773000	752000	2500000	1940000	98200	NS	485000	1130000	746000	1520000	2440000	NS	1400000
Zinc	1300000	NA	642940	476000	229000	171000	398000	811000	228000	NS	229000	638000	448000	515000	948000	NS	550000
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

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
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
Benzene	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS	<5.0	<1	<1	<1	<1	NS	<1
Carbon tetrachloride	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS	<5.0	<1	<1	<1	<1	NS	<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
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
MEK	NA	NA	ND	ND	120	65	<1	200	<20	NS	<4000	<20	<20	<20	<20	NS	11 J
Methylene Chloride	11	NA	ND	ND	2	<1	<1	2	<1	NS	<5.0	1.83	<1	1.09	2.41	NS	<1
Naphthalene	<10000	NA	<10	ND	1.1	5.4	2	3	<1	NS	<100	<1	<1	<1	<1	NS	<1
Tetrahydrofuran	NA	NA	150	<20	<100	<10	<500	2.9	<1	NS	<46.0	<1	<1	<1	4.93	NS	<35
Toluene	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS	<1000	<1	<1	<1	<1	NS	<1
Xylenes	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS	<10000	<1	<1	<1	<1	NS	<1
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
1,2-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
1,4-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
1-Methylnaphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2,4,5-Trichlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2,4,6-Trichlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2,4-Dichlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2,4-Dimethylphenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2,4-Dinitrophenol	NA	NA	NA	NA	<250	<20	<20	<20	<21.6	<20	<20	<20	<10	<10	<148	<8.04	<50
2,4-Dinitrotoluene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2,6-Dinitrotoluene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2-Chloronaphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2-Chlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2-Methylnaphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2-Methylphenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
2-Nitrophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
3&4-Methylphenol	NA	NA	NA	NA	<22	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
3,3-Dichlorobenzidine	NA	NA	NA	NA	<100	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<50
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	<250	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<50
4-Bromophenyl phenyl ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
4-Chloro-3-methylphenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
4-Nitrophenol	NA	NA	NA	NA	<250	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<50
Acenaphthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Acenaphthylene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Anthracene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Azobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Benz(a)anthracene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10

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
Benidine	NA	NA	NA	NA	<100	<10	<10	<10	<10.8	<10	41	<10	<10	<10	<148	<8.04	<100
Benzo(a)pyrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Benzo(b)fluoranthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Benzo(g,h,i)perylene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Benzo(k)fluoranthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Bis(2-chloroethoxy) methane	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Bis(2-chloroethyl) ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Bis(2-chloroisopropyl) ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Bis(2-ethylhexyl) phthalate	NA	NA	NA	NA	<50	27	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Butyl benzyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Chrysene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Dibenz(a,h)anthracene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Diethyl phthalate	NA	NA	NA	NA	170	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Dimethyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Di-n-butyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Di-n-octyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Fluoranthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Fluorene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Hexachlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Hexachlorobutadiene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<30
Hexachloro - cyclopentadiene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Hexachloroethane	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<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
Isophorone	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Naphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Nitrobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
N-Nitrosodimethylamine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
N-Nitrosodiphenylamine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Pentachlorophenol	NA	NA	NA	NA	<250	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<50
Phenanthrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Phenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Pyrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<10
Pyridine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10	<10	<10	<10	<10	<148	<8.04	<20

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
Major Ions (mg/L)													
Carbonate	ND	ND	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5
Bicarbonate	ND	ND	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5
Calcium	572	528	508	496	474	462	465	322	524	402	477	538	480
Chloride	3700	3860	2750	3510	3110	3730	3270	3720	3850	4040	3820	4310	3870
Fluoride	3.3	ND	<0.1	2.4	2.1	1.32	161	130	204	48.4	110	116	105
Magnesium	4100	4030	3750	3790	3640	3760	3320	2780	3810	3570	3630	4470	3700
Nitrogen-Ammonia	4020	3620	3240	3820	2940	3540	1880	3500	367	3800	500	5620	4420
Nitrogen-Nitrate	30.9	20.3	38	126	38	27	47.2	35	1.06	12.7	13.7	12.1	33.0
Potassium	636	560	689	620	636	611	622	489	659	512	668	774	710
Sodium	4050	4600	4410	4770	4590	4380	3980	3130	4800	4690	4810	5290	4600
Sulfate	60600	74000	72200	63700	64200	58300	83700	62200	57800	83900	58300	63300	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
TDS	84300	74600	84100	79900	80200	83800	92200	87000	88200	93100	85900	99900	94300
Conductivity (umhos/cm)	NA	NA	88700	60200	51400	52900	51100	54100	58800	44500	52600	58200	55700
Metals (ug/L)													
Arsenic	26900	19300	14200	23500	17800	19400	21000	19800	13300	16900	21100	19600	23000
Beryllium	298	245	271	267	231	251	262	197	275	259	261	241	280
Cadmium	5500	5840	5510	6370	5580	5290	5780	6480	6260	6610	6790	6380	6500
Chromium	2750	2450	2230	2510	2380	2350	2290	1630	1840	1630	2290	2100	2100
Cobalt	46500	43800	38700	48200	42500	48700	44900	46700	46000	46100	50600	46900	54000
Copper	106000	154000	170000	148000	132000	138000	137000	126000	143000	156000	148000	136000	160000
Iron	2770000	3310000	3230000	2720000	2960000	2850000	2810000	2180000	3000000	3410000	3430000	3030000	3600000
Lead	566	528	403	586	501	619	515	638	268	484	593	589	590
Manganese	117000	130000	160000	144000	123000	141000	122000	98000	136000	149000	151000	137000	170000
Mercury	ND	ND	<0.5	<4	11.1	1.9	<0.5	<0.0020	<0.5	<2.00	<2.00	<2.00	<0.2
Molybdenum	4080	3190	2240	4630	3510	3610	3650	4250	2010	3360	4060	3340	3200
Nickel	123000	122000	108000	126000	111000	125000	108000	127000	120000	134000	133000	121000	140000
Selenium	422	647	726	844	714	711	678	1020	631	615	683	635	1300
Silver	ND	ND	<10	<10	<10	<10	<10	<100	<20	<100	<100	<100	<50
Thallium	361	703	368	470	371	338	278	402	233	212	373	374	390
Tin	ND	ND	<100	<100	<100	<100	<100	<17000	<100	<17000	<17000	<17000	<50
Uranium	23000	29200	29900	30600	27100	33400	22800	26400	27200	27300	28600	25200	29000
Vanadium	409000	463000	536000	469000	454000	475000	452000	497000	513000	497000	534000	516000	500000
Zinc	767000	750000	582000	652000	574000	639000	631000	405000	702000	764000	760000	728000	850000
Radiologics (pCi/L)													
Gross Alpha	1290	1570	1580	1000	1230	1370 (2400)*	2270	6890	7210	5660	4570	7520	3790
VOCS (ug/L)													
Acetone	550	410	570	460	690	600	384	<700	599	473	551	551	449
Benzene	ND	ND	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Carbon tetrachloride	ND	ND	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Chloroform	20	17	16	15	20	16	21.4	<70.0	18.6	15	17.1	17.1	16
Chloromethane	1.8	ND	2.2	2.3	2	3	2.04	<30.0	<1	<1	1.46	1.46	2.2

