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November 1, 2013

**Sent VIA OVERNIGHT DELIVERY**

Mr. Rusty Lundberg  
Division of Radiation Control  
Utah Department of Environmental Quality  
195 North 1950 West  
P.O. Box 144850  
Salt Lake City, UT 84114-4820

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

Dear Mr. Lundberg:

Enclosed are two copies of the White Mesa Uranium Mill Annual Tailings Wastewater Monitoring Report for 2013 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 blue ink that reads 'JAIME MASSEY'.

**ENERGY FUELS RESOURCES (USA) INC.**  
Jaime Massey  
Regulatory Compliance Specialist

cc: Frank Filas  
Jo Ann Tischler  
Harold R. Roberts  
David E. Turk  
Kathy Weinel  
Dan Hillsten

**White Mesa Uranium Mill**  
**2013 Annual Tailings Cells Wastewater Sampling**  
**Report**

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



Prepared by:

**Energy Fuels Resources (USA) Inc.**  
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**November 1, 2013**

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## **2013 ANNUAL TAILINGS CELLS WASTEWATER SAMPLING REPORT**

### **1.0 INTRODUCTION**

This is the 2013 Annual Tailings Cells 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 Tailings Cells Leak Detection Systems and Slimes Drains*, Revision: 2.1, dated July 30, 2012 (the “Sampling Plan”) and approved by the State of Utah Division of Radiation Control (the “DRC”) on August 2, 2012.

Tailings 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 tailings 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 (the “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 DRC with the Mill’s Third Quarter Groundwater Monitoring Report due December 1, of each year.

### **2.0 SUMMARY OF MILL TAILINGS ACTIVITIES IN 2013**

This section provides a brief description of each tailings impoundment at the Mill, 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 utilizes tailings and evaporation cells for disposal of Mill effluents as indicated below:

- Cell 1: dedicated to evaporation of Mill waste solutions;
- Cell 2: contains Mill tailings, has an interim cover and is closed to future tailings disposal;
- Cell 3: contains Mill tailings and is in the final stages of filling;
- 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 Evaporation Pond (“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 2013, Cell 1 received fluid from the Mill process, stormwater run-off, and Mill laboratory waste. The LDS in Cell 1 was dry in 2013.

## **2.2 Cell 2**

Cell 2 Tailings Impoundment (“Cell 2”) is a 67-acre impoundment built in May of 1980. Cell 2 was taken out of service and covered with interim cover in 2008. Cell 2 is equipped with a LDS, and a slimes drain. The LDS was dry in 2013. As part of closure activities, EFRI began monitoring the slimes drain system in 2008. The fluid from the slimes drain is pumped to Cell 3. Cell 2 no longer receives any solutions or solids.

## **2.3 Cell 3**

Cell 3 Tailings Impoundment (“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 2013 and the slimes drain system will be monitored once dewatering begins. In 2013, Cell 3 received Cell 2 Slimes Drain fluid, solid Mill waste, and solid 11e.2 byproduct material from in situ recovery (“ISR”) facilities.

## **2.4 Cell 4A**

Cell 4A Tailings Impoundment (“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 2013, as described below. In 2013, Cell 4A received solutions from the Mill process, and solid tailings sands.

## **2.4 Cell 4B**

Cell 4B Tailings Impoundment (“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 2013, Cell 4B received fluid from the Mill process. The LDS in Cell 4B was dry in 2013.

## **3.0 SAMPLING EVENTS AND SAMPLING METHODOLOGY**

### **3.1 Sampling Events**

Samples of solutions from tailings Cells 1, 3, 4A, and 4B, the Cell 2 slimes drain and the Cell 4A LDS were collected on August 13, 2013. Upon receipt of the data, review of the Semivolatile Organic Compounds (“SVOCs”) and Volatile Organic Compounds (“VOCs”) data indicated that the laboratory was unable to meet the required reporting limits (“RLs”) for the SVOCs on the Cell 1 and Cell 3 Tailings Fluid samples collected August 13, 2013 and on the VOCs on the Cell 3 sample collected August 13, 2013. EFRI notified DRC via telephone on September 3, 2013 of the raised RL and the likely reasons for the difficulty. DRC directed EFRI to recollect the samples from Cell 1 and Cell 3 to attempt to address the raised RLs. DRC noted that if the resampling did not address the issue, no further sampling was required. This additional sampling event on September 4, 2013, did result in data with acceptable RLs, and no further sampling was conducted after that date. EFRI collected a sample and a duplicate for Cell 1 and a sample for

Cell 3. The Cell 1 sample was analyzed for SVOCs only, and the Cell 3 sample was analyzed for VOCs and SVOCs.

In accordance with the Permit, DRC was notified of the August 13, 2013 sampling event and a DRC representative was present for a part of the sampling. The DRC representative collected a split aliquot of the Tailings Cell 1 sample. DRC was notified by phone of the resampling effort, but did not request or require attendance for the resampling of the Cell 1 and Cell 3 on September 4, 2013.

Maps showing the locations of the tailings 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 tailings wastewater 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 tailings wastewater samples be analyzed for the water quality parameters listed in Table 2 of the Permit and SVOCs.

### **3.2 Field Data**

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

### **3.3 Sampling Methodology, Equipment and Decontamination Procedures**

As noted in the DRC-approved Sampling Plan, Revision 2.1, dated July 30, 2012, 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 by the analytical laboratory within 24 hours of receipt. 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 tailings, LDS and slimes drain samples are at a pH of 3.0 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 Tailings Cells**

Tailings fluid samples were collected at the tailings cell sampling stations shown on the Figures in Tab B using a ladle as noted in the DRC-approved Sampling Plan, Section 3.1.2.

Disposable sample ladles were 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, the Cells are still active 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 DRC-approved Sampling Plan, Section 3.1.3.

Due to the use of 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 stainless steel bucket and disposable ladle as noted in the DRC-approved Sampling Plan, Section 3.2.1.

### **3.3.4 Cells 1, 2, 3, and 4B Leak Detection Systems**

The Cells 1, 2, 3, and 4B LDSs were not sampled during the 2013 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 for the August 13, 2013 sampling event, one duplicate for the September 4, 2013 Cell 1 and Cell 3 resampling event, and one trip blank per shipment to each laboratory which received samples for VOCs. The duplicate samples (Cell 65 and Cell 70) were submitted blind to the analytical laboratory. As previously stated, no rinsate blanks were collected during this sampling event as only 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 American West Analytical Laboratories (“AWAL”).

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 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 this requirement, the data validation completed for the tailings 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 QA Manager 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 and Analytical Request Record 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 QA Manager 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 tailings wastewater samples were analyzed for SVOCs as required by the Permit.

### **4.3 Data Validation**

The QAP and the Permit identify the data validation steps and data quality control checks required for the tailings wastewater monitoring program. Consistent with these requirements, the QA Manager 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 QA Manager performs a review of all field recorded data to assess adherence with QAP, Permit, and Sampling Plan requirements. The assessment involved review of the Field Data sheets. Review of the Field Data Sheets noted that all requirements for field data collection were met.

#### **4.3.2 Holding Time Evaluation**

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

#### **4.3.3 Laboratory Receipt Temperature Check**

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

#### **4.3.4 Analytical Method Check**

All analytical methods reported by both laboratories were checked against the required methods specified in Table 1 of the QAP. 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. Reporting limit evaluations are provided in Tab E. All analytes were measured and reported to or reported below the required reporting limits except the Cell 1 and Cell 3 SVOCs and Cell 3 VOCs as noted in Section 3.1. The Cell 1 and Cell 3 tailings fluid samples were recollected and the reanalyzed samples met the RL requirements of the Permit. 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 a 20% RPD except for fluoride, sulfate, and gross alpha in the duplicate pair Cell 4A LDS/Cell 65. The gross alpha duplicate are discussed in Section 4.3.8 below. The sulfate RPDs are greater than 20 percent (30%). Both of the sulfate sample results reported for Cell 4A LDS/Cell 65 (the Cell 4A duplicate) were not five times greater than the reporting limit of 10,000 mg/L, and, as such, the deviation from the 20% RPD requirement is acceptable.

The fluoride results for the duplicate sample, Cell 4A LDS/Cell 65, did not meet the duplicate comparability check with an RPD of 37%. Per the QAP, Revision 7.2, and in response to requests from UDEQ, 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 for the fluoride results in duplicate pair Cell 4A LDS/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 samples were beyond the holding time.

The lack of comparability of the fluoride results is indicative of a matrix interference. Matrix interference is most likely caused by high concentrations of TDS and other constituents in the sample which interfered with the MS/MSD recoveries during the analyses. There is no effect on the usability of the data due to the fluoride duplicate results exceeding the comparability criteria, because the nature 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 Radiologics 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 wastewater samples the Groundwater Quality Standard (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 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 duplicate sample did not meet the duplicate comparability check specified in the QAP. Results of the RPD test are provided under Tab E. Per QAP, Revision 7.2, and in response to requests from UDEQ, 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 4A LDS/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 lack of comparability of the fluoride results is indicative of a matrix interference. Matrix interference is most likely caused by high concentrations of TDS and other constituents in the sample which interfered with the MS/MSD recoveries during the analyses. There is no effect on the usability of the data due to the fluoride duplicate results exceeding the comparability criteria, because the nature of the sample solution caused the noncompliance.

#### 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 QA Manager 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 AWAL 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 wastewater samples had the reporting limit 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. It should be noted that:

- Laboratory fortified blanks are equivalent to LCSs.
- Laboratory reagent blanks are equivalent to method blanks.
- Post digestion spikes are equivalent to MSs.
- Post digestion spike duplicates are equivalent to MSDs.
- For method E900.1, used to determine gross alpha, a sample duplicate was used instead of a MSD.

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 QA Manager.

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

The information from the Laboratory QA/QC Summary Reports indicates that the MS/MSDs recoveries and the associated RPDs for all tailings wastewater samples were within acceptable laboratory limits for all regulated compounds except as indicated in Tab E. The recoveries and RPDs which are outside of the laboratory established acceptance limits do not affect the quality or usability of the data because the recoveries and RPDs outside of the acceptance limits are indicative of matrix interference. The SVOC and several inorganic analytes were problematic due to the natural pH of the samples as collected. The recoveries outside of acceptance limits reported in these analyses were due to a matrix interference caused by high levels of metals and other inorganic constituents. The QAP requirement to analyze a MS/MSD pair with each analytical batch was met and as such the data are compliant with the QAP.

Eleven metals MS/MSD recoveries were not calculated because the analyte level in the natural sample was 4 times greater than the spike level added by the laboratory. It is not possible to calculate the MS/MSD recovery when the sample results are significantly higher than the spike amount added. In effect, the sample results mask the spike results and the calculations are not possible. There is no effect on the quality or usability of the data.

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

There are eight 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 QAP Section 8.1.2 requires that each analytical batch shall be accompanied by a reagent blank. Contamination detected in analysis of reagent blanks (method blank) will be used to evaluate any analytical laboratory contamination of environmental samples. The QAP criteria for method blanks states that nonconformance will exist when blanks are within an order of magnitude of the sample results. Manganese was reported in one of the method blanks from AWAL at 0.00114 mg/L. Method blank results are included in Tab E. The QAP criteria were met, because the method blank was not within an order of magnitude of the sample results. The QAP requirement to analyze a method blank with each batch and evaluate the results has been completed as required.

## **5.0 HISTORIC DATA**

The historic analytical data for the tailings wastewater sampling program are included in Tab D. In addition, the minimum and maximum concentrations compiled in the Utah Division of Radiation Control Groundwater Quality Discharge Permit, 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 2.74. As expected, the solutions contained high concentrations of metals and limited VOCs. SVOCs were not detected in the

September 4, 2013 sample. Regarding major ions, chloride, fluoride, magnesium, ammonia, potassium, sodium and sulfate were one to three 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. The VOC results were generally less than the 2012 sample results. Overall, the concentrations reported in the 2013 sample decreased from the 2012 sample most likely because solutions have been added to the cell since the liner repair was completed in June 2012, aiding in dilution of constituents. Prior to completion of the Cell 1 liner repairs in June 2012, solutions were allowed to concentrate during the liner repair activities as very little fluid was being added to the cell at that time.

### **6.2 Cell 3**

Cell 3 solutions were acidic in nature, with a laboratory pH of 1.05. As expected, the solutions contained high concentrations of metals and limited VOCs. SVOCs were not detected. Regarding major ions, chloride, fluoride, magnesium, potassium, sodium and sulfate were generally one to two 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 arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, uranium, vanadium and zinc. With respect to VOCs in the 2013 sample, acetone, chloroform, chloromethane, and methylethyl ketone (“MEK”) were detected at similar concentrations to those observed in the 2012 samples. When comparing these data to prior samplings events, the concentrations of major ions and metals reported in the 2013 sample increased from the 2012 sample, most likely due to the fact that Cell 3 is no longer used for the disposal of fluids in preparation for eventual closure. For the period from Mid-2012 to Mid-2013, Cell 3 solutions were limited to a finite pool area of less than ten percent of the cell surface area. The lack of fluids placed in tailings Cell 3 allowed for evaporation and concentration of the inorganic constituents present in the remaining fluids present.

### **6.3 Cell 4A**

Cell 4A solutions were acidic in nature, with a laboratory pH of 1.47. As expected, the solutions contained high concentrations of metals and limited VOCs. SVOCs were not detected. As was the case for Cells 1 and 3, Cell 4A fluid exhibited the highest major ion concentrations for chloride, fluoride, magnesium, ammonia, sodium and sulfate. The metals arsenic, cobalt, copper, iron, lead, manganese, molybdenum, nickel, uranium, vanadium and zinc were one or more orders of magnitude greater than the other metals analyzed. Comparison of Cell 4A fluids to those of Cells 1 and 3 reveals that Cell 4A is similar in composition and concentration ratios to the fluids in both Cell 1 and Cell 3. VOC presence was limited, with the only measurable compound being acetone. Overall, the concentrations reported in the 2013 sample remained approximately the same as the 2012 sample.