**Cell 2 Slimes Drain
Chemical and Radiological Characteristics**

Constituents	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MEK	65	ND	100	83	130	100	95.5	<4000	102	80.3	58.4	58.4	135
Methylene Chloride	ND	ND	<1	<1	<1	<1	<1	<5.0	<1	<1	1.02	1.02	0.49 J
Naphthalene	14	7.5	16	17	13	12	16.8	<100	16.2	11.9	10.1	10.1	13
Tetrahydrofuran	15	NA	<100	<10	<10	3.2	3.98	<46.0	2.16	<1	2.88	2.88	<10
Toluene	1.7	ND	2.6	2.6	3	2	3.23	<1000	3.74	2.94	3.20	3.20	2.4
Xylenes	1.5	ND	<1	2.2	<1	2	5.97	<10000	<1	<1	<1	<1	0.51 J
SVOCS (ug/L)													
1,2,4-Trichlorobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
1,2-Dichlorobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
1,3-Dichlorobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
1,4-Dichlorobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
1-Methylnaphthalene	NA	NA	<11	<10	<10	<10	<10	11	<10	<10	<10	<9.03	12
2,4,5-Trichlorophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2,4,6-Trichlorophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2,4-Dichlorophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2,4-Dimethylphenol	NA	NA	<51	<20	<20	<10	<10	<10	<10	<10	<10	<9.03	<10
2,4-Dinitrophenol	NA	NA	<11	<10	<10	<20	<20	<20	<20	<10	<10	<9.03	<50
2,4-Dinitrotoluene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2,6-Dinitrotoluene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2-Chloronaphthalene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2-Chlorophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2-Methylnaphthalene	NA	NA	<11	<10	<10	<10	<10	11	<10	11.1	<10	<9.03	11
2-Methylphenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
2-Nitrophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
3&4-Methylphenol	NA	NA	<21	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
3,3'-Dichlorobenzidine	NA	NA	<51	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<46
4,6-Dinitro-2-methylphenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<50
4-Bromophenyl phenyl ether	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
4-Chloro-3-methylphenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
4-Chlorophenyl phenyl ether	NA	NA	<51	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
4-Nitrophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<50
Acenaphthene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Acenaphthylene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Anthracene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Azobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Benz(a)anthracene	NA	NA	<21	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Benzidine	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<92
Benzo(a)pyrene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Benzo(b)fluoranthene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Benzo(g,h,i)perylene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Benzo(k)fluoranthene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Bis(2-chloroethoxy)methane	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Bis(2-chloroethyl) ether	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Bis(2-chloroisopropyl) ether	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10

**Cell 2 Slimes Drain
Chemical and Radiological Characteristics**

Constituents	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Bis(2-ethylhexyl) phthalate	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	1.1
Butyl benzyl phthalate	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Chrysene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Dibenz(a,h)anthracene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Diethyl phthalate	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Dimethyl phthalate	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	1.5
Di-n-butyl phthalate	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Di-n-octyl phthalate	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Fluoranthene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Fluorene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Hexachlorobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Hexachlorobutadiene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<28
Hexachlorocyclopentadiene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Hexachloroethane	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<28
Indeno(1,2,3-cd)pyrene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Isophorone	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Naphthalene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	5.3
Nitrobenzene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
N-Nitrosodimethylamine	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
N-Nitrosodi-n-propylamine	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
N-Nitrosodiphenylamine	NA	NA	<51	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Pentachlorophenol	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<50
Phenanthrene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Phenol	NA	NA	<11	10.7	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Pyrene	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<10
Pyridine	NA	NA	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.03	<18

* 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
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
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
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
Radiologies (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
VOCS (ug/L)											
Acetone	<20	<20	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
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 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
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
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
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
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
VOCS (ug/L)																	
Acetone	28	NA	80	100	67	37	330	64	302	159	<700	82.8	<200	48.4	135	NS	135
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
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
Acenaphthylene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10	<10	<10	<10	<10	<1,490	<7.78	<10
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
Major Ions (mg/L)											
Carbonate	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5
Bicarbonate	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5
Calcium	627	598	558	591	668	445	604	632	607	707	510
Chloride	4650	7350	5870	4980	4530	5900	6410	7040	8060	10100	8670
Fluoride	0.3	21.6	30.6	43	1130	1290	1660	2030	1420	2000	1650
Magnesium	3250	4940	4720	2230	3660	2990	3910	3550	4360	7030	4100
Nitrogen-Ammonia	3140	5230	4930	1540	1340	2730	11	4770	924	9060	6700
Nitrogen-Nitrate	28	52	44	27	38.2	39.5	19.9	41.9	53.4	73.4	70.4
Potassium	980	1440	1450	558	773	724	1020	915	1500	2020	1200
Sodium	5980	11300	11400	7130	6860	7190	9760	9580	12000	17600	15000
Sulfate	67600	87100	267000	64900	83300	64900	77200	126000	77800	116000	81300
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
TDS	81400	107000	108000	76000	90000	97000	104000	124000	120000	147000	122000
Conductivity (umhos/cm)	131000	101000	82100	78100	66300	73000	89600	81300	89800	115000	81400
Metals (ug/L)											
Arsenic	626000	109000	86600	60500	73700	70000	82600	94400	104000	125000	63000
Beryllium	296	215	323	167	247	190	281	320	440	538	420
Cadmium	1920	3670	2190	844	1450	1780	2090	2850	3360	3850	2500
Chromium	3220	7500	5900	5990	5220	4620	5460	7920	8520	9350	7200
Cobalt	9440	26500	22500	22900	22900	27500	26100	32800	37900	41000	28000
Copper	99200	168000	181000	433000	540000	556000	477000	566000	578000	683000	580000
Iron	2360000	2920000	3390000	3190000	2620000	2280000	3090000	3850000	4480000	5320000	3200000
Lead	5360	11800	11000	5270	11500	14800	11700	14000	15100	16400	9000
Manganese	178000	209000	131000	112000	143000	120000	181000	225000	261000	307000	210000
Mercury	1.19	<4	15.2	2.4	0.786	2.5	0.99	<2	2.30	2.52	2.1
Molybdenum	24300	43800	24200	58200	25500	40600	35400	43900	40800	59100	19000
Nickel	17100	40900	43500	41300	43300	54100	48700	61300	66800	71900	50000
Selenium	4620	5810	4460	1310	2080	2000	2400	2820	4450	5870	3700
Silver	78	193	216	127	144	197	186	305	379	521	310
Thallium	162	350	410	250	256	376	436	568	169	727	90
Tin	257	378	319	169	118	<17000	142	<17000	<17000	<17000	77
Uranium	118000	217000	153000	91000	112000	159000	171000	214000	193000	244000	35000
Vanadium	918000	1090000	730000	237000	461000	535000	577000	715000	972000	1080000	150000
Zinc	142000	224000	286000	200000	183000	169000	237000	318000	344000	406000	280000

Cell 4A
Chemical and Radiological Characteristics

Constituent	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Radiologies (pCi/L)											
Gross Alpha	8910	3400	8290	16300	15800	240000	176000 (8/4/2015) 37800 (5/28/2015)	292000	133000	516000	261000
VOCS (ug/L)											
Acetone	60	55	100	25	28.4	<700	42.5	45.1	21.4	42.7	39 J
Benzene	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	<1	<2.5
Carbon tetrachloride	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	<1	<2.5
Chloroform	4	8.5	10	<1	<1	<70.0	<1	<1	<1	1.91	1.9 J
Chloromethane	3.4	5.5	7.9	<1	<1	<30.0	<1	<1	1.35	1.76	1.7 J
MEK	<1	<1	<1	<1	<20	<4000	<20	<20	<20	<20	13 J
Methylene Chloride	<1	<1	<1	<20	<1	<5.0	<1	<1	<1	<1	<2.5
Naphthalene	1.8	<1	<1	<1	<1	<100	<1	<1	<1	<1	<2.5
Tetrahydrofuran	<100	<10	<10	1.36	<1	<46.0	<1	12.6	<1	<1	<35.0
Toluene	<1	<1	<1	<1	<1	<1000	<1	<1	<1	<1	<2.5
Xylenes	<1	<1	<1	<1	<1	<10000	<1	<1	<1	<1	<2.5
SVOCS (ug/L)											
1,2,4-Trichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
1,2-Dichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
1,3-Dichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
1,4-Dichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
1-Methylnaphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2,4,5-Trichlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2,4,6-Trichlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2,4-Dichlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2,4-Dimethylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2,4-Dinitrophenol	<53	<20	<20	<20	<20	<20	<20	<10	<10	<8.57	<50
2,4-Dinitrotoluene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2,6-Dinitrotoluene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2-Chloronaphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2-Chlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2-Methylnaphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2-Methylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
2-Nitrophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
3&4-Methylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
3,3'-Dichlorobenzidine	<21	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<46
4,6-Dinitro-2-methylphenol	<53	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<50
4-Bromophenyl phenyl ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
4-Chloro-3-methylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
4-Chlorophenyl phenyl ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
4-Nitrophenol	<53	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<50
Acenaphthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Acenaphthylene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10

Cell 4A
Chemical and Radiological Characteristics

Constituent	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Anthracene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	1.2
Azobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Benz(a)anthracene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Benzidine	<21	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Benzo(a)pyrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Benzo(b)fluoranthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Benzo(g,h,i)perylene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Benzo(k)fluoranthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Bis(2-chloroethoxy)methane	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Bis(2-chloroethyl) ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Bis(2-chloroisopropyl) ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Bis(2-ethylhexyl) phthalate	<11	19.6	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Butyl benzyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Chrysene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Dibenz(a,h)anthracene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Diethyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Dimethyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Di-n-butyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Di-n-octyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Fluoranthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Fluorene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Hexachlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Hexachlorobutadiene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<28
Hexachlorocyclopentadiene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Hexachloroethane	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<28
Indeno(1,2,3-cd)pyrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Isophorone	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Naphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Nitrobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
N-Nitrosodimethylamine	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
N-Nitrosodi-n-propylamine	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
N-Nitrosodiphenylamine	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Pentachlorophenol	<53	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<50
Phenanthrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Phenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Pyrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<8.57	<10
Pyridine	<11	<10	<10	<10	<10	<10	<10	<10	<10	34.0	<19