## **6.4 Cell 4B**

Cell 4B solutions were acidic in nature, with a laboratory pH of 1.65. As expected, the solutions contained high concentrations of metals and limited VOCs. SVOCs were not detected. As was the case for Cells 1, Cell 3, and Cell 4A, Cell 4B fluid exhibited high concentrations of chloride, fluoride, magnesium, ammonia, potassium, sodium and sulfate. For metals, arsenic, cobalt, copper, iron, manganese, molybdenum, nickel, uranium, vanadium and zinc were one or more orders of magnitude greater than the other metals analyzed. Comparison of Cell 4B fluids to those of Cells 1, 3 and 4A reveals that Cell 4B is similar in composition and concentration ratios to the fluids in Cells 1, 3 and 4A. VOC presence was limited, with the only measurable compounds being acetone, chloroform, and chloromethane. Overall, the concentrations reported in the 2013 sample remained approximately the same or decreased from the 2012 sample.

## **6.5 Cell 2 Slimes Drain**

Cell 2 Slimes drain fluid was acidic in nature, with a laboratory pH of 3.02. As expected, the solutions contained high concentrations of metals, and limited VOCs. SVOCs were not detected. Major ions that were highest in concentration by one or more orders of magnitude included chloride, fluoride, magnesium, ammonia, sodium and sulfate. For metals, arsenic, cobalt, copper, iron, manganese, nickel, uranium, vanadium and zinc were at least one order of magnitude greater in concentration than other metals analyzed. VOCs included low concentrations of acetone, chloroform, chloromethane, MEK, naphthalene, THF, toluene, and xylenes. Overall, the concentrations reported in the 2013 sample remained approximately the same as the 2012 sample. Minor concentration changes were noted, which 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 is an evaporation pond and does not have a slimes drain.

## **6.7 Cell 2 Leak Detection System**

Consistent with the Permit, Cell 2 LDS was not sampled during the 2013 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, Cells 1 and 3 leak detection systems were not sampled during the 2013 sampling event because the systems were dry.

## **6.9 Cell 4A Leak Detection System**

Fluids in the Cell 4A leak detection system were acidic in nature with a lab pH of 2.32. As

expected, the solutions contained high concentrations of metals, and limited VOCs. SVOCs were not detected. The major ions which exhibited the greatest concentrations included chloride, fluoride, magnesium, ammonia, sodium and sulfate. The metals arsenic, cobalt, copper, iron, manganese, nickel, uranium, vanadium and zinc were one or more orders of magnitude greater in concentration than the other metals analyzed. The VOCs acetone, chloromethane, chloroform, naphthalene and THF were detected at low concentration. Overall, the concentrations reported in the 2013 sample remained approximately the same or decreased from the 2012 sample. Increases were slight and within the analytical accuracy of the methods used for analysis.

#### **6.10 Cell 4B Leak Detection System**

The Cells 4B leak detection system was not sampled during the 2013 sampling event because the system was dry.

#### **6.11 Summary and Conclusions of Analytical Results**

The metals arsenic, cobalt, copper, iron, manganese, molybdenum, nickel, uranium, vanadium and zinc were generally present in greatest concentration for all samples. For major ions, chloride, fluoride, magnesium, ammonia, potassium, sodium and sulfate were predominant. The only notable increase was in the fluoride concentrations. This increase was expected as the Mill processed more alternate feeds, including a number of approved alternate feeds containing fluoride, than conventional ore in 2013. SVOCs were not detected. VOCs detected in the tailings fluids included acetone, chloroform, chloromethane, MEK, naphthalene, THF, toluene, and xylenes.

### **7.0 CORRECTIVE ACTION REPORT**

No corrective action reports are required for the 2013 annual sampling event.

#### **7.1 Assessment of Corrective Actions from Previous Period**

No corrective action reports were required for the 2012 annual sampling event and as such there is no assessment of previous actions necessary.

## 7.0 SIGNATURE AND CERTIFICATION

This document was prepared by Energy Fuels Resources (USA) Inc. on November 1, 2013.

ENERGY FUELS RESOURCES (USA) INC.

By:

A handwritten signature in blue ink, appearing to read "Frank Filas". The signature is stylized and cursive.

Frank Filas, P.E

Vice President, Permitting and Environmental Affairs

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.



---

Frank Filas, P.E  
Vice President, Permitting and Environmental Affairs  
Energy Fuels Resources (USA) Inc.

## TABLES

**Table 1 Summary of 2013 Tailings Cell Wastewater Monitoring**

Location	Sample Date	Date of Laboratory Report	Work Order Number/Lab Set ID
Cell 1 Tailings Fluid	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 1 Tailings Fluid (Resample)*	9/4/2013	AWAL – 9/19/2013	AWAL - 1309104
Cell 2 Slimes Drain	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 3 Tailings Fluid	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 3 Tailings Fluid (Resample)*	9/4/2013	AWAL – 9/19/2013	AWAL - 1309104
Cell 4A Tailings Fluid	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 4 LDS	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 4B Tailings Fluid	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 65 (Duplicate of Cell 4A LDS)	8/13/2013	GEL – 9/13/2013 AWAL – 9/20/2013**	GEL – 331704 AWAL - 1308284
Cell 70 (Duplicate of Cell 1 Tailings Fluid Resample)*	9/4/2013	AWAL – 9/19/2013	AWAL - 1309104

Notes:

GEL = GEL Laboratories, LLC

AWAL = American West Analytical Laboratories

\*Due to matrix interferences, the laboratory was unable to meet the required reporting limits for the semivolatile compounds (“SVOCs”) on the Cell 1 and Cell 3 Tailings Fluid samples collected August 13, 2013 and on the volatile organic compounds (“VOCs”) on the Cell 3 sample collected August 13, 2013. Pursuant to a conversation via telephone with DRC on September 3, 2013, a sample and a duplicate for Cell 1 were recollected and analyzed for SVOCs only, and a sample for Cell 3 was recollected and analyzed for VOCs and SVOCs.

\*\*Data package was originally issued on September 4, 2013. A corrected data package was issued on September 20, 2013.

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- E-5 Trip Blank Evaluation
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Tab A

Tailings and Slimes Drain Field Sheets

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

Location: Cell 1 Sampling Personnel: Tanner Holliday, Garrin Palmer

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): \_\_\_\_\_

Weather Conditions at Time of Sampling: Partly Cloudy

Field Parameter Measurements:

-pH N/A  
 -Temperature (°C) N/A

Analytical Parameters/Sample Collection Method:

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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 type="checkbox"/>	<input checked="" type="checkbox"/>	AWAL
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"/>	AWAL
Conductivity	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AWAL

QC Samples Associated with this Location:

Rinsate Blank

Duplicate

Duplicate Sample Name: N/A

Notes: Arrived on site at 0730. Tanner, Garrin, Deen Henderson and Phillip Gable all present to collect sample. Samples collected with a Bode Ladle at 0740. Deen and Phil pulled a split sample. Left site at 0833.

Had a hard time getting Air bubbles out of VOCs.

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 1 Re-sample Sampling Personnel: Garrisa Palmer, Tanner Holliday

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: Partly cloudy, 19°C

**Field Parameter Measurements:**

-pH NA  
 -Temperature (°C) NA

**Analytical Parameters/Sample Collection Method:**

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

**QC Samples Associated with this Location:**

Rinsate Blank

Duplicate

Duplicate Sample Name: Cell 70

Notes: 9/4/13 Arrived on site at 1210. Samples were collected at 1215 using ladle. Left site at 1220.

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

Location: Slimes # 2 Sampling Personnel: Tanner Holliday, Gaurin Palmer

Is this a Slimes Drain?  Yes  No

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

DTW immediately before sampling (slimes only): 34.42

Weather Conditions at Time of Sampling: Partly cloudy

**Field Parameter Measurements:**

-pH N/A  
 -Temperature (°C) N/A

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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 checked="" type="checkbox"/>	<input type="checkbox"/>	AWAL
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"/>	AWAL
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"/>	AWAL

**QC Samples Associated with this Location:**

- Rinsate Blank
- Duplicate

Duplicate Sample Name: N/A

Notes: Arrived on site at 0845 Tanner Gaurin, Deen Henderson and Phillip Goble present to collect samples. Samples collected with a bailer at 0855.  
Left site at 0901

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

Location: Cell 3 Sampling Personnel: Tanner Holliday, Garrin Palmer

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: Partly Cloudy

**Field Parameter Measurements:**

-pH N/A  
 -Temperature (°C) N/A

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL

**QC Samples Associated with this Location:**

- Rinsate Blank
- Duplicate

Duplicate Sample Name: N/A

Notes: Arrived on site at 1054. Tanner, Garrin, Deen, Phil all present to collect sample. Samples collected with a ladle at 1100. Left site at 1108

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 3 Re-Sample Sampling Personnel: Garrin Palmer, Tanner Holliday

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: Partly Cloudy, 19°C

**Field Parameter Measurements:**

-pH NA

-Temperature (°C) NA

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Nutrients	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other Non Radiologics	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Gross Alpha	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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"/>	AWAL
Conductivity	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**QC Samples Associated with this Location:**

Rinsate Blank

Duplicate

Duplicate Sample Name: NA

Notes: 9/4/13 Arrived on site at 1222. Samples were collected at 1230 using a ladle. Left site at 1235. MS and MSD samples collected at site.

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

Location: Cell 4A Sampling Personnel: Tanner Holliday, Garris Palmer

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: Partly cloudy

**Field Parameter Measurements:**

-pH N/A  
 -Temperature (°C) N/A

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL

**QC Samples Associated with this Location:**

- Rinsate Blank
- Duplicate

Duplicate Sample Name: N/A

**Notes:** Arrived on site at 0916. Tanner, Garris, Dean Henderson, Phillip Goble on site to sample solution. Samples collected at 0930. Left site at 0935

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 4A LDS Sampling Personnel: Tanner Holliday, Garin Palmer

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: Partly Cloudy

**Field Parameter Measurements:**

-pH N/A  
 -Temperature (°C) N/A

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	GEEL
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"/>	AWAL
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"/>	AWAL

**QC Samples Associated with this Location:**

Rinsate Blank

Duplicate

Duplicate Sample Name: Cell 65

Notes: Arrived on site at 0935. Tanner, Garin, Deen, Phill all on site to collect samples. Leak Detection system pumped solution into a dedicated stainless steel bucket. samples collect out of bucket with a ladle at 0945. Left site at 0955

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 4b Sampling Personnel: Tanner Holliday, Garry Palmer

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: Partly Cloudy

**Field Parameter Measurements:**

-pH n/a  
 -Temperature (°C) n/a

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL

**QC Samples Associated with this Location:**

- Rinsate Blank
- Duplicate

Duplicate Sample Name: n/a

Notes: Arrived on site at 1004 Tanner, Garry, Phill. Dean all present to collect samples. Samples collected at 1015. Left site at 1020

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

Location: Cell 65 Sampling Personnel: Tanner Holliday, Garcin Palmer

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: Partly Cloudy

**Field Parameter Measurements:**

-pH N/A  
 -Temperature (°C) N/A

**Analytical Parameters/Sample Collection Method:**

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"/>	AWAL
THF	<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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL
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"/>	AWAL

**QC Samples Associated with this Location:**

- Rinsate Blank
- Duplicate

Duplicate Sample Name: N/A

**Notes:**

Duplicate of Cell 4A LDS.

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 70 Sampling Personnel: Garrin Palmer, Tanner Holliday

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: Partly cloudy, 19°C

**Field Parameter Measurements:**

-pH NA

-Temperature (°C) NA

**Analytical Parameters/Sample Collection Method:**

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

**QC Samples Associated with this Location:**

Rinsate Blank

Duplicate

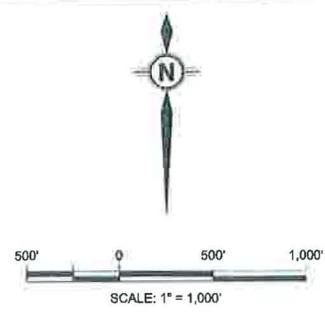
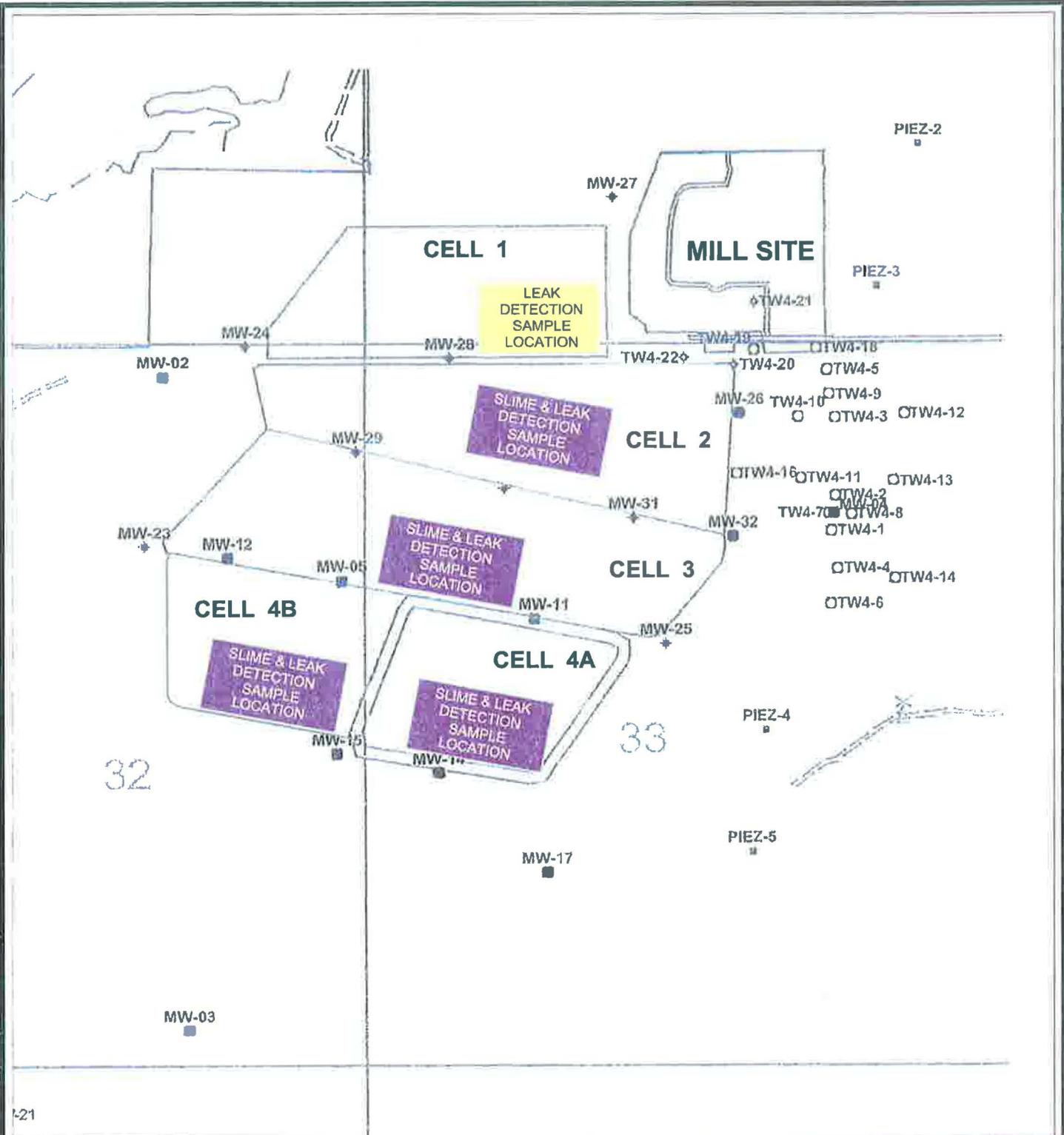
Duplicate Sample Name: NA

Notes: 9/4/13 Duplicate of Cell 1

Tab B

Sample Location Figures





Energy Fuels Resources (USA) Inc. 	
REVISIONS	Project: <b>White Mesa Mill</b>
Date	County: San Juan State: UT
11-08	Location: T 37 S, R 22 E
	<b>SLIMES AND LEAK DETECTION SAMPLE LOCATIONS</b>
Author: unknown	Date: Aug. 2008
	Drafted By:

Tab C

Laboratory Analytical Reports

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Cell 1  
Sample ID: 331704001  
Matrix: Ground Water  
Collect Date: 13-AUG-13 07:40  
Receive Date: 16-AUG-13  
Collector: Client

Project: DNMI00100  
Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Total Alpha Radium, Liquid "As Received"											
Gross Radium Alpha		32700	+/-386	24.9	1.00	pCi/L		KDF1	09/11/13	1852 1326329	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			98.2	(25%-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.