Cell 4A LDS
Chemical and Radiological Characteristics

Constituent	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Major Ions (mg/L)											
Carbonate	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5
Bicarbonate	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5
Calcium	558	474	470	453	429	336	510	446	542	516	520
Chloride	7570	4670	6040	2710	1910	4200	2860	5200	8610	4360	7360
Fluoride	0.7	39.4	46	27	1970	1320	282	1150	1370	716	1530
Magnesium	6390	3240	5100	2070	1710	2690	2730	3940	4630	3820	3800
Nitrogen-Ammonia	4480	2290	3480	1320	1010	2920	13.4	5050	846	4580	6080
Nitrogen-Nitrate	69	183	94	15	28.9	39	27.4	40.9	63.1	44.0	58.2
Potassium	1960	934	1500	503	305	415	245	675	1710	539	1000
Sodium	12600	6700	11000	3500	2930	4190	3490	8050	11500	6780	13000
Sulfate	92400	41700	77400	39600	31400	56000	50500	91300	89100	68600	72600
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
TDS	117000	56900	93800	55400	49700	81900	65200	95400	142000	75300	112000
Conductivity (umhos/cm)	150000	49000	66600	39600	31300	53600	50200	62200	97900	63400	75600
Metals (ug/L)											
Arsenic	133000	54000	74700	44100	35700	51200	10400	43500	117000	42400	52000
Beryllium	536	295	367	180	188	185	199	289	479	298	370
Cadmium	4010	2650	3160	921	1170	4720	4270	4500	4080	3740	1900
Chromium	9140	3890	5940	3930	2630	2780	1760	4250	9410	3930	6500
Cobalt	37300	15200	21700	22300	44300	41200	33700	32100	42700	30600	25000
Copper	222000	116000	150000	481000	754000	439000	160000	331000	650000	376000	500000
Iron	3940000	1420000	2530000	2460000	1370000	1850000	1320000	2330000	5140000	2090000	2500000
Lead	5270	3400	4520	2300	165	991	46.8	797	15500	118	4200
Manganese	389000	157000	207000	95200	86300	98600	96700	184000	296000	136000	190000
Mercury	2.66	6.2	14.7	0.7	<0.5	<0.0020	<0.5	<2.00	<2.00	<2.00	1.4
Molybdenum	49200	23900	29300	10200	1200	3970	278	10700	49900	2350	8400
Nickel	43900	23900	29600	35000	54600	99300	86300	72700	74700	70900	46000
Selenium	5250	2820	3780	1260	1020	2170	649	1590	4940	1550	3100
Silver	204	62	127	44	24.8	<100	25.6	144	312	<100	230
Thallium	252	194	290	332	171	522	218	439	550	281	55
Tin	504	180	119	<100	<100	<17000	<100	<17000	<17000	<17000	<70
Uranium	284000	145000	168000	90200	75000	82200	25000	116000	247000	78600	38000
Vanadium	1150000	518000	770000	240000	157000	510000	253000	449000	1090000	475000	130000
Zinc	298000	152000	204000	181000	163000	306000	510000	502000	385000	446000	210000

**Cell 4A LDS
Chemical and Radiological Characteristics**

Constituent	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Radiologics (pCi/L)											
Gross Alpha	7020	3230	7440	4730	6930	61800	17200 (8/4/2015) 1670 (5/28/2015)	98700	176000	51000	163000
VOCS (ug/L)											
Acetone	240	130	120	55	57	<700	84.7	61.5	79.8	108	84
Benzene	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Chloroform	23	52	26	42	110	95	129	84.5	21.6	33.8	31
Chloromethane	7.9	13	3.8	6	9.93	<30.0	5.35	<1.00	3.00	2.41	3.6
MEK	78	50	82	36	<20	<4000	<20	<20	<20	<20	43
Methylene Chloride	<1	<1	<1	<1	<1	<5.0	<1	<1	<1	1.05	0.47 J
Naphthalene	<1	1.5	<1	1	2.35	<100	<1	<1	<1	<1	<1
Tetrahydrofuran	140	158	102	117	39.1	<46.0	18.5	<1	15.7	19.7	16
Toluene	<1	<1	<1	<1	<1	<1000	<1	<1	<1	<1	<1
Xylenes	<1	<1	<1	<1	<1	<10000	<1	<1	<1	<1	<1
SVOCS (ug/L)											
1,2,4-Trichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
1,2-Dichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
1,3-Dichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
1,4-Dichlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
1-Methylnaphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2,4,5-Trichlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2,4,6-Trichlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2,4-Dichlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2,4-Dimethylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	11.1	<10
2,4-Dinitrophenol	<54	<20	<20	<20	<20	<20	<20	<10	<10	<9.08	<50
2,4-Dinitrotoluene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2,6-Dinitrotoluene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2-Chloronaphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2-Chlorophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2-Methylnaphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2-Methylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
2-Nitrophenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
3&4-Methylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
3,3'-Dichlorobenzidine	<22	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<46
4,6-Dinitro-2-methylphenol	<54	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<50
4-Bromophenyl phenyl ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
4-Chloro-3-methylphenol	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
4-Chlorophenyl phenyl ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
4-Nitrophenol	<54	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<50
Acenaphthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Acenaphthylene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10

Cell 4A LDS

Chemical and Radiological Characteristics

Constituent	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Anthracene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Azobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Benz(a)anthracene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Benzidine	<22	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Benzo(a)pyrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Benzo(b)fluoranthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Benzo(g,h,i)perylene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Benzo(k)fluoranthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Bis(2-chloroethoxy)methane	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Bis(2-chloroethyl) ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Bis(2-chloroisopropyl) ether	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Bis(2-ethylhexyl) phthalate	<11	54.9	54.9	16.6	<10	<10	<10	<10	<10	<9.08	1.1
Butyl benzyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Chrysene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Dibenz(a,h)anthracene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Diethyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Dimethyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Di-n-butyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Di-n-octyl phthalate	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Fluoranthene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Fluorene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Hexachlorobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Hexachlorobutadiene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<28
Hexachlorocyclopentadiene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Hexachloroethane	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<28
Indeno(1,2,3-cd)pyrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Isophorone	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Naphthalene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Nitrobenzene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
N-Nitrosodimethylamine	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
N-Nitrosodi-n-propylamine	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
N-Nitrosodiphenylamine	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Pentachlorophenol	<54	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<50
Phenanthrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Phenol	33	23.5	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Pyrene	<11	<10	<10	<10	<10	<10	<10	<10	<10	<9.08	<10
Pyridine	<11	<10	<10	<10	<10	<10	<10	<10	<10	12.9	<19

Cell 4B
Chemical and Radiological Characteristics

Constituent	2011	2012	2013	2014	2015	2016	2017	2018	2019
Major Ions (mg/L)									
Carbonate	<1	<1	<1	<1	<1	<1	<1	<1	<5
Bicarbonate	<1	<1	<1	<1	<1	<1	<1	<1	<5
Calcium	570	580	662	366	655	523	473	664	670
Chloride	8290	8170	4570	7300	8500	12000	6930	7860	10500
Fluoride	26.7	23.3	1050	1150	1210	1780	1170	1410	2300
Magnesium	3910	4500	3560	3310	5530	5780	3550	5790	6500
Nitrogen-Ammonia	5220	5580	2060	5380	1.09	8690	724	7590	8150
Nitrogen-Nitrate	39	42	51.4	47	15.2	64.5	31.3	42.2	38.6
Potassium	1370	1650	1110	989	1700	1710	1230	1660	1900
Sodium	9050	11700	3150	7100	12800	14100	10600	15700	18000
Sulfate	134000	119000	98100	91500	108000	285000	708000	98400	124000
pH (s.u.)	1.87	1.5	1.65	1.6	1.35	1.26	1.41	1.24	1.53
TDS	98000	128000	108000	131000	149000	172000	103000	117000	180000
Conductivity (umhos/cm)	76900	86900	72800	90100	115000	116000	93800	107000	99600
Metals (ug/L)									
Arsenic	67400	80000	65400	70400	106000	139000	82700	97800	140000
Beryllium	311	356	334	275	430	557	347	407	640
Cadmium	1990	2540	1990	2290	2980	4260	2340	2520	2000
Chromium	6860	8280	6390	6940	7450	11900	7800	8630	12000
Cobalt	17800	29300	21300	24600	33700	46700	30300	32900	44000
Copper	193000	340000	340000	368000	499000	684000	457000	539000	830000
Iron	2960000	3580000	2830000	2480000	4340000	6340000	3690000	4400000	5800000
Lead	9960	11600	9820	10900	13400	17900	12200	12500	16000
Manganese	128000	148000	154000	129000	231000	325000	207000	242000	320000
Mercury	13.7	2.6	1.49	<0.0020	1.72	<2.00	<2.00	<2.00	0.46
Molybdenum	21400	27600	26100	29000	39800	55400	22600	27400	29000
Nickel	33900	50500	35100	42000	56400	79600	53000	57800	78000
Selenium	4670	4470	3900	5010	5600	7300	3740	4510	6600
Silver	137	169	137	142	195	307	<100	160	170
Thallium	237	368	243	258	408	559	17.5	33.7	<100
Tin	196	215	163	<17000	211	<17000	<17000	<17000	340
Uranium	133000	171000	110000	133000	200000	278000	23100	28100	36000
Vanadium	660000	783000	163000	666000	881000	868000	746000	828000	710000
Zinc	191000	270000	184000	144000	313000	476000	267000	323000	280000

Cell 4B
Chemical and Radiological Characteristics

Constituent	2011	2012	2013	2014	2015	2016	2017	2018	2019
Radiologies (pCi/L)									
Gross Alpha	8590	13600	14600	148000	267000 (8/4/2015) 42500 (5/28/2015)	262000	132000	320000	310000
VOCS (ug/L)									
Acetone	130	94	43.5	<700	56.2	86.4	38.6	56.8	39
Benzene	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Chloroform	9.4	4	8.06	<70.0	2.34	3.07	2.39	2.17	3.4
Chloromethane	8.5	8	7.12	<30.0	3.62	6.01	1.26	1.72	2.1
MEK	<1	<1	<20	<4000	<20	<20	<20	27.4	15 J
Methylene Chloride	<1	<1	<1	<5.0	<1	<1	<1	<1	<1
Naphthalene	<1	<1	<1	<100	<1	<1	<1	<1	<1
Tetrahydrofuran	<10	11.1	<1	<46.0	<1	<1	<1	1.87	<35.0
Toluene	<1	<1	<1	<1000	<1	<1	<1	<1	<1
Xylenes	<1	<1	<1	<10000	<1	<1	<1	<1	<1
SVOCS (ug/L)									
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
1-Methylnaphthalene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<50
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2,4-Dinitrophenol	<20	<20	<20	<20	<20	<10	<10	<8.72	<10
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2-Methylphenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
3&4-Methylphenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
3,3'-Dichlorobenzidine	<10	<10	<10	<10	<10	<10	<10	<8.72	<44
4,6-Dinitro-2-methylphenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<50
4-Bromophenyl phenyl ether	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
4-Chlorophenyl phenyl ether	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
4-Nitrophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<50
Acenaphthene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Anthracene	<10	<10	<10	<10	<10	<10	<10	<8.72	1.7
Azobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Benz(a)anthracene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Benzidine	<10	<10	<10	26	<10	<10	<10	<8.72	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10

Cell 4B

Chemical and Radiological Characteristics

Constituent	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Bis(2-chloroethyl) ether	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Bis(2-chloroisopropyl) ether	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Bis(2-ethylhexyl) phthalate	410	19	<10	<10	<10	<10	<10	<8.72	<10
Butyl benzyl phthalate	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Chrysene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Dibenz(a,h)anthracene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Diethyl phthalate	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Dimethyl phthalate	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Di-n-butyl phthalate	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Di-n-octyl phthalate	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Fluoranthene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Fluorene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10	<10	<8.72	<26
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10	<10	<8.72	<26
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Isophorone	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Naphthalene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Nitrobenzene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
N-Nitrosodimethylamine	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
N-Nitrosodi-n-propylamine	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
N-Nitrosodiphenylamine	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Pentachlorophenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<50
Phenanthrene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Phenol	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Pyrene	<10	<10	<10	<10	<10	<10	<10	<8.72	<10
Pyridine	<10	<10	<10	15	<10	<10	<10	31.7	<18