# ORGANIC ANALYTICAL REPORT



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-001A  
**Client Sample ID:** Cell 1  
**Collection Date:** 8/13/2013 0740h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

Test Code: 8260-W

## Analytical Results

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1052h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	<b>41.1</b>	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	<b>7.62</b>	
Chloromethane	74-87-3	1.00	<b>5.00</b>	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	< 1.00	
Tetrahydrofuran	109-99-9	1.00	< 1.00	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	56.1	50.00	112	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	57.9	50.00	116	80-128	
Surr: Dibromofluoromethane	1868-53-7	55.0	50.00	110	80-124	
Surr: Toluene-d8	2037-26-5	51.3	50.00	103	77-129	



## ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013 Resample  
**Lab Sample ID:** 1309104-001A  
**Client Sample ID:** Cell 1  
**Collection Date:** 9/4/2013 1215h  
**Received Date:** 9/6/2013 1200h

**Contact:** Garrin Palmer

Test Code: 8270-W

### Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 9/12/2013 1840h      **Extracted:** 9/9/2013 1033h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



Lab Sample ID: 1309104-001A

Client Sample ID: Cell 1

Analyzed: 9/12/2013 1840h

Extracted: 9/9/2013 1033h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



Lab Sample ID: 1309104-001A

Client Sample ID: Cell 1

Analyzed: 9/12/2013 1840h

Extracted: 9/9/2013 1033h

Units:  $\mu\text{g/L}$

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	51.9	80.00	64.8	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	15.3	40.00	38.2	10-124	
Surr: 2-Fluorophenol	367-12-4	10.0	80.00	12.5	10-106	
Surr: Nitrobenzene-d5	4165-60-0	13.7	40.00	34.3	10-180	
Surr: Phenol-d6	13127-88-3	34.7	80.00	43.4	10-122	
Surr: Terphenyl-d14	1718-51-0	32.1	40.00	80.2	10-221	

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Salt Lake City, UT 84115

*This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.*

*Information herein supersedes that of the previously issued reports*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-001F

**Client Sample ID:** Cell 1

**Collection Date:** 8/13/2013 0740h

**Received Date:** 8/15/2013 1433h

Test Code: 8270-W

### Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0026h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.8	< 10.8	
1,2-Dichlorobenzene	95-50-1	10.8	< 10.8	
1,3-Dichlorobenzene	541-73-1	10.8	< 10.8	
1,4-Dichlorobenzene	106-46-7	10.8	< 10.8	
1-Methylnaphthalene	90-12-0	10.8	< 10.8	
2,4,5-Trichlorophenol	95-95-4	10.8	< 10.8	
2,4,6-Trichlorophenol	88-06-2	10.8	< 10.8	
2,4-Dichlorophenol	120-83-2	10.8	< 10.8	
2,4-Dimethylphenol	105-67-9	10.8	< 10.8	
2,4-Dinitrophenol	51-28-5	21.6	< 21.6	
2,4-Dinitrotoluene	121-14-2	10.8	< 10.8	
2,6-Dinitrotoluene	606-20-2	10.8	< 10.8	
2-Chloronaphthalene	91-58-7	10.8	< 10.8	
2-Chlorophenol	95-57-8	10.8	< 10.8	
2-Methylnaphthalene	91-57-6	10.8	< 10.8	
2-Methylphenol	95-48-7	10.8	< 10.8	
2-Nitrophenol	88-75-5	10.8	< 10.8	
3&4-Methylphenol		10.8	< 10.8	
3,3'-Dichlorobenzidine	91-94-1	10.8	< 10.8	
4,6-Dinitro-2-methylphenol	534-52-1	10.8	< 10.8	
4-Bromophenyl phenyl ether	101-55-3	10.8	< 10.8	
4-Chloro-3-methylphenol	59-50-7	10.8	< 10.8	
4-Chlorophenyl phenyl ether	7005-72-3	10.8	< 10.8	
4-Nitrophenol	100-02-7	10.8	< 10.8	
Acenaphthene	83-32-9	10.8	< 10.8	
Acenaphthylene	208-96-8	10.8	< 10.8	
Anthracene	120-12-7	10.8	< 10.8	
Azobenzene	103-33-3	10.8	< 10.8	
Benz(a)anthracene	56-55-3	10.8	< 10.8	
Benzidine	92-87-5	10.8	< 10.8	



Lab Sample ID: 1308284-001F

Client Sample ID: Cell 1

Analyzed: 8/20/2013 0026h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.8	< 10.8	
Benzo(b)fluoranthene	205-99-2	10.8	< 10.8	
Benzo(g,h,i)perylene	191-24-2	10.8	< 10.8	
Benzo(k)fluoranthene	207-08-9	10.8	< 10.8	
Bis(2-chloroethoxy)methane	111-91-1	10.8	< 10.8	
Bis(2-chloroethyl) ether	111-44-4	10.8	< 10.8	
Bis(2-chloroisopropyl) ether	108-60-1	10.8	< 10.8	
Bis(2-ethylhexyl) phthalate	117-81-7	10.8	< 10.8	
Butyl benzyl phthalate	85-68-7	10.8	< 10.8	
Chrysene	218-01-9	10.8	< 10.8	
Dibenz(a,h)anthracene	53-70-3	10.8	< 10.8	
Diethyl phthalate	84-66-2	10.8	< 10.8	
Dimethyl phthalate	131-11-3	10.8	< 10.8	
Di-n-butyl phthalate	84-74-2	10.8	< 10.8	
Di-n-octyl phthalate	117-84-0	10.8	< 10.8	
Fluoranthene	206-44-0	10.8	< 10.8	
Fluorene	86-73-7	10.8	< 10.8	
Hexachlorobenzene	118-74-1	10.8	< 10.8	
Hexachlorobutadiene	87-68-3	10.8	< 10.8	
Hexachlorocyclopentadiene	77-47-4	10.8	< 10.8	
Hexachloroethane	67-72-1	10.8	< 10.8	
Indeno(1,2,3-cd)pyrene	193-39-5	10.8	< 10.8	
Isophorone	78-59-1	10.8	< 10.8	
Naphthalene	91-20-3	10.8	< 10.8	
Nitrobenzene	98-95-3	10.8	< 10.8	
N-Nitrosodimethylamine	62-75-9	10.8	< 10.8	
N-Nitrosodi-n-propylamine	621-64-7	10.8	< 10.8	
N-Nitrosodiphenylamine	86-30-6	10.8	< 10.8	
Pentachlorophenol	87-86-5	10.8	< 10.8	
Phenanthrene	85-01-8	10.8	< 10.8	
Phenol	108-95-2	10.8	< 10.8	
Pyrene	129-00-0	10.8	< 10.8	
Pyridine	110-86-1	10.8	< 10.8	



Lab Sample ID: 1308284-001F

Client Sample ID: Cell 1

Analyzed: 8/20/2013 0026h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	16.3	86.49	18.9	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	20.0	43.24	46.3	10-124	
Surr: 2-Fluorophenol	367-12-4	6.34	86.49	7.33	10-106	S
Surr: Nitrobenzene-d5	4165-60-0	22.1	43.24	51.1	10-180	
Surr: Phenol-d6	13127-88-3	14.8	86.49	17.1	10-122	
Surr: Terphenyl-d14	1718-51-0	25.6	43.24	59.2	10-221	

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9/19/2013: Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected. Information herein supersedes that of the previously issued reports

9/20/2013: Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of the previously issued reports.

S - Surrogate recoveries outside the control limits. Repreparation and reanalysis of sample yielded similar results indicating matrix interference.

Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-001  
**Client Sample ID:** Cell 1  
**Collection Date:** 8/13/2013 0740h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

## Analytical Results

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2113h	E350.1	125	<b>3,900</b>	
Bicarbonate (as CaCO3)	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO3)	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/16/2013 2358h	E300.0	5,000	<b>9,900</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>94,200</b>	
Fluoride	mg/L		8/16/2013 2358h	E300.0	500	<b>4,130</b>	
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-30.3</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1859h	E353.2	10.0	<b>128</b>	
pH @ 25° C	pH Units		8/15/2013 1751h	SW9040C	1.00	<b>2.74</b>	H
Sulfate	mg/L		8/28/2013 2349h	E300.0	50,000	<b>100,000</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>2,370</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>1,270</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>149,000</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>1.08</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>138,000</b>	

*H - Sample was received outside of the holding time.*

*\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.*



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-001  
**Client Sample ID:** Cell 1  
**Collection Date:** 8/13/2013 0740h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

## DISSOLVED METALS

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 web: www.awal-labs.com

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared		Date Analyzed		Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013	1245h	8/26/2013	1843h	E200.8	0.0500	<b>9.80</b>	
Beryllium	mg/L	8/16/2013	1245h	8/26/2013	1843h	E200.8	0.0500	<b>0.415</b>	
Cadmium	mg/L	8/16/2013	1245h	8/26/2013	2154h	E200.8	0.00250	<b>2.38</b>	
Calcium	mg/L	8/16/2013	1245h	8/27/2013	1653h	E200.7	200	<b>768</b>	
Chromium	mg/L	8/16/2013	1245h	8/26/2013	1843h	E200.8	0.0500	<b>8.35</b>	
Cobalt	mg/L	8/16/2013	1245h	8/26/2013	1843h	E200.8	0.100	<b>25.5</b>	
Copper	mg/L	8/16/2013	1245h	8/28/2013	2109h	E200.8	1.00	<b>544</b>	
Iron	mg/L	8/16/2013	1245h	8/26/2013	1636h	E200.8	250	<b>1,420</b>	
Lead	mg/L	8/16/2013	1245h	8/26/2013	2154h	E200.8	0.0100	<b>2.81</b>	
Magnesium	mg/L	8/16/2013	1245h	8/27/2013	1439h	E200.7	2,000	<b>4,470</b>	
Manganese	mg/L	8/16/2013	1245h	8/26/2013	1740h	E200.8	1.00	<b>188</b>	
Mercury	mg/L	8/21/2013	1450h	8/22/2013	0839h	E245.1	0.000500	<b>0.00616</b>	
Molybdenum	mg/L	8/16/2013	1245h	8/26/2013	1843h	E200.8	0.0500	<b>16.8</b>	
Nickel	mg/L	8/16/2013	1245h	8/26/2013	1843h	E200.8	0.0500	<b>39.1</b>	
Potassium	mg/L	8/16/2013	1245h	8/27/2013	1605h	E200.7	2,000	<b>6,580</b>	
Selenium	mg/L	8/16/2013	1245h	8/26/2013	2154h	E200.8	0.0100	<b>2.69</b>	
Silver	mg/L	8/16/2013	1245h	8/26/2013	2154h	E200.8	0.0100	<b>0.329</b>	
Sodium	mg/L	8/16/2013	1245h	8/27/2013	1439h	E200.7	2,000	<b>15,900</b>	
Thallium	mg/L	8/16/2013	1245h	8/29/2013	1303h	E200.8	0.0200	<b>0.0633</b>	
Tin	mg/L	8/16/2013	1245h	8/28/2013	2214h	E200.8	0.100	<b>&lt; 0.100</b>	
Uranium	mg/L	8/16/2013	1245h	8/26/2013	1740h	E200.8	1.00	<b>140</b>	
Vanadium	mg/L	8/16/2013	1245h	8/27/2013	1439h	E200.7	30.0	<b>98.2</b>	
Zinc	mg/L	8/16/2013	1245h	8/26/2013	1740h	E200.8	2.50	<b>228</b>	

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Slimes #2 Project: DNMI00100  
Sample ID: 331704002 Client ID: DNMI001  
Matrix: Ground Water  
Collect Date: 13-AUG-13 08:55  
Receive Date: 16-AUG-13  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Total Alpha Radium, Liquid "As Received"											
Gross Radium Alpha		2270	+/-101	25.4	1.00	pCi/L		KDF1	09/11/13	1852 1326329	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			92.6	(25%-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.



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-002A  
**Client Sample ID:** Slimes #2  
**Collection Date:** 8/13/2013 0855h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

Test Code: 8260-W

**Analytical Results**

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1524h

**Units:** µg/L                      **Dilution Factor:** 10                      **Method:** SW8260C

463 West 3600 South  
 Salt Lake City, UT 84115

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Acetone	67-64-1	200	384	~

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 Fax: (801) 263-8687  
 e-mail: awal@awal-labs.com

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	414	500.0	82.7	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	502	500.0	100	80-128	
Surr: Dibromofluoromethane	1868-53-7	460	500.0	92.0	80-124	
Surr: Toluene-d8	2037-26-5	500	500.0	100	77-129	

~ - The reporting limits were raised due to high analyte concentrations.

web: www.awal-labs.com

**Analyzed:** 8/16/2013 1111h

**Units:** µg/L                      **Dilution Factor:** 1                      **Method:** SW8260C

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	95.5	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	21.4	
Chloromethane	74-87-3	1.00	2.04	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	16.8	
Tetrahydrofuran	109-99-9	1.00	3.98	
Toluene	108-88-3	1.00	3.23	
Xylenes, Total	1330-20-7	1.00	5.97	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	54.9	50.00	110	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	55.8	50.00	112	80-128	
Surr: Dibromofluoromethane	1868-53-7	51.4	50.00	103	80-124	
Surr: Toluene-d8	2037-26-5	48.4	50.00	96.8	77-129	



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-002F

**Client Sample ID:** Slimes #2

**Collection Date:** 8/13/2013 0855h

**Received Date:** 8/15/2013 1433h

Test Code: 8270-W

**Analytical Results**

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0053h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	

Lab Sample ID: 1308284-002F

Client Sample ID: Slimes #2

Analyzed: 8/20/2013 0053h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



**Lab Sample ID:** 1308284-002F

**Client Sample ID:** Slimes #2

**Analyzed:** 8/20/2013 0053h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	70.4	80.00	88.0	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	14.7	40.00	36.7	10-124	
Surr: 2-Fluorophenol	367-12-4	27.1	80.00	33.8	10-106	
Surr: Nitrobenzene-d5	4165-60-0	14.0	40.00	35.0	10-180	
Surr: Phenol-d6	13127-88-3	32.7	80.00	40.9	10-122	
Surr: Terphenyl-d14	1718-51-0	28.1	40.00	70.3	10-221	

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*Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.  
Information herein supersedes that of the previously issued reports  
Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-002  
**Client Sample ID:** Slimes #2  
**Collection Date:** 8/13/2013 0855h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2100h	E350.1	25.0	<b>1,880</b>	
Bicarbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/29/2013 0145h	E300.0	1,000	<b>3,270</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>51,100</b>	
Fluoride	mg/L		8/17/2013 0046h	E300.0	100	<b>161</b>	
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-58.2</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1900h	E353.2	10.0	<b>47.2</b>	
pH @ 25° C	pH Units		8/15/2013 1751h	SW9040C	1.00	<b>3.02</b>	H
Sulfate	mg/L		8/17/2013 0022h	E300.0	10,000	<b>83,700</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>1,830</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>485</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>92,200</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>0.967</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>95,400</b>	

*H - Sample was received outside of the holding time.*

*\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.*



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-002  
**Client Sample ID:** Slimes #2  
**Collection Date:** 8/13/2013 0855h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

## Analytical Results

## DISSOLVED METALS

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 web: www.awal-labs.com

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013 1245h	8/29/2013 0041h	E200.8	0.0500	21.0	
Beryllium	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.0100	0.262	
Cadmium	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.00250	5.78	
Calcium	mg/L	8/16/2013 1245h	8/27/2013 1609h	E200.7	200	465	
Chromium	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.0100	2.29	
Cobalt	mg/L	8/16/2013 1245h	8/26/2013 1849h	E200.8	0.100	44.9	
Copper	mg/L	8/16/2013 1245h	8/28/2013 2114h	E200.8	1.00	137	
Iron	mg/L	8/16/2013 1245h	8/26/2013 1641h	E200.8	250	2,810	
Lead	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.0100	0.515	
Magnesium	mg/L	8/16/2013 1245h	8/27/2013 1609h	E200.7	200	3,320	
Manganese	mg/L	8/16/2013 1245h	8/26/2013 1745h	E200.8	1.00	122	
Mercury	mg/L	8/21/2013 1450h	8/22/2013 0840h	E245.1	0.000500	< 0.000500	
Molybdenum	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.0100	3.65	
Nickel	mg/L	8/16/2013 1245h	8/26/2013 1745h	E200.8	1.00	108	
Potassium	mg/L	8/16/2013 1245h	8/27/2013 1609h	E200.7	200	622	
Selenium	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.0100	0.678	
Silver	mg/L	8/16/2013 1245h	8/26/2013 2159h	E200.8	0.0100	< 0.0100	
Sodium	mg/L	8/16/2013 1245h	8/27/2013 1609h	E200.7	200	3,980	
Thallium	mg/L	8/16/2013 1245h	8/29/2013 1309h	E200.8	0.0200	0.278	
Tin	mg/L	8/16/2013 1245h	8/28/2013 2224h	E200.8	0.100	< 0.100	
Uranium	mg/L	8/16/2013 1245h	8/26/2013 1952h	E200.8	0.100	22.8	
Vanadium	mg/L	8/16/2013 1245h	8/27/2013 1609h	E200.7	3.00	452	
Zinc	mg/L	8/16/2013 1245h	8/26/2013 1745h	E200.8	2.50	631	

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Cell 3  
Sample ID: 331704003  
Matrix: Ground Water  
Collect Date: 13-AUG-13 11:00  
Receive Date: 16-AUG-13  
Collector: Client

Project: DNMI00100  
Client ID: DNMI001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Total Alpha Radium, Liquid "As Received"												
Gross Radium Alpha		81900	+/-1220	133	1.00	pCi/L		BXF1	09/12/13	1650	1330684	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			103	(25%-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.



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013 Resample  
**Lab Sample ID:** 1309104-002B  
**Client Sample ID:** Cell 3  
**Collection Date:** 9/4/2013 1230h  
**Received Date:** 9/6/2013 1200h

**Contact:** Garrin Palmer

Test Code: 8260-W

**Analytical Results**

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 9/12/2013 1102h

**Units:** µg/L                      **Dilution Factor:** 5                      **Method:** SW8260C

463 West 3600 South  
Salt Lake City, UT 84115

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Acetone	67-64-1	100	159	~

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Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	278	250.0	111	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	248	250.0	99.2	80-128	
Surr: Dibromofluoromethane	1868-53-7	257	250.0	103	80-124	
Surr: Toluene-d8	2037-26-5	241	250.0	96.6	77-129	

~ - The reporting limits were raised due to high analyte concentrations.

web: www.awal-labs.com

**Analyzed:** 9/11/2013 1455h

**Units:** µg/L                      **Dilution Factor:** 1                      **Method:** SW8260C

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	24.5	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	21.0	
Chloromethane	74-87-3	1.00	2.58	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	< 1.00	
Tetrahydrofuran	109-99-9	1.00	< 1.00	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	55.4	50.00	111	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	56.3	50.00	113	80-128	
Surr: Dibromofluoromethane	1868-53-7	51.6	50.00	103	80-124	
Surr: Toluene-d8	2037-26-5	50.6	50.00	101	77-129	



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-003A  
**Client Sample ID:** Cell 3  
**Collection Date:** 8/13/2013 1100h  
**Received Date:** 8/15/2013 1433h

Test Code: 8260-W

**Analytical Results**

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/19/2013 1219h

**Units:** µg/L **Dilution Factor:** 5 **Method:** SW8260C

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	100	< 100	
Acetone	67-64-1	100	<b>302</b>	
Benzene	71-43-2	5.00	< 5.00	
Carbon tetrachloride	56-23-5	5.00	< 5.00	
Chloroform	67-66-3	5.00	<b>56.3</b>	
Chloromethane	74-87-3	5.00	< 5.00	
Methylene chloride	75-09-2	5.00	<b>6.95</b>	
Naphthalene	91-20-3	5.00	< 5.00	
Tetrahydrofuran	109-99-9	5.00	< 5.00	
Toluene	108-88-3	5.00	< 5.00	
Xylenes, Total	1330-20-7	5.00	< 5.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	260	250.0	104	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	303	250.0	121	80-128	
Surr: Dibromofluoromethane	1868-53-7	262	250.0	105	80-124	
Surr: Toluene-d8	2037-26-5	266	250.0	106	77-129	

*Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of the previously issued reports.*

*The reporting limits were raised due to sample matrix interferences. Sample contained foam.*



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013 Resample  
**Lab Sample ID:** 1309104-002A  
**Client Sample ID:** Cell 3  
**Collection Date:** 9/4/2013 1230h  
**Received Date:** 9/6/2013 1200h

**Contact:** Garrin Palmer

Test Code: 8270-W

## Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 9/12/2013 1602h      **Extracted:** 9/9/2013 1033h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

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web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



Lab Sample ID: 1309104-002A

Client Sample ID: Cell 3

Analyzed: 9/12/2013 1602h

Extracted: 9/9/2013 1033h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



Lab Sample ID: 1309104-002A

Client Sample ID: Cell 3

Analyzed: 9/12/2013 1602h

Extracted: 9/9/2013 1033h

Units:  $\mu\text{g/L}$

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	69.4	80.00	86.8	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	14.4	40.00	36.0	10-124	
Surr: 2-Fluorophenol	367-12-4	30.2	80.00	37.8	10-106	
Surr: Nitrobenzene-d5	4165-60-0	14.1	40.00	35.2	10-180	
Surr: Phenol-d6	13127-88-3	51.2	80.00	64.0	10-122	
Surr: Terphenyl-d14	1718-51-0	34.6	40.00	86.5	10-221	

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*This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.*

*Information herein supersedes that of the previously issued reports*

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-003F

**Client Sample ID:** Cell 3

**Collection Date:** 8/13/2013 1100h

**Received Date:** 8/15/2013 1433h

Test Code: 8270-W

## Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0120h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.5	< 10.5	
1,2-Dichlorobenzene	95-50-1	10.5	< 10.5	
1,3-Dichlorobenzene	541-73-1	10.5	< 10.5	
1,4-Dichlorobenzene	106-46-7	10.5	< 10.5	
1-Methylnaphthalene	90-12-0	10.5	< 10.5	
2,4,5-Trichlorophenol	95-95-4	10.5	< 10.5	
2,4,6-Trichlorophenol	88-06-2	10.5	< 10.5	
2,4-Dichlorophenol	120-83-2	10.5	< 10.5	
2,4-Dimethylphenol	105-67-9	10.5	< 10.5	
2,4-Dinitrophenol	51-28-5	21.1	< 21.1	
2,4-Dinitrotoluene	121-14-2	10.5	< 10.5	
2,6-Dinitrotoluene	606-20-2	10.5	< 10.5	
2-Chloronaphthalene	91-58-7	10.5	< 10.5	
2-Chlorophenol	95-57-8	10.5	< 10.5	
2-Methylnaphthalene	91-57-6	10.5	< 10.5	
2-Methylphenol	95-48-7	10.5	< 10.5	
2-Nitrophenol	88-75-5	10.5	< 10.5	
3&4-Methylphenol		10.5	< 10.5	
3,3'-Dichlorobenzidine	91-94-1	10.5	< 10.5	
4,6-Dinitro-2-methylphenol	534-52-1	10.5	< 10.5	
4-Bromophenyl phenyl ether	101-55-3	10.5	< 10.5	
4-Chloro-3-methylphenol	59-50-7	10.5	< 10.5	
4-Chlorophenyl phenyl ether	7005-72-3	10.5	< 10.5	
4-Nitrophenol	100-02-7	10.5	< 10.5	
Acenaphthene	83-32-9	10.5	< 10.5	
Acenaphthylene	208-96-8	10.5	< 10.5	
Anthracene	120-12-7	10.5	< 10.5	
Azobenzene	103-33-3	10.5	< 10.5	
Benz(a)anthracene	56-55-3	10.5	< 10.5	
Benzidine	92-87-5	10.5	< 10.5	



Lab Sample ID: 1308284-003F

Client Sample ID: Cell 3

Analyzed: 8/20/2013 0120h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.5	< 10.5	
Benzo(b)fluoranthene	205-99-2	10.5	< 10.5	
Benzo(g,h,i)perylene	191-24-2	10.5	< 10.5	
Benzo(k)fluoranthene	207-08-9	10.5	< 10.5	
Bis(2-chloroethoxy)methane	111-91-1	10.5	< 10.5	
Bis(2-chloroethyl) ether	111-44-4	10.5	< 10.5	
Bis(2-chloroisopropyl) ether	108-60-1	10.5	< 10.5	
Bis(2-ethylhexyl) phthalate	117-81-7	10.5	< 10.5	
Butyl benzyl phthalate	85-68-7	10.5	< 10.5	
Chrysene	218-01-9	10.5	< 10.5	
Dibenz(a,h)anthracene	53-70-3	10.5	< 10.5	
Diethyl phthalate	84-66-2	10.5	< 10.5	
Dimethyl phthalate	131-11-3	10.5	< 10.5	
Di-n-butyl phthalate	84-74-2	10.5	< 10.5	
Di-n-octyl phthalate	117-84-0	10.5	< 10.5	
Fluoranthene	206-44-0	10.5	< 10.5	
Fluorene	86-73-7	10.5	< 10.5	
Hexachlorobenzene	118-74-1	10.5	< 10.5	
Hexachlorobutadiene	87-68-3	10.5	< 10.5	
Hexachlorocyclopentadiene	77-47-4	10.5	< 10.5	
Hexachloroethane	67-72-1	10.5	< 10.5	
Indeno(1,2,3-cd)pyrene	193-39-5	10.5	< 10.5	
Isophorone	78-59-1	10.5	< 10.5	
Naphthalene	91-20-3	10.5	< 10.5	
Nitrobenzene	98-95-3	10.5	< 10.5	
N-Nitrosodimethylamine	62-75-9	10.5	< 10.5	
N-Nitrosodi-n-propylamine	621-64-7	10.5	< 10.5	
N-Nitrosodiphenylamine	86-30-6	10.5	< 10.5	
Pentachlorophenol	87-86-5	10.5	< 10.5	
Phenanthrene	85-01-8	10.5	< 10.5	
Phenol	108-95-2	10.5	< 10.5	
Pyrene	129-00-0	10.5	< 10.5	
Pyridine	110-86-1	10.5	< 10.5	



**Lab Sample ID:** 1308284-003F

**Client Sample ID:** Cell 3

**Analyzed:** 8/20/2013 0120h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	73.4	84.21	87.2	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	5.75	42.11	13.6	10-124	
Surr: 2-Fluorophenol	367-12-4	28.5	84.21	33.9	10-106	
Surr: Nitrobenzene-d5	4165-60-0	9.12	42.11	21.7	10-180	
Surr: Phenol-d6	13127-88-3	39.9	84.21	47.4	10-122	
Surr: Terphenyl-d14	1718-51-0	27.8	42.11	66.1	10-221	

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*9/19/2013: Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected. Information herein supersedes that of the previously issued reports*

*9/20/2013: Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of the previously issued reports.*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-003  
**Client Sample ID:** Cell 3  
**Collection Date:** 8/13/2013 1100h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2114h	E350.1	2.50	<b>100</b>	
Bicarbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/17/2013 0111h	E300.0	10,000	<b>38,400</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>84,300</b>	
Fluoride	mg/L		8/17/2013 0111h	E300.0	1,000	<b>12,400</b>	
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-56.5</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1908h	E353.2	20.0	<b>277</b>	
pH @ 25° C	pH Units		8/15/2013 1751h	SW9040C	1.00	<b>1.05</b>	H
Sulfate	mg/L		8/19/2013 2022h	E300.0	50,000	<b>440,000</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>10,200</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>2,840</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>410,000</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>0.772</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>531,000</b>	

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

H - Sample was received outside of the holding time.