Cell 4B LDS
Chemical and Radiological Characteristics

Constituent	2011	2012	2013	2014	2015	2016	2017	2018	2019
Major Ions (mg/L)									
Carbonate	<1	<1	dry	<1	<1	<1	<1	<1	<5
Bicarbonate	<1	<1	dry	<1	<1	<1	<1	<1	<5
Calcium	486	456	dry	308	538	547	516	592	550
Chloride	3630	6850	dry	6900	7960	8510	10400	8060	8050
Fluoride	28.4	22	dry	970	1150	1290	1050	1480	1680
Magnesium	3230	3360	dry	3400	5190	4780	5370	5580	4800
Nitrogen-Ammonia	4260	4090	dry	5240	2.43	7540	739	7510	7080
Nitrogen-Nitrate	30	31	dry	43	16.6	49.6	63.9	47.4	41.2
Potassium	1130	1060	dry	952	1560	1360	2130	1620	1400
Sodium	8240	8080	dry	6920	11900	10800	13200	14500	13000
Sulfate	59900	99100	dry	82300	104000	163000	117000	100000	89500
pH (s.u.)	2.23	2.4	dry	2.2	1.51	1.88	1.44	1.35	1.73
TDS	85800	90200	dry	129000	131000	133000	168000	132000	131000
Conductivity (umhos/cm)	63000	62400	dry	76300	106000	68400	105000	104000	80800
Metals (ug/L)									
Arsenic	54200	41200	dry	67800	98400	98800	135000	94100	89000
Beryllium	274	271	dry	282	411	430	559	416	470
Cadmium	1670	1740	dry	2290	2790	3250	4500	2610	2000
Chromium	6250	5930	dry	6160	7320	9470	13700	8980	9100
Cobalt	15600	19000	dry	23300	31100	33600	48900	31700	31000
Copper	176000	181000	dry	308000	458000	475000	681000	497000	550000
Iron	2450000	2120000	dry	2590000	4180000	4680000	5910000	4190000	4400000
Lead	6060	4420	dry	4120	10100	5860	14000	8770	7800
Manganese	118000	162000	dry	144000	222000	262000	346000	239000	240000
Mercury	12.3	3	dry	0.002	1.47	<2.00	<2.00	<2.00	0.11J
Molybdenum	16700	15000	dry	24300	36300	35500	52900	25900	27000
Nickel	30700	33700	dry	40100	52600	58100	84400	56100	59000
Selenium	3710	2880	dry	4080	5080	5310	6860	4500	4700
Silver	111	117	dry	119	179	224	266	156	170
Thallium	179	175	dry	336	354	414	427	245	87
Tin	332	<100	dry	<17000	198	<17000	<17000	<17000	200
Uranium	111000	132000	dry	143000	185000	192000	269000	54200	31000
Vanadium	518000	428000	dry	671000	817000	847000	1260000	811000	760000
Zinc	172000	182000	dry	144000	296000	315000	443000	303000	280000

**Cell 4B LDS
Chemical and Radiological Characteristics**

Constituent	2011	2012	2013	2014	2015	2016	2017	2018	2019
Radiologics (pCi/L)									
Gross Alpha	6000	7500	dry	181000	375000 (8/4/2015) 52500 (5/28/2015)	185000	165000	305000	226000
VOCS (ug/L)									
Acetone	390	370	dry	<700	218	266	479	147	102
Benzene	<1	<1	dry	<5.0	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	dry	<5.0	<1	<1	<1	<1	<1
Chloroform	20	19	dry	<70.0	5.03	9.97	9.13	4.74	3.9
Chloromethane	11	11	dry	<30.0	9.72	10.8	7.16	2.4	2.3
MEK	240	180	dry	<4000	71.8	53.6	89.4	34.6	71
Methylene Chloride	<1	<1	dry	<5.0	<1	<1	1.01	<1	<1
Naphthalene	<1	<1	dry	<100	<1	<1	<1	<1	<1
Tetrahydrofuran	198	322	dry	75.6	36.6	75.9	51.2	17.3	53
Toluene	<1	<1	dry	<1000	<1	<1	<1	<1	<1
Xylenes	<1	<1	dry	<10000	<1	<1	<1	<1	<1
SVOCS (ug/L)									
1,2,4-Trichlorobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
1,2-Dichlorobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
1,3-Dichlorobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
1,4-Dichlorobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
1-Methylnaphthalene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2,4,5-Trichlorophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2,4,6-Trichlorophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2,4-Dichlorophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2,4-Dimethylphenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2,4-Dinitrophenol	<20	<20	dry	<20	<20	<20	<10	<8.79	<50
2,4-Dinitrotoluene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2,6-Dinitrotoluene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2-Chloronaphthalene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2-Chlorophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2-Methylnaphthalene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2-Methylphenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
2-Nitrophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
3&4-Methylphenol	<10	<10	dry	<10	<10	<10	<10	<8.79	0.42
3,3'-Dichlorobenzidine	<10	<10	dry	<10	<10	<10	<10	<8.79	<45
4,6-Dinitro-2-methylphenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<50
4-Bromophenyl phenyl ether	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
4-Chloro-3-methylphenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
4-Chlorophenyl phenyl ether	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
4-Nitrophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<50
Acenaphthene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Acenaphthylene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10

Cell 4B LDS
Chemical and Radiological Characteristics

Constituent	2011	2012	2013	2014	2015	2016	2017	2018	2019
Anthracene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Azobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Benz(a)anthracene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Benzidine	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Benzo(a)pyrene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Benzo(b)fluoranthene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Benzo(g,h,i)perylene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Benzo(k)fluoranthene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Bis(2-chloroethoxy)methane	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Bis(2-chloroethyl) ether	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Bis(2-chloroisopropyl) ether	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Bis(2-ethylhexyl) phthalate	191	191	dry	27	<10	132	145	65.9	16
Butyl benzyl phthalate	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Chrysene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Dibenz(a,h)anthracene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Diethyl phthalate	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Dimethyl phthalate	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Di-n-butyl phthalate	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Di-n-octyl phthalate	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Fluoranthene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Fluorene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Hexachlorobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Hexachlorobutadiene	<10	<10	dry	<10	<10	<10	<10	<8.79	<27
Hexachlorocyclopentadiene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Hexachloroethane	<10	<10	dry	<10	<10	<10	<10	<8.79	<27
Indeno(1,2,3-cd)pyrene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Isophorone	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Naphthalene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Nitrobenzene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
N-Nitrosodimethylamine	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
N-Nitrosodi-n-propylamine	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
N-Nitrosodiphenylamine	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Pentachlorophenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<50
Phenanthrene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Phenol	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Pyrene	<10	<10	dry	<10	<10	<10	<10	<8.79	<10
Pyridine	<10	<10	dry	<10	<10	<10	<10	29.1	<18