\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-003  
**Client Sample ID:** Cell 3  
**Collection Date:** 8/13/2013 1100h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

## DISSOLVED METALS

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 web: www.awal-labs.com

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013 1245h	8/29/2013 0047h	E200.8	0.100	<b>66.0</b>	
Beryllium	mg/L	8/16/2013 1245h	8/26/2013 1750h	E200.8	1.00	<b>2.57</b>	
Cadmium	mg/L	8/16/2013 1245h	8/26/2013 1854h	E200.8	0.0125	<b>24.0</b>	
Calcium	mg/L	8/16/2013 1245h	8/27/2013 1613h	E200.7	200	<b>586</b>	
Chromium	mg/L	8/16/2013 1245h	8/26/2013 1750h	E200.8	1.00	<b>30.6</b>	
Cobalt	mg/L	8/16/2013 1245h	8/26/2013 1750h	E200.8	2.00	<b>99.7</b>	
Copper	mg/L	8/16/2013 1245h	8/28/2013 2119h	E200.8	1.00	<b>954</b>	
Iron	mg/L	8/16/2013 1245h	8/28/2013 2125h	E200.8	500	<b>9,700</b>	
Lead	mg/L	8/16/2013 1245h	8/26/2013 1854h	E200.8	0.0500	<b>14.4</b>	
Magnesium	mg/L	8/16/2013 1245h	8/27/2013 1451h	E200.7	2,000	<b>15,400</b>	
Manganese	mg/L	8/16/2013 1245h	8/26/2013 1647h	E200.8	5.00	<b>2,470</b>	
Mercury	mg/L	8/21/2013 1450h	8/22/2013 0842h	E245.1	0.00500	<b>0.0216</b>	
Molybdenum	mg/L	8/16/2013 1245h	8/26/2013 1957h	E200.8	0.100	<b>56.1</b>	
Nickel	mg/L	8/16/2013 1245h	8/26/2013 1750h	E200.8	1.00	<b>122</b>	
Potassium	mg/L	8/16/2013 1245h	8/27/2013 1613h	E200.7	200	<b>2,110</b>	
Selenium	mg/L	8/16/2013 1245h	8/26/2013 2204h	E200.8	0.0100	<b>7.06</b>	
Silver	mg/L	8/16/2013 1245h	8/26/2013 2204h	E200.8	0.0100	<b>3.38</b>	
Sodium	mg/L	8/16/2013 1245h	8/27/2013 1451h	E200.7	2,000	<b>34,400</b>	
Thallium	mg/L	8/16/2013 1245h	8/29/2013 1316h	E200.8	0.0200	<b>0.694</b>	
Tin	mg/L	8/16/2013 1245h	8/28/2013 2234h	E200.8	0.100	<b>&lt; 0.100</b>	
Uranium	mg/L	8/16/2013 1245h	8/28/2013 2125h	E200.8	10.0	<b>1,200</b>	
Vanadium	mg/L	8/16/2013 1245h	8/27/2013 1451h	E200.7	30.0	<b>3,220</b>	
Zinc	mg/L	8/16/2013 1245h	8/26/2013 1647h	E200.8	12.5	<b>1,430</b>	

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Cell 4A Project: DNMI00100  
Sample ID: 331704004 Client ID: DNMI001  
Matrix: Ground Water  
Collect Date: 13-AUG-13 09:30  
Receive Date: 16-AUG-13  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Total Alpha Radium, Liquid "As Received"												
Gross Radium Alpha		15800	+/-279	30.2	1.00	pCi/L		KDF1	09/11/13	1852	1326329	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			99.3	(25%-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.

# ORGANIC ANALYTICAL REPORT



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-004A  
**Client Sample ID:** Cell 4A  
**Collection Date:** 8/13/2013 0930h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

Test Code: 8260-W

## Analytical Results

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1033h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	<b>28.4</b>	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	< 1.00	
Chloromethane	74-87-3	1.00	< 1.00	
Methylene chloride	75-09-2	1.00	< 1.00	@
Naphthalene	91-20-3	1.00	< 1.00	†
Tetrahydrofuran	109-99-9	1.00	< 1.00	†
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	56.8	50.00	114	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	60.5	50.00	121	80-128	
Surr: Dibromofluoromethane	1868-53-7	54.4	50.00	109	80-124	
Surr: Toluene-d8	2037-26-5	48.2	50.00	96.4	77-129	

† - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

@ - High RPD due to suspected sample non-homogeneity or matrix interference.



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-004F  
**Client Sample ID:** Cell 4A  
**Collection Date:** 8/13/2013 0930h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

Test Code: 8270-W

## Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0147h      **Extracted:** 8/16/2013 1221h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	@
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	'@
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



Lab Sample ID: 1308284-004F

Client Sample ID: Cell 4A

Analyzed: 8/20/2013 0147h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



Lab Sample ID: 1308284-004F

Client Sample ID: Cell 4A

Analyzed: 8/20/2013 0147h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	78.0	80.00	97.5	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	12.1	40.00	30.2	10-124	
Surr: 2-Fluorophenol	367-12-4	23.4	80.00	29.3	10-106	
Surr: Nitrobenzene-d5	4165-60-0	11.7	40.00	29.2	10-180	
Surr: Phenol-d6	13127-88-3	30.5	80.00	38.1	10-122	
Surr: Terphenyl-d14	1718-51-0	31.4	40.00	78.5	10-221	

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*Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected. Information herein supersedes that of the previously issued reports*

*' - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-004  
**Client Sample ID:** Cell 4A  
**Collection Date:** 8/13/2013 0930h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2055h	E350.1	25.0	<b>1,340</b>	<sup>2</sup>
Bicarbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/29/2013 0319h	E300.0	1,000	<b>4,530</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>66,300</b>	
Fluoride	mg/L		8/17/2013 0159h	E300.0	100	<b>1,130</b>	<sup>1</sup>
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-48.1</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1903h	E353.2	10.0	<b>38.2</b>	<sup>1</sup>
pH @ 25° C	pH Units		8/15/2013 1751h	SW9040C	1.00	<b>1.47</b>	H
Sulfate	mg/L		8/17/2013 0135h	E300.0	10,000	<b>83,300</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>1,860</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>653</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>90,000</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>0.901</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>99,800</b>	

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

H - Sample was received outside of the holding time.

\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-004  
**Client Sample ID:** Cell 4A  
**Collection Date:** 8/13/2013 0930h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

## Analytical Results

## DISSOLVED METALS

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	Units	Date Prepared		Date Analyzed		Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013	1245h	8/29/2013	0052h	E200.8	0.100	73.7	
Beryllium	mg/L	8/16/2013	1245h	8/26/2013	1859h	E200.8	0.0500	0.247	
Cadmium	mg/L	8/16/2013	1245h	8/26/2013	2209h	E200.8	0.00250	1.45	
Calcium	mg/L	8/16/2013	1245h	8/27/2013	1617h	E200.7	200	668	
Chromium	mg/L	8/16/2013	1245h	8/26/2013	1859h	E200.8	0.0500	5.22	
Cobalt	mg/L	8/16/2013	1245h	8/26/2013	1859h	E200.8	0.100	22.9	2
Copper	mg/L	8/16/2013	1245h	8/28/2013	2130h	E200.8	1.00	540	2
Iron	mg/L	8/16/2013	1245h	8/26/2013	1652h	E200.8	250	2,620	2
Lead	mg/L	8/16/2013	1245h	8/26/2013	1859h	E200.8	0.0500	11.5	
Magnesium	mg/L	8/16/2013	1245h	8/27/2013	1455h	E200.7	2,000	3,660	2
Manganese	mg/L	8/16/2013	1245h	8/26/2013	1756h	E200.8	1.00	143	2
Mercury	mg/L	8/21/2013	1450h	8/22/2013	0829h	E245.1	0.000500	0.000786	□
Molybdenum	mg/L	8/16/2013	1245h	8/26/2013	1859h	E200.8	0.0500	25.5	2
Nickel	mg/L	8/16/2013	1245h	8/26/2013	1859h	E200.8	0.0500	43.3	2
Potassium	mg/L	8/16/2013	1245h	8/27/2013	1617h	E200.7	200	773	
Selenium	mg/L	8/16/2013	1245h	8/26/2013	2209h	E200.8	0.0100	2.08	
Silver	mg/L	8/16/2013	1245h	8/26/2013	2209h	E200.8	0.0100	0.144	
Sodium	mg/L	8/16/2013	1245h	8/27/2013	1455h	E200.7	2,000	6,860	2
Thallium	mg/L	8/16/2013	1245h	8/29/2013	1215h	E200.8	0.0200	0.256	1
Tin	mg/L	8/16/2013	1245h	8/28/2013	2244h	E200.8	0.100	0.118	
Uranium	mg/L	8/16/2013	1245h	8/26/2013	1756h	E200.8	1.00	112	2
Vanadium	mg/L	8/16/2013	1245h	8/27/2013	1455h	E200.7	30.0	461	2
Zinc	mg/L	8/16/2013	1245h	8/26/2013	1756h	E200.8	2.50	183	2

Analysis performed on a portion of the sample filtered at the laboratory upon receipt.

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

□ - Serial dilution RPD indicates matrix interference.

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Cell 4A LDS Project: DNMI00100  
Sample ID: 331704005 Client ID: DNMI001  
Matrix: Ground Water  
Collect Date: 13-AUG-13 09:45  
Receive Date: 16-AUG-13  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Total Alpha Radium, Liquid "As Received"												
Gross Radium Alpha		6930	+/-172	24.0	1.00	pCi/L		KDF1	09/11/13	1852	1326329	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			92.6	(25%-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.



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-005A  
**Client Sample ID:** Cell 4A LDS  
**Collection Date:** 8/13/2013 0945h  
**Received Date:** 8/15/2013 1433h Test Code: 8260-W

## Analytical Results

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1152h

**Units:** µg/L **Dilution Factor:** 1 **Method:** SW8260C

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	<b>57.0</b>	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	<b>110</b>	
Chloromethane	74-87-3	1.00	<b>9.93</b>	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	<b>2.35</b>	
Tetrahydrofuran	109-99-9	1.00	<b>39.1</b>	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	55.0	50.00	110	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	53.7	50.00	107	80-128	
Surr: Dibromofluoromethane	1868-53-7	55.2	50.00	110	80-124	
Surr: Toluene-d8	2037-26-5	51.5	50.00	103	77-129	



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-005F

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

**Collection Date:** 8/13/2013 0945h

**Received Date:** 8/15/2013 1433h

Test Code: 8270-W

## Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0307h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



Lab Sample ID: 1308284-005F

Client Sample ID: Cell 4A LDS

Analyzed: 8/20/2013 0307h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



**Lab Sample ID:** 1308284-005F

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

**Analyzed:** 8/20/2013 0307h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	2.80	80.00	3.50	14-159	S
Surr: 2-Fluorobiphenyl	321-60-8	16.0	40.00	39.9	10-124	
Surr: 2-Fluorophenol	367-12-4	1.33	80.00	1.66	10-106	S
Surr: Nitrobenzene-d5	4165-60-0	17.2	40.00	42.9	10-180	
Surr: Phenol-d6	13127-88-3	1.17	80.00	1.46	10-122	S
Surr: Terphenyl-d14	1718-51-0	30.4	40.00	76.1	10-221	

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*Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected. Information herein supersedes that of the previously issued reports*

*S - Surrogate recoveries outside the control limits. Repreparation and reanalysis of sample yielded similar results indicating matrix interference.*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-005  
**Client Sample ID:** Cell 4A LDS  
**Collection Date:** 8/13/2013 0945h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2102h	E350.1	25.0	<b>1,010</b>	
Bicarbonate (as CaCO3)	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO3)	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/17/2013 0425h	E300.0	1,000	<b>1,910</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>31,300</b>	
Fluoride	mg/L		8/20/2013 1955h	E300.0	100	<b>1,970</b>	
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-40.9</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1904h	E353.2	10.0	<b>28.9</b>	
pH @ 25° C	pH Units		8/15/2013 1810h	SW9040C	1.00	<b>2.32</b>	H
Sulfate	mg/L		8/17/2013 0401h	E300.0	10,000	<b>31,400</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>709</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>297</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>49,700</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>1.28</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>38,700</b>	

H - Sample was received outside of the holding time.