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

**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

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

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

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

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

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

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 LBS	Cell 4B Solutions	Cell 4B LBS	Cell 65 (Cell 1)
Carbonate	14 days	OK	OK	OK	OK	OK	OK	OK	OK
Bicarbonate	14 days	OK	OK	OK	OK	OK	OK	OK	OK
Calcium	6 months	OK	OK	OK	OK	OK	OK	OK	OK
Chloride	28 days	OK	OK	OK	OK	OK	OK	OK	OK
Fluoride	28 days	OK	***	OK	OK	OK	OK	OK	OK
Magnesium	6 months	OK	OK	OK	OK	OK	OK	OK	OK
Nitrogen-Ammonia	28 days	OK	OK	OK	OK	OK	OK	OK	OK
Nitrogen-Nitrate	28 days	OK	OK	OK	OK	OK	OK	OK	OK
Potassium	6 months	OK	OK	OK	OK	OK	OK	OK	OK
Sodium	6 months	OK	OK	OK	OK	OK	OK	OK	OK
Sulfate	28 days	OK	OK	OK	OK	OK	OK	OK	OK
pH (pH units)	Immediately	OK*	OK*	OK*	OK*	OK*	OK*	OK*	OK*
TDS	7 days	OK	OK	OK	OK	OK	OK	OK	OK
Conductivity (umhos/cm)	N/A	OK	OK	OK	OK	OK	OK	OK	OK
Metals	6 months (except mercury which is 28 days)	OK	OK	OK	OK	OK	OK	OK	OK
Radiologics	6 months	OK	OK	OK	OK	OK	OK	OK	OK
VOCS (including THF)	14 days	OK	OK***	OK	OK	OK	OK	OK	OK
SVOCs	7 days to extraction/40 days for analysis	***	***	***	***	***	***	***	***

* 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.

*** Hold times were exceeded as noted in Section 4.3.2 of the text

E-2 Laboratory Receipt Temperature Check

Work Order Number/Lab Set ID	Receipt Temp
GEL - 488668	N/A
EL - C19081073	OK*

N/A = These shipments contained samples for the analysis of radionuclides only. Samples submitted for radionuclide analyses do not have a sample temperature requirement.

*The samples were received at EL from the Mill at <6.0°C. As noted in the text, Section 4.3.3, when EL shipped the SVOCs to the subcontract lab, 4 samples were received at 7.6°C.

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	SW8260C
Chloride	A4500-Cl B or E300.0	E300.0
Fluoride	A4500-F C or E300.0	E300.0
Sulfate	A4500-SO4 E or E300.0	E300.0
TDS	A2540 C	SM2540C
Carbonate as CO ₃ , Bicarbonate as HCO ₃	A2320 B	SM2320B
pH	Not Specified	SW9040C
Conductivity	Not Specified	SM2510B
SVOCs	SW8270D	SW8270C

** - 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	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 CO ₃ , Bicarbonate as HCO ₃	*
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 reporting limits established by the laboratory are reported here. The reporting limits are comparable to other analytes in the same method based on the matrix.

** - 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

All trip blanks for the 2019 sampling program were nondetect.

Blank	Sample Date	Laboratory
1	8/21/2019	EL

E-6 Duplicate Sample Relative Percent Difference**

Major Ions (mg/l)	Cell 1	Cell 65	RPD %
Carbonate	<5	<5	NC
Bicarbonate	<5	<5	NC
Calcium	720	620	14.9
Chloride	19800	19300	2.6
Fluoride	3480	2980	15.5
Magnesium	9200	7000	27.2
Nitrogen-Ammonia	10400	12000	14.3
Nitrogen-Nitrate	118	114	3.4
Potassium	2600	1900	31.1
Sodium	28000	21000	28.6
Sulfate	169000	169000	0.0
pH (s.u.)	1.14	1.13	0.9
TDS	257000	255000	0.8
Conductivity (umhos/cm)	119000	118000	0.8
Metals (mg/l)			
Arsenic	270	230	16.0
Beryllium	0.93	0.90	3.3
Cadmium	5.4	4.8	11.8
Chromium	15	12	22.2
Cobalt	66	60	9.5
Copper	1700	1500	12.5
Iron	9100	7800	15.4
Lead	22	22	0.0
Manganese	540	470	13.9
Mercury	0.0037	0.0032	14.5
Molybdenum	120	110	8.7
Nickel	110	90	20.0
Selenium	10	7.9	23.5
Silver	0.79	0.69	13.5
Thallium	<700	0.13	NC
Tin	0.54	0.46	16.0
Uranium	81	77	5.1
Vanadium	1400	1300	7.4
Zinc	550	490	11.5
Radiologics (pCi/l)			
Gross Alpha*	326000	398000	17.9
VOCS (ug/L)			
Acetone	28	30	6.9
Benzene	<1.0	<1.0	NC
Carbon tetrachloride	<1.0	<1.0	NC
Chloroform	7.5	6.9	8.3
Chloromethane	2.3	2.4	4.3
MEK	11	10	9.5
Methylene Chloride	<1.0	<1.0	NC
Naphthalene	<1.0	<1.0	NC
Tetrahydrofuran	<35.0	<35.0	NC
Toluene	<1.0	<1.0	NC
Xylenes	<1.0	<1.0	NC
SVOCS (ug/L)			
1,2,4-Trichlorobenzene	<10	<10	NC
1,2-Dichlorobenzene	<10	<10	NC
1,3-Dichlorobenzene	<10	<10	NC
1,4-Dichlorobenzene	<10	<10	NC
1-Methylnaphthalene	<10	<10	NC
2,4,5-Trichlorophenol	<10	<10	NC
2,4,6-Trichlorophenol	<10	<10	NC
2,4-Dichlorophenol	<10	<10	NC
2,4-Dimethylphenol	<10	<10	NC
2,4-Dinitrophenol	<50	<50	NC
2,4-Dinitrotoluene	<10	<10	NC
2,6-Dinitrotoluene	<10	<10	NC