\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-005  
**Client Sample ID:** Cell 4A LDS  
**Collection Date:** 8/13/2013 0945h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

## Analytical Results

## DISSOLVED METALS

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared		Date Analyzed		Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013	1245h	8/29/2013	0108h	E200.8	0.0500	<b>35.7</b>	
Beryllium	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.0100	<b>0.188</b>	
Cadmium	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.00250	<b>1.17</b>	
Calcium	mg/L	8/16/2013	1245h	8/27/2013	1629h	E200.7	200	<b>429</b>	
Chromium	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.0100	<b>2.63</b>	
Cobalt	mg/L	8/16/2013	1245h	8/26/2013	1915h	E200.8	0.100	<b>44.3</b>	
Copper	mg/L	8/16/2013	1245h	8/28/2013	2146h	E200.8	1.00	<b>754</b>	
Iron	mg/L	8/16/2013	1245h	8/26/2013	1708h	E200.8	250	<b>1,370</b>	
Lead	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.0100	<b>0.165</b>	
Magnesium	mg/L	8/16/2013	1245h	8/27/2013	1629h	E200.7	200	<b>1,710</b>	
Manganese	mg/L	8/16/2013	1245h	8/26/2013	2018h	E200.8	0.100	<b>86.3</b>	
Mercury	mg/L	8/21/2013	1450h	8/22/2013	0844h	E245.1	0.000500	< 0.000500	
Molybdenum	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.0100	<b>1.20</b>	
Nickel	mg/L	8/16/2013	1245h	8/26/2013	2018h	E200.8	0.100	<b>54.6</b>	
Potassium	mg/L	8/16/2013	1245h	8/27/2013	1629h	E200.7	200	<b>305</b>	
Selenium	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.0100	<b>1.02</b>	
Silver	mg/L	8/16/2013	1245h	8/26/2013	2251h	E200.8	0.0100	<b>0.0248</b>	
Sodium	mg/L	8/16/2013	1245h	8/27/2013	1629h	E200.7	200	<b>2,930</b>	
Thallium	mg/L	8/16/2013	1245h	8/29/2013	1323h	E200.8	0.0200	<b>0.171</b>	
Tin	mg/L	8/16/2013	1245h	8/28/2013	2315h	E200.8	0.100	< 0.100	
Uranium	mg/L	8/16/2013	1245h	8/26/2013	1812h	E200.8	1.00	<b>75.0</b>	
Vanadium	mg/L	8/16/2013	1245h	8/27/2013	1629h	E200.7	3.00	<b>157</b>	
Zinc	mg/L	8/16/2013	1245h	8/26/2013	1812h	E200.8	2.50	<b>163</b>	

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Cell 4B Project: DNMI00100  
Sample ID: 331704006 Client ID: DNMI001  
Matrix: Ground Water  
Collect Date: 13-AUG-13 10:15  
Receive Date: 16-AUG-13  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Total Alpha Radium, Liquid "As Received"											
Gross Radium Alpha		14600	+/-290	31.9	1.00	pCi/L		KDF1	09/11/13	1852 1326329	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			97.8	(25%-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.



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-006A

**Client Sample ID:** Cell 4B

**Collection Date:** 8/13/2013 1015h

**Received Date:** 8/15/2013 1433h

Test Code: 8260-W

**Analytical Results**

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1211h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	<b>43.5</b>	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	<b>8.06</b>	
Chloromethane	74-87-3	1.00	<b>7.12</b>	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	< 1.00	
Tetrahydrofuran	109-99-9	1.00	< 1.00	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	49.9	50.00	99.8	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	47.4	50.00	94.8	80-128	
Surr: Dibromofluoromethane	1868-53-7	47.5	50.00	94.9	80-124	
Surr: Toluene-d8	2037-26-5	43.6	50.00	87.1	77-129	



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-006F  
**Client Sample ID:** Cell 4B  
**Collection Date:** 8/13/2013 1015h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

Test Code: 8270-W

**Analytical Results**

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0334h      **Extracted:** 8/16/2013 1221h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



**Lab Sample ID:** 1308284-006F

**Client Sample ID:** Cell 4B

**Analyzed:** 8/20/2013 0334h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



Lab Sample ID: 1308284-006F

Client Sample ID: Cell 4B

Analyzed: 8/20/2013 0334h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	34.7	80.00	43.4	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	19.8	40.00	49.4	10-124	
Surr: 2-Fluorophenol	367-12-4	7.66	80.00	9.58	10-106	S
Surr: Nitrobenzene-d5	4165-60-0	18.1	40.00	45.2	10-180	
Surr: Phenol-d6	13127-88-3	12.3	80.00	15.4	10-122	
Surr: Terphenyl-d14	1718-51-0	29.8	40.00	74.4	10-221	

463 West 3600 South  
Salt Lake City, UT 84115

*Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected. Information herein supersedes that of the previously issued reports*

*S - Surrogate recoveries outside the control limits. Repreparation and reanalysis of sample yielded similar results indicating matrix interference.*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-006  
**Client Sample ID:** Cell 4B  
**Collection Date:** 8/13/2013 1015h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

## Analytical Results

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2103h	E350.1	25.0	<b>2,060</b>	
Bicarbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/29/2013 0452h	E300.0	1,000	<b>4,570</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>72,800</b>	
Fluoride	mg/L		8/20/2013 2020h	E300.0	100	<b>1,050</b>	
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-63.1</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1906h	E353.2	10.0	<b>51.4</b>	
pH @ 25° C	pH Units		8/15/2013 1810h	SW9040C	1.00	<b>1.65</b>	H
Sulfate	mg/L		8/17/2013 0449h	E300.0	10,000	<b>98,100</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>2,170</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>491</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>108,000</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>0.967</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>111,000</b>	

*H - Sample was received outside of the holding time.*

*\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.*



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-006  
**Client Sample ID:** Cell 4B  
**Collection Date:** 8/13/2013 1015h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

## DISSOLVED METALS

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Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared		Date Analyzed		Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013	1245h	8/29/2013	0113h	E200.8	0.100	<b>65.4</b>	
Beryllium	mg/L	8/16/2013	1245h	8/26/2013	1920h	E200.8	0.0500	<b>0.334</b>	
Cadmium	mg/L	8/16/2013	1245h	8/26/2013	2257h	E200.8	0.00250	<b>1.90</b>	
Calcium	mg/L	8/16/2013	1245h	8/27/2013	1633h	E200.7	200	<b>662</b>	
Chromium	mg/L	8/16/2013	1245h	8/26/2013	1920h	E200.8	0.0500	<b>6.39</b>	
Cobalt	mg/L	8/16/2013	1245h	8/26/2013	1920h	E200.8	0.100	<b>21.3</b>	
Copper	mg/L	8/16/2013	1245h	8/28/2013	2207h	E200.8	1.00	<b>340</b>	
Iron	mg/L	8/16/2013	1245h	8/26/2013	1713h	E200.8	250	<b>2,830</b>	
Lead	mg/L	8/16/2013	1245h	8/26/2013	2257h	E200.8	0.0100	<b>9.82</b>	
Magnesium	mg/L	8/16/2013	1245h	8/27/2013	1633h	E200.7	200	<b>3,560</b>	
Manganese	mg/L	8/16/2013	1245h	8/26/2013	1817h	E200.8	1.00	<b>154</b>	
Mercury	mg/L	8/21/2013	1450h	8/22/2013	0845h	E245.1	0.000500	<b>0.00149</b>	
Molybdenum	mg/L	8/16/2013	1245h	8/26/2013	1920h	E200.8	0.0500	<b>26.1</b>	
Nickel	mg/L	8/16/2013	1245h	8/26/2013	1920h	E200.8	0.0500	<b>35.1</b>	
Potassium	mg/L	8/16/2013	1245h	8/27/2013	1633h	E200.7	200	<b>1,110</b>	
Selenium	mg/L	8/16/2013	1245h	8/26/2013	2257h	E200.8	0.0100	<b>3.90</b>	
Silver	mg/L	8/16/2013	1245h	8/26/2013	2257h	E200.8	0.0100	<b>0.137</b>	
Sodium	mg/L	8/16/2013	1245h	8/27/2013	1529h	E200.7	2,000	<b>3,150</b>	
Thallium	mg/L	8/16/2013	1245h	8/29/2013	1330h	E200.8	0.0200	<b>0.243</b>	
Tin	mg/L	8/16/2013	1245h	8/28/2013	2326h	E200.8	0.100	<b>0.163</b>	
Uranium	mg/L	8/16/2013	1245h	8/26/2013	1817h	E200.8	1.00	<b>110</b>	
Vanadium	mg/L	8/16/2013	1245h	8/27/2013	1529h	E200.7	30.0	<b>163</b>	
Zinc	mg/L	8/16/2013	1245h	8/26/2013	1817h	E200.8	2.50	<b>184</b>	

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

# GEL LABORATORIES LLC

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

## Certificate of Analysis

Report Date: September 13, 2013

Company : Energy Fuels Resources (USA), Inc.  
Address : 225 Union Boulevard  
Suite 600  
Lakewood, Colorado 80228  
Contact: Ms. Kathy Weinel  
Project: White Mesa Mill GW

Client Sample ID: Cell 65 Project: DNMI00100  
Sample ID: 331704007 Client ID: DNMI001  
Matrix: Ground Water  
Collect Date: 13-AUG-13 09:45  
Receive Date: 16-AUG-13  
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	DF	Analyst	Date	Time Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Total Alpha Radium, Liquid "As Received"											
Gross Radium Alpha		5310	+/-148	27.2	1.00	pCi/L		KDF1	09/11/13	1901 1326329	1

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 900.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium Carrier	GFPC, Total Alpha Radium, Liquid "As Received"			95.6	(25%-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.



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-007A  
**Client Sample ID:** Cell 65  
**Collection Date:** 8/13/2013 0945h  
**Received Date:** 8/15/2013 1433h Test Code: 8260-W

## Analytical Results

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1230h

**Units:** µg/L **Dilution Factor:** 1 **Method:** SW8260C

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	<b>62.6</b>	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	<b>112</b>	
Chloromethane	74-87-3	1.00	<b>9.65</b>	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	<b>2.32</b>	
Tetrahydrofuran	109-99-9	1.00	<b>40.6</b>	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	48.5	50.00	97.0	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	46.0	50.00	92.1	80-128	
Surr: Dibromofluoromethane	1868-53-7	49.5	50.00	99.0	80-124	
Surr: Toluene-d8	2037-26-5	43.7	50.00	87.4	77-129	



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-007F

**Client Sample ID:** Cell 65

**Collection Date:** 8/13/2013 0945h

**Received Date:** 8/15/2013 1433h

Test Code: 8270-W

## Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 8/20/2013 0401h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



**Lab Sample ID:** 1308284-007F

**Client Sample ID:** Cell 65

**Analyzed:** 8/20/2013 0401h

**Extracted:** 8/16/2013 1221h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



Lab Sample ID: 1308284-007F

Client Sample ID: Cell 65

Analyzed: 8/20/2013 0401h

Extracted: 8/16/2013 1221h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	2.93	80.00	3.66	14-159	S
Surr: 2-Fluorobiphenyl	321-60-8	14.7	40.00	36.8	10-124	
Surr: 2-Fluorophenol	367-12-4	1.11	80.00	1.39	10-106	S
Surr: Nitrobenzene-d5	4165-60-0	12.6	40.00	31.6	10-180	
Surr: Phenol-d6	13127-88-3	0.760	80.00	0.950	10-122	S
Surr: Terphenyl-d14	1718-51-0	31.6	40.00	79.1	10-221	

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*Reissue of a previously generated report. This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected. Information herein supersedes that of the previously issued reports*

*S - Surrogate recoveries outside the control limits. Repreparation and reanalysis of sample yielded similar results indicating matrix interference.*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# INORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-007  
**Client Sample ID:** Cell 65  
**Collection Date:** 8/13/2013 0945h  
**Received Date:** 8/15/2013 1433h

## Analytical Results

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Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Ammonia (as N)	mg/L	8/23/2013 1400h	8/23/2013 2109h	E350.1	25.0	<b>1,010</b>	
Bicarbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Carbonate (as CaCO <sub>3</sub> )	mg/L		8/16/2013 1104h	SM2320B	1.00	< 1.00	
Chloride	mg/L		8/29/2013 0625h	E300.0	1,000	<b>1,950</b>	
Conductivity	µmhos/cm		8/16/2013 1040h	SM2510B	2.00	<b>31,800</b>	
Fluoride	mg/L		8/20/2013 2044h	E300.0	100	<b>1,360</b>	
Ion Balance	%		8/29/2013 1249h	Calc.	-100	<b>-50.1</b>	*
Nitrate/Nitrite (as N)	mg/L		8/19/2013 1907h	E353.2	10.0	<b>27.8</b>	
pH @ 25° C	pH Units		8/15/2013 1810h	SW9040C	1.00	<b>2.32</b>	H
Sulfate	mg/L		8/17/2013 0538h	E300.0	10,000	<b>42,300</b>	
Total Anions, Measured	meq/L		8/29/2013 1249h	Calc.		<b>936</b>	
Total Cations, Measured	meq/L		8/29/2013 1249h	Calc.		<b>311</b>	
Total Dissolved Solids	mg/L		8/16/2013 1440h	SM2540C	500	<b>46,500</b>	
Total Dissolved Solids Ratio, Measured/Calculated			8/29/2013 1249h	Calc.		<b>0.932</b>	
Total Dissolved Solids, Calculated	mg/L		8/29/2013 1249h	Calc.		<b>49,900</b>	

*H - Sample was received outside of the holding time.*

*\* - High result due to high salt concentration. In this range, high results may be expected. The sample was reanalyzed with comparable results.*

# INORGANIC ANALYTICAL REPORT



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Sample ID:** 1308284-007  
**Client Sample ID:** Cell 65  
**Collection Date:** 8/13/2013 0945h  
**Received Date:** 8/15/2013 1433h

**Contact:** Garrin Palmer

## Analytical Results

## DISSOLVED METALS

463 West 3600 South  
 Salt Lake City, UT 84115  
  
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 Toll Free: (888) 263-8686  
 Fax: (801) 263-8687  
 e-mail: awal@awal-labs.com  
  
 web: www.awal-labs.com

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Arsenic	mg/L	8/16/2013 1245h	8/29/2013 0118h	E200.8	0.0500	37.3	
Beryllium	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.0100	0.194	
Cadmium	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.00250	1.25	
Calcium	mg/L	8/16/2013 1245h	8/27/2013 1649h	E200.7	200	446	
Chromium	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.0100	2.73	
Cobalt	mg/L	8/16/2013 1245h	8/26/2013 1926h	E200.8	0.100	45.3	
Copper	mg/L	8/16/2013 1245h	8/28/2013 2212h	E200.8	1.00	778	
Iron	mg/L	8/16/2013 1245h	8/26/2013 1719h	E200.8	250	1,410	
Lead	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.0100	0.175	
Magnesium	mg/L	8/16/2013 1245h	8/27/2013 1649h	E200.7	200	1,790	
Manganese	mg/L	8/16/2013 1245h	8/26/2013 2029h	E200.8	0.100	84.3	
Mercury	mg/L	8/21/2013 1450h	8/22/2013 0847h	E245.1	0.000500	< 0.000500	
Molybdenum	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.0100	1.25	
Nickel	mg/L	8/16/2013 1245h	8/26/2013 2029h	E200.8	0.100	52.8	
Potassium	mg/L	8/16/2013 1245h	8/27/2013 1649h	E200.7	200	315	
Selenium	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.0100	1.04	
Silver	mg/L	8/16/2013 1245h	8/26/2013 2302h	E200.8	0.0100	0.0268	
Sodium	mg/L	8/16/2013 1245h	8/27/2013 1649h	E200.7	200	3,060	
Thallium	mg/L	8/16/2013 1245h	8/29/2013 1337h	E200.8	0.0200	0.166	
Tin	mg/L	8/16/2013 1245h	8/29/2013 0007h	E200.8	0.100	< 0.100	
Uranium	mg/L	8/16/2013 1245h	8/26/2013 1822h	E200.8	1.00	75.0	
Vanadium	mg/L	8/16/2013 1245h	8/27/2013 1649h	E200.7	3.00	165	
Zinc	mg/L	8/16/2013 1245h	8/26/2013 1822h	E200.8	2.50	166	

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

# ORGANIC ANALYTICAL REPORT



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013 Resample  
**Lab Sample ID:** 1309104-003A  
**Client Sample ID:** Cell 70  
**Collection Date:** 9/4/2013 1215h  
**Received Date:** 9/6/2013 1200h

**Contact:** Garrin Palmer

Test Code: 8270-W

## Analytical Results

SVOA by GC/MS Method 8270D/3510C

**Analyzed:** 9/12/2013 1714h      **Extracted:** 9/9/2013 1033h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

463 West 3600 South  
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web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	10.0	< 10.0	
1,2-Dichlorobenzene	95-50-1	10.0	< 10.0	
1,3-Dichlorobenzene	541-73-1	10.0	< 10.0	
1,4-Dichlorobenzene	106-46-7	10.0	< 10.0	
1-Methylnaphthalene	90-12-0	10.0	< 10.0	
2,4,5-Trichlorophenol	95-95-4	10.0	< 10.0	
2,4,6-Trichlorophenol	88-06-2	10.0	< 10.0	
2,4-Dichlorophenol	120-83-2	10.0	< 10.0	
2,4-Dimethylphenol	105-67-9	10.0	< 10.0	
2,4-Dinitrophenol	51-28-5	20.0	< 20.0	
2,4-Dinitrotoluene	121-14-2	10.0	< 10.0	
2,6-Dinitrotoluene	606-20-2	10.0	< 10.0	
2-Chloronaphthalene	91-58-7	10.0	< 10.0	
2-Chlorophenol	95-57-8	10.0	< 10.0	
2-Methylnaphthalene	91-57-6	10.0	< 10.0	
2-Methylphenol	95-48-7	10.0	< 10.0	
2-Nitrophenol	88-75-5	10.0	< 10.0	
3&4-Methylphenol		10.0	< 10.0	
3,3'-Dichlorobenzidine	91-94-1	10.0	< 10.0	
4,6-Dinitro-2-methylphenol	534-52-1	10.0	< 10.0	
4-Bromophenyl phenyl ether	101-55-3	10.0	< 10.0	
4-Chloro-3-methylphenol	59-50-7	10.0	< 10.0	
4-Chlorophenyl phenyl ether	7005-72-3	10.0	< 10.0	
4-Nitrophenol	100-02-7	10.0	< 10.0	
Acenaphthene	83-32-9	10.0	< 10.0	
Acenaphthylene	208-96-8	10.0	< 10.0	
Anthracene	120-12-7	10.0	< 10.0	
Azobenzene	103-33-3	10.0	< 10.0	
Benz(a)anthracene	56-55-3	10.0	< 10.0	
Benzidine	92-87-5	10.0	< 10.0	



**Lab Sample ID:** 1309104-003A

**Client Sample ID:** Cell 70

**Analyzed:** 9/12/2013 1714h

**Extracted:** 9/9/2013 1033h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzo(a)pyrene	50-32-8	10.0	< 10.0	
Benzo(b)fluoranthene	205-99-2	10.0	< 10.0	
Benzo(g,h,i)perylene	191-24-2	10.0	< 10.0	
Benzo(k)fluoranthene	207-08-9	10.0	< 10.0	
Bis(2-chloroethoxy)methane	111-91-1	10.0	< 10.0	
Bis(2-chloroethyl) ether	111-44-4	10.0	< 10.0	
Bis(2-chloroisopropyl) ether	108-60-1	10.0	< 10.0	
Bis(2-ethylhexyl) phthalate	117-81-7	10.0	< 10.0	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	10.0	< 10.0	
Dibenz(a,h)anthracene	53-70-3	10.0	< 10.0	
Diethyl phthalate	84-66-2	10.0	< 10.0	
Dimethyl phthalate	131-11-3	10.0	< 10.0	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	10.0	< 10.0	
Fluoranthene	206-44-0	10.0	< 10.0	
Fluorene	86-73-7	10.0	< 10.0	
Hexachlorobenzene	118-74-1	10.0	< 10.0	
Hexachlorobutadiene	87-68-3	10.0	< 10.0	
Hexachlorocyclopentadiene	77-47-4	10.0	< 10.0	
Hexachloroethane	67-72-1	10.0	< 10.0	
Indeno(1,2,3-cd)pyrene	193-39-5	10.0	< 10.0	
Isophorone	78-59-1	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	
Pyrene	129-00-0	10.0	< 10.0	
Pyridine	110-86-1	10.0	< 10.0	



Lab Sample ID: 1309104-003A

Client Sample ID: Cell 70

Analyzed: 9/12/2013 1714h

Extracted: 9/9/2013 1033h

Units:  $\mu\text{g/L}$

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2,4,6-Tribromophenol	118-79-6	61.8	80.00	77.2	14-159	
Surr: 2-Fluorobiphenyl	321-60-8	17.2	40.00	43.0	10-124	
Surr: 2-Fluorophenol	367-12-4	13.5	80.00	16.8	10-106	
Surr: Nitrobenzene-d5	4165-60-0	29.0	40.00	72.5	10-180	
Surr: Phenol-d6	13127-88-3	41.1	80.00	51.3	10-122	
Surr: Terphenyl-d14	1718-51-0	41.0	40.00	102	10-221	

463 West 3600 South

Salt Lake City, UT 84115

*This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.*

*Information herein supersedes that of the previously issued reports*

*Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**Lab Sample ID:** 1308284-008A

**Client Sample ID:** Trip Blank

**Collection Date:** 8/13/2013

**Received Date:** 8/15/2013 1433h

Test Code: 8260-W

**Analytical Results**

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 8/16/2013 1014h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	< 20.0	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	< 1.00	
Chloromethane	74-87-3	1.00	< 1.00	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	< 1.00	
Tetrahydrofuran	109-99-9	1.00	< 1.00	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	54.8	50.00	110	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	52.6	50.00	105	80-128	
Surr: Dibromofluoromethane	1868-53-7	53.8	50.00	108	80-124	
Surr: Toluene-d8	2037-26-5	51.2	50.00	102	77-129	

# ORGANIC ANALYTICAL REPORT



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013 Resample  
**Lab Sample ID:** 1309104-004A  
**Client Sample ID:** Trip Blank  
**Collection Date:** 9/4/2013  
**Received Date:** 9/6/2013 1200h

**Contact:** Garrin Palmer

Test Code: 8260-W

## Analytical Results

VOAs by GC/MS Method 8260C/5030C

**Analyzed:** 9/11/2013 1339h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
2-Butanone	78-93-3	20.0	< 20.0	
Acetone	67-64-1	20.0	< 20.0	
Benzene	71-43-2	1.00	< 1.00	
Carbon tetrachloride	56-23-5	1.00	< 1.00	
Chloroform	67-66-3	1.00	< 1.00	
Chloromethane	74-87-3	1.00	< 1.00	
Methylene chloride	75-09-2	1.00	< 1.00	
Naphthalene	91-20-3	1.00	< 1.00	
Tetrahydrofuran	109-99-9	1.00	< 1.00	
Toluene	108-88-3	1.00	< 1.00	
Xylenes, Total	1330-20-7	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 1,2-Dichloroethane-d4	17060-07-0	53.3	50.00	107	72-151	
Surr: 4-Bromofluorobenzene	460-00-4	48.3	50.00	96.6	80-128	
Surr: Dibromofluoromethane	1868-53-7	51.1	50.00	102	80-124	
Surr: Toluene-d8	2037-26-5	49.0	50.00	98.1	77-129	



August 27, 2013

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

Re: White Mesa Mill GW  
Work Order: 331704

Dear Ms. Weinel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 16, 2013. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4505.

Sincerely,

Heather Shaffer  
Project Manager

Purchase Order: DW16138  
Enclosures



**Energy Fuels Resources (USA), Inc.**  
**White Mesa Mill GW**  
**SDG: 331704**

**Receipt Narrative  
for  
Energy Fuels Resources (USA), Inc.  
SDG: 331704**

**August 27, 2013**

**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 16, 2013 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:

<b><u>Laboratory ID</u></b>	<b><u>Client ID</u></b>
331704001	Cell 1
331704002	Slimes #2
331704003	Cell 3
331704004	Cell 4A
331704005	Cell 4A LDS
331704006	Cell 4B
331704007	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: Radiochemistry.

*Heather Shaffer*

Heather Shaffer  
Project Manager



Client: <u>DNMI</u>		SDG/AR/COC/Work Order: <u>33704</u>	
Received By: <u>P. WERT</u>		Date Received: <u>8/16/13</u>	
Suspected Hazard Information <u>Cell 3</u>		*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Classified Radioactive II or III by RSO?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Package, COC, and/or Samples marked as beryllium or asbestos containing?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
		Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>200 CPM Cell 3</u>	
		If yes, Were swipes taken of sample containers < action levels? <u>OCPM ALL OVER</u>	
		If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.	
		Hazard Class Shipped: _____ UN#: _____	

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) <u>DC</u>
2 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>			Preservation Method: <u>Ice bags</u> Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius
2a Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): <u>61524649</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7 Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>			ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>			
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
14 Carrier and tracking number.	<input checked="" type="checkbox"/>			Circle Applicable: FedEx Air FedEx Ground <u>UPS</u> Field Services Courier Other  <u>12 187 Y4Y 01 9121 3008</u>

Comments (Use Continuation Form if needed):



# GEL Laboratories LLC – Login Review Report

Report Date: 27-AUG-13

Work Order: 331704

Page 2 of 3

-004 Cell 4A	REVW	GFPC, Total Alpha Radium, Liquid	Gross Alpha	These samples have a natural pH of LT 2, they are percentage level metals, percentage level inorganics and EXTREMELY nasty. Please caution everyone in the lab to handle these samples with extreme care ? especially during the filtering.	Temperature (C)	2
	REVW	Laboratory Composite – FILTER	LAB FILTER		Cooler Seal Undisturbed	y
-005 Cell 4A LDS	REVW	GFPC, Total Alpha Radium, Liquid	Gross Alpha	These samples have a natural pH of LT 2, they are percentage level metals, percentage level inorganics and EXTREMELY nasty. Please caution everyone in the lab to handle these samples with extreme care ? especially during the filtering.	Temperature (C)	2
	REVW	Laboratory Composite – FILTER	LAB FILTER		Cooler Seal Undisturbed	y
-006 Cell 4B	REVW	GFPC, Total Alpha Radium, Liquid	Gross Alpha	These samples have a natural pH of LT 2, they are percentage level metals, percentage level inorganics and EXTREMELY nasty. Please caution everyone in the lab to handle these samples with extreme care ? especially during the filtering.	Temperature (C)	2
	REVW	Laboratory Composite – FILTER	LAB FILTER		Cooler Seal Undisturbed	y
-007 Cell 65	REVW	GFPC, Total Alpha Radium, Liquid	Gross Alpha	These samples have a natural pH of LT 2, they are percentage level metals, percentage level inorganics and EXTREMELY nasty. Please caution everyone in the lab to handle these samples with extreme care ? especially during the filtering.	Temperature (C)	2
	REVW	Laboratory Composite – FILTER	LAB FILTER		Cooler Seal Undisturbed	y
					Temperature (C)	2

<b>Product:</b> LABCOMP_L	<b>Workdef ID:</b> 1295580	<b>In Product Group?</b> No	<b>Group Name:</b>	<b>Group Reference:</b>
<b>Method:</b>				<b>Path:</b> Standard
<b>Product Description:</b> Laboratory Composite – FILTER				<b>Product Reference:</b> LAB FILTER
<b>Samples:</b> 001, 002, 003, 004, 005, 006, 007				<b>Moisture Correction:</b> "As Received"
<b>Parmname Check:</b> All parmnames scheduled properly				
<b>CAS #</b>	<b>Parmname</b>	<b>Client RDL or PQL &amp; Unit</b>	<b>Reporting Units</b>	<b>Parm Function</b>
				<b>Included in Sample?</b>
				<b>Included in QC?</b>
				<b>Custom List?</b>

No

# GEL Laboratories LLC – Login Review Report

Report Date: 27-AUG-13  
 Work Order: 331704  
 Page 3 of 3

Product: GFCTORAL    Workdef ID: 1297250    In Product Group? No    Group Name:    Group Reference:  
 Method: EPA 900.1 Modified    Path: Standard  
 Product Description: GFPC, Total Alpha Radium, Liquid    Product Reference: Gross Alpha  
 Samples: 001, 002, 003, 004, 005, 006, 007    Moisture Correction: "As Received"  
 Parmname Check: All parmnames scheduled properly

CAS #	Parmname	Client RDL or PQL & Unit	Reporting Units	Parm Function	Included in Sample?	Included in QC?	Custom List?
	Gross Radium Alpha	1	pCi/L	REG	Y	Y	Yes

Action	Product Name	Description	Samples
Contingent Tests			

Login Requirements:

Requirement	Include?	Comments

Peer Review by: \_\_\_\_\_ Work Order (SDG#), PO# Checked? \_\_\_\_\_ C of C signed in receiver location? \_\_\_\_\_

**List of current GEL Certifications as of 27 August 2013**

<b>State</b>	<b>Certification</b>
Alaska	UST-110
Arkansas	88-0651
CLIA	42D0904046
California NELAP	01151CA
Colorado	SC00012
Connecticut	PH-0169
Delaware	SC00012
DoD ELAP A2LA ISO 17025	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-12-00283, P330-12-00284
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA130005
Maryland	270
Massachusetts	M-SC012
Nevada	SC000122011-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
Oklahoma	9904
Pennsylvania NELAP	68-00485
Plant Material Permit	PDEP-12-00260
South Carolina Chemistry	10120001
South Carolina Radiochemi	10120002
Tennessee	TN 02934
Texas NELAP	T104704235-13-8
Utah NELAP	SC000122013-8
Vermont	VT87156
Virginia NELAP	460202
Washington	C780-12
Wisconsin	999887790

**Radiochemistry Case Narrative  
Energy Fuels Resources (DNMI)  
SDG 331704**

**Method/Analysis Information**

**Product:** GFPC, Total Alpha Radium, Liquid

Analytical Method: EPA 900.1 Modified

Analytical Batch Number: 1326329

<b>Sample ID</b>	<b>Client ID</b>
331704001	Cell 1
331704002	Slimes #2
331704004	Cell 4A
331704005	Cell 4A LDS
331704006	Cell 4B
331704007	Cell 65
1202936391	Method Blank (MB)
1202936392	331704001(Cell 1) Sample Duplicate (DUP)
1202936393	331704001(Cell 1) Matrix Spike (MS)
1202936394	331704001(Cell 1) Matrix Spike Duplicate (MSD)
1202936395	Laboratory Control Sample (LCS)

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

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-010 REV# 15.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

## Designated QC

The following sample was used for QC: 331704001 (Cell 1).