E-6 Duplicate Sample Relative Percent Difference**

Major Ions (mg/l)	Cell 1	Cell 65	RPD %
2-Chloronaphthalene	<10	<10	NC
2-Chlorophenol	<10	<10	NC
2-Methylnaphthalene	<10	<10	NC
2-Methylphenol	<10	<10	NC
2-Nitrophenol	<10	<10	NC
3&4-Methylphenol	<10	<10	NC
3,3'-Dichlorobenzidine	<50	<49	NC
4,6-Dinitro-2-methylphenol	<50	<50	NC
4-Bromophenyl phenyl ether	<10	<10	NC
4-Chloro-3-methylphenol	<10	<10	NC
4-Chlorophenyl phenyl ether	<10	<10	NC
4-Nitrophenol	<50	<50	NC
Acenaphthene	<10	<10	NC
Acenaphthylene	<10	<10	NC
Anthracene	<10	<10	NC
Azobenzene	<10	<10	NC
Benz(a)anthracene	<10	<10	NC
Benzidine	<100	<10	NC
Benzo(a)pyrene	<10	<10	NC
Benzo(b)fluoranthene	<10	<10	NC
Benzo(g,h,i)perylene	<10	<10	NC
Benzo(k)fluoranthene	<10	<10	NC
Bis(2-chloroethoxy)methane	<10	<10	NC
Bis(2-chloroethyl) ether	<10	<10	NC
Bis(2-chloroisopropyl) ether	<10	<10	NC
Bis(2-ethylhexyl) phthalate	<10	<10	NC
Butyl benzyl phthalate	<10	<10	NC
Chrysene	<10	<10	NC
Dibenz(a,h)anthracene	<10	<10	NC
Diethyl phthalate	<10	<10	NC
Dimethyl phthalate	<10	<10	NC
Di-n-butyl phthalate	<10	<10	NC
Di-n-octyl phthalate	<10	<10	NC
Fluoranthene	<10	<10	NC
Fluorene	<10	<10	NC
Hexachlorobenzene	<10	<10	NC
Hexachlorobutadiene	<30	<30	NC
Hexachlorocyclopentadiene	<10	<10	NC
Hexachloroethane	<30	<30	NC
Indeno(1,2,3-cd)pyrene	<10	<10	NC
Isophorone	<10	<10	NC
Naphthalene	<10	<10	NC
Nitrobenzene	<10	<10	NC
N-Nitrosodimethylamine	<10	<10	NC
N-Nitrosodi-n-propylamine	<10	<10	NC
N-Nitrosodiphenylamine	<10	<10	NC
Pentachlorophenol	<50	<50	NC
Phenanthrene	<10	<10	NC
Phenol	<10	<10	NC
Pyrene	<10	<10	NC
Pyridine	<20	<20	NC

Highlighted cells indicate an RPD that exceeded the 20% RPD criteria

Per the approved QAP, an RPD greater than 20% is acceptable if the reported results are less than 5 times the RL. These results are provided for information only.

* 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.

E-7 Radiologics Counting Error

Sample ID	Gross Alpha minus Rn & U	Gross Alpha minus Rn & U Precision (\pm)	Counting Error \leq 20%	GWQS	Within GWQS
Cell 1	326000	2590	Y	15	NA
Cell 2 Slimes	3790	302	Y	15	NA
Cell 3	3890	302	Y	15	NA
Cell 4A	261000	2840	Y	15	NA
Cell 4A LDS	163000	1990	Y	15	NA
Cell 4B	310000	3100	Y	15	NA
Cell 4B LDS	226000	2230	Y	15	NA
Cell 65 (Duplicate of Cell 1)	398000	3070	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
19081073	Cell 4A	TDS	20	N/A	90 - 110	NC

NC = Not Calculated

LCS % Recovery

Lab Report	Analyte	LCS %REC	REC Range
19081073	1,2,4,-Trichlorobenzene	41	47 - 103
19081073	1,2,-Dichlorobenzene	43	44 - 103
19081073	1,3,-Dichlorobenzene	39	42 - 100
19081073	1,4,-Dichlorobenzene	40	43 - 101
19081073	Hexachlorobutadiene	34	41 - 102
19081073	Indene	45	46 - 108

LCSD % Recovery

Lab Report	Analyte	LCSD %REC	REC Range
19081073	1,1'-Biphenyl	49	53 - 116
19081073	1,2,4,5,-Tetrachlorobenzene	42 •	52 - 100
19081073	1,2,4,-Trichlorobenzene	32	47 - 103
19081073	1,2,-Dichlorobenzene	35	44 - 103
19081073	1,3,-Dichlorobenzene	31	42 - 100
19081073	1,4,-Dichlorobenzene	33	43 - 101
19081073	2-Chloronaphthalene	45	52 - 116
19081073	2-Methylnaphthalene	44	55 - 101
19081073	Acenaphthylene	57	58 - 112
19081073	Hexachlorobutadiene	25	41 - 102
19081073	Hexachloroethane	25	31 - 100
19081073	Naphthalene	46	53 - 105
19081073	1-Methylnaphthalene	46	57 - 100
19081073	Pyridine	22	10 - 69
19081073	Indene	38	46 - 108

Surrogate % Recovery

Lab Report	Well/Sample	Analyte	Surrogate %REC	Lab Specified REC Range
19081073	Cell 1	2,4,6-Tribromophenol	34	52 - 123
19081073	Cell 1	2-Fluorobiphenyl	26	47 - 119
19081073	Cell 1	Nitrobenzene-d5	36	45 - 113
19081073	Cell 1	Terphenyl-d14	27	50 - 123
19081073	Cell 4A	Terphenyl-d14	31	50 - 123
19081073	Cell 4B	2-Fluorobiphenyl	41	47 - 119
19081073	Cell 4B	Terphenyl-d14	31	50 - 123
19081073	Cell 65 (Duplicate of Cell 1)	2,4,6-Tribromophenol	46	52 - 123
19081073	Cell 65 (Duplicate of Cell 1)	2-Fluorobiphenyl	32	47 - 119
19081073	Cell 65 (Duplicate of Cell 1)	Terphenyl-d14	32	50 - 123

E-8: Laboratory Matrix QC**Laboratory Duplicate % Recovery Comparison**

Lab Report	Well	Analyte	Sample Result	Lab Duplicate Result	RPD %	RPD Range %
488668	Cell 3	Gross Alpha	3890	5400	32.6	0-20

Method Blanks

Lab Report	Well	Analyte	Blank Result	Units
19081073	NA	Sulfate	0.20	mg/L