## QC Information

All of the QC samples meet the required acceptance limits with the following exceptions: The blank, 1202936391 (MB), did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits. The sample and the duplicate, 1202936392 (Cell 1) and 331704001 (Cell 1), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with value of 1.84. The matrix spike and matrix spike duplicate, 1202936393 (Cell 1) and 1202936394 (Cell 1), do not meet recovery requirements due to the sample activity being greater than five times the spiked nominal concentration.

## Technical Information:

### Holding Time

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

### Sample Re-prep/Re-analysis

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

### Chemical Recoveries

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

## Miscellaneous Information:

### Data Exception (DER) Documentation

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

### Additional Comments

The matrix spike and matrix spike duplicate, 1202936393 (Cell 1) and 1202936394 (Cell 1), aliquots were reduced to conserve sample volume.

## Qualifier Information

Manual qualifiers were not required.

## Method/Analysis Information

**Product:** GFPC, Total Alpha Radium, Liquid  
**Analytical Method:** EPA 900.1 Modified  
**Analytical Batch Number:** 1330684

Sample ID	Client ID
331704003	Cell 3
1202946590	Method Blank (MB)
1202946591	331704003(Cell 3) Sample Duplicate (DUP)
1202946592	331704003(Cell 3) Matrix Spike (MS)
1202946593	331704003(Cell 3) Matrix Spike Duplicate (MSD)

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

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-010 REV# 15.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 331704003 (Cell 3).

**QC Information**

All of the QC samples meet the required acceptance limits with the following exceptions: Refer to Data Exception Report (DER). The blank, 1202946590 (MB), did not meet the detection limit due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits.

**Technical Information:**

**Holding Time**

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

**Sample Re-prep/Re-analysis**

Samples were reprepared due to low recovery. The re-analysis is being reported. Samples 1202946592 (Cell 3) and 1202946593 (Cell 3) were recounted due to high recovery. The recounts are reported. Sample 1202946590 (MB) was recounted to verify sample result. The second count is reported. Samples 1202946591 (Cell 3) and 331704003 (Cell 3) were recounted due to high relative percent difference/relative error ratio. The recounts are reported.

**Chemical Recoveries**

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

**Miscellaneous Information:**

**Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following DER was generated for this SDG: DER 1221037 was generated due to Failed RPD for MS/MSD, or PS/PSD, Failed RPD for DUP and Failed Recovery for MSD/PSD. 1. The

sample and the duplicate 331704003 and 1202946591 do not meet the relative percent difference/relative error ratio requirement due to the matrix of the sample. The sample has 81885.7008 pCi/L of activity and the duplicate has 225615.4856 pCi/L of activity. The sample matrix consists of metals, inorganics, and is extremely nasty. 2. The matrix spike and matrix spike duplicate 1202946592 and 1202946593 do not meet the recovery requirement due to the matrix of the sample. The matrix spike recovery was 644.8% and matrix spike duplicate recovery was 654.4%. The sample matrix consists of metals, inorganics, and is extremely nasty. 1. Reporting results. 2. Reporting results.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier Information**

Manual qualifiers were not required.

**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: 331704 GEL Work Order: 331704

**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: 13 SEP 2013

Title: Group Leader

**DATA EXCEPTION REPORT**

<b>Mo.Day Yr.</b> 12-SEP-13	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Process
<b>Instrument Type:</b> GFPC	<b>Test / Method:</b> EPA 900.1 Modified	<b>Matrix Type:</b> Liquid	<b>Client Code:</b> DNMI
<b>Batch ID:</b> 1330684	<b>Sample Numbers:</b> see below		

**Potentially affected work order(s)(SDG): 331704**

**Application Issues:**

Failed RPD for MS/MSD, or PS/PSD

Failed RPD for DUP

Failed Recovery for MSD/PSD

**Specification and Requirements  
Exception Description:**

**DER Disposition:**

1. The sample and the duplicate 331704003 and 1202946591 do not meet the relative percent difference/relative error ratio requirement due to the matrix of the sample. The sample has 81885.7008 pCi/L of activity and the duplicate has 225615.4856 pCi/L of activity. The sample matrix consists of metals, inorganics, and is extremely nasty.
2. The matrix spike and matrix spike duplicate 1202946592 and 1202946593 do not meet the recovery requirement due to the matrix of the sample. The matrix spike recovery was 644.8% and matrix spike duplicate recovery was 654.4%. The sample matrix consists of metals, inorganics, and is extremely nasty.

1. Reporting results.
2. Reporting results.

**Originator's Name:**

Maryann Alforque 12-SEP-13

**Data Validator/Group Leader:**

Nat Long 13-SEP-13

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: September 13, 2013

Page 1 of

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

Contact: Ms. Kathy Weinel

Workorder: 331704

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Gas Flow</b>											
Batch 1326329											
QC1202936392	331704001	DUP									
Gross Radium Alpha		32700		41400	pCi/L	23.4*		(0%-20%)	KDF1	09/11/13	19:0
		Uncertainty	+/-386	+/-429							
QC1202936395	LCS										
Gross Radium Alpha		2220		2610	pCi/L		117	(75%-125%)		09/11/13	19:0
		Uncertainty		+/-129							
QC1202936391	MB										
Gross Radium Alpha			U	6.01	pCi/L					09/11/13	19:0
		Uncertainty		+/-6.61							
QC1202936393	331704001	MS									
Gross Radium Alpha		4500	32700	61800	pCi/L		N/A	(75%-125%)		09/11/13	19:0
		Uncertainty	+/-386	+/-799							
QC1202936394	331704001	MSD									
Gross Radium Alpha		4500	32700	54600	pCi/L	12.4	N/A	(0%-20%)		09/11/13	19:0
		Uncertainty	+/-386	+/-685							
Batch 1330684											
QC1202946591	331704003	DUP									
Gross Radium Alpha		81900		2.26E+05	pCi/L	93.5*		(0%-20%)	BXF1	09/12/13	16:5
		Uncertainty	+/-1220	+/-1990							
QC1202946594	LCS										
Gross Radium Alpha		22200		27500	pCi/L		124	(75%-125%)		09/12/13	15:1
		Uncertainty		+/-795							
QC1202946590	MB										
Gross Radium Alpha			U	-32.4	pCi/L					09/12/13	16:5
		Uncertainty		+/-4.11							
QC1202946592	331704003	MS									
Gross Radium Alpha		22500	81900	2.27E+05	pCi/L		645*	(75%-125%)		09/12/13	16:5
		Uncertainty	+/-1220	+/-1990							
QC1202946593	331704003	MSD									
Gross Radium Alpha		22500	81900	2.29E+05	pCi/L	0.954	654*	(0%-20%)		09/12/13	16:5
		Uncertainty	+/-1220	+/-1990							

### 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.

# GEL LABORATORIES LLC

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

## QC Summary

Workorder: 331704

Page 2 of

Parname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
BD											
C											
D											
F											
H											
K											
L											
M											
M											
N/A											
N1											
ND											
NJ											
Q											
R											
U											
UI											
UJ											
UL											
X											
Y											
^											
h											

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

^ 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.



Garrin Palmer  
Energy Fuels Resources, Inc.  
6425 S. Hwy 191  
Blanding, UT 84511  
TEL: (435) 678-2221

RE: Annual Tailings 2013

Dear Garrin Palmer:

Lab Set ID: 1308284

463 West 3600 South  
Salt Lake City, UT 84115

American West Analytical Laboratories received 8 sample(s) on 8/15/2013 for the analyses presented in the following report.

Phone: (801) 263-8686  
Toll Free: (888) 263-8686  
Fax: (801) 263-8687  
e-mail: awal@awal-labs.com  
web: www.awal-labs.com

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

9/19/2013: This is a revision to a report originally issued 9/4/2013. Pages 1 and 23-43 have been revised.

9/20/2013: Pages 1, 23-25, 29-31, 69-71, and 75-76 have been revised.

Thank You,

Approved by:

**Kyle F. Gross**  
Digitally signed by Kyle F. Gross  
DN: cn=Kyle F. Gross, o=AWAL,  
ou=AWAL-Laboratory Director,  
email=kyle@awal-labs.com, c=US  
Date: 2013.09.20 13:54:02 -06'00'

Laboratory Director or designee



## SAMPLE SUMMARY

**Client:** Energy Fuels Resources, Inc. **Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284  
**Date Received:** 8/15/2013 1433h

463 West 3600 South  
Salt Lake City, UT 84115

Phone: (801) 263-8686  
Toll Free: (888) 263-8686

Fax: (801) 263-8687  
e-mail: awal@awal-labs.com

web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1308284-001A	Cell 1	8/13/2013 0740h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-001B	Cell 1	8/13/2013 0740h	Aqueous	Anions, E300.0
1308284-001B	Cell 1	8/13/2013 0740h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-001B	Cell 1	8/13/2013 0740h	Aqueous	Conductivity (Specific Conductance)
1308284-001B	Cell 1	8/13/2013 0740h	Aqueous	pH by 9040C
1308284-001C	Cell 1	8/13/2013 0740h	Aqueous	Total Dissolved Solids, A2540C
1308284-001D	Cell 1	8/13/2013 0740h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-001D	Cell 1	8/13/2013 0740h	Aqueous	Ammonia, Aqueous
1308284-001E	Cell 1	8/13/2013 0740h	Aqueous	Mercury, Drinking Water Dissolved
1308284-001E	Cell 1	8/13/2013 0740h	Aqueous	Ion Balance
1308284-001E	Cell 1	8/13/2013 0740h	Aqueous	ICPMS Metals, Dissolved
1308284-001E	Cell 1	8/13/2013 0740h	Aqueous	ICP Metals, Dissolved
1308284-001F	Cell 1	8/13/2013 0740h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-002A	Slimes #2	8/13/2013 0855h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-002B	Slimes #2	8/13/2013 0855h	Aqueous	Anions, E300.0
1308284-002B	Slimes #2	8/13/2013 0855h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-002B	Slimes #2	8/13/2013 0855h	Aqueous	Conductivity (Specific Conductance)
1308284-002B	Slimes #2	8/13/2013 0855h	Aqueous	pH by 9040C
1308284-002C	Slimes #2	8/13/2013 0855h	Aqueous	Total Dissolved Solids, A2540C
1308284-002D	Slimes #2	8/13/2013 0855h	Aqueous	Ammonia, Aqueous
1308284-002D	Slimes #2	8/13/2013 0855h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-002E	Slimes #2	8/13/2013 0855h	Aqueous	ICPMS Metals, Dissolved
1308284-002E	Slimes #2	8/13/2013 0855h	Aqueous	Mercury, Drinking Water Dissolved
1308284-002E	Slimes #2	8/13/2013 0855h	Aqueous	ICP Metals, Dissolved
1308284-002E	Slimes #2	8/13/2013 0855h	Aqueous	Ion Balance
1308284-002F	Slimes #2	8/13/2013 0855h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-003A	Cell 3	8/13/2013 1100h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-003B	Cell 3	8/13/2013 1100h	Aqueous	Anions, E300.0



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284  
**Date Received:** 8/15/2013 1433h

**Contact:** Garrin Palmer

463 West 3600 South  
 Salt Lake City, UT 84115

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 e-mail: awal@awal-labs.com

web: www.awal-labs.com

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1308284-003B	Cell 3	8/13/2013 1100h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-003B	Cell 3	8/13/2013 1100h	Aqueous	Conductivity (Specific Conductance)
1308284-003B	Cell 3	8/13/2013 1100h	Aqueous	pH by 9040C
1308284-003C	Cell 3	8/13/2013 1100h	Aqueous	Total Dissolved Solids, A2540C
1308284-003D	Cell 3	8/13/2013 1100h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-003D	Cell 3	8/13/2013 1100h	Aqueous	Ammonia, Aqueous
1308284-003E	Cell 3	8/13/2013 1100h	Aqueous	Ion Balance
1308284-003E	Cell 3	8/13/2013 1100h	Aqueous	Mercury, Drinking Water Dissolved
1308284-003E	Cell 3	8/13/2013 1100h	Aqueous	ICP Metals, Dissolved
1308284-003E	Cell 3	8/13/2013 1100h	Aqueous	ICPMS Metals, Dissolved
1308284-003F	Cell 3	8/13/2013 1100h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-004A	Cell 4A	8/13/2013 0930h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-004B	Cell 4A	8/13/2013 0930h	Aqueous	Anions, E300.0
1308284-004B	Cell 4A	8/13/2013 0930h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-004B	Cell 4A	8/13/2013 0930h	Aqueous	Conductivity (Specific Conductance)
1308284-004B	Cell 4A	8/13/2013 0930h	Aqueous	pH by 9040C
1308284-004C	Cell 4A	8/13/2013 0930h	Aqueous	Total Dissolved Solids, A2540C
1308284-004D	Cell 4A	8/13/2013 0930h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-004D	Cell 4A	8/13/2013 0930h	Aqueous	Ammonia, Aqueous
1308284-004E	Cell 4A	8/13/2013 0930h	Aqueous	ICP Metals, Dissolved
1308284-004E	Cell 4A	8/13/2013 0930h	Aqueous	ICPMS Metals, Dissolved
1308284-004E	Cell 4A	8/13/2013 0930h	Aqueous	Mercury, Drinking Water Dissolved
1308284-004E	Cell 4A	8/13/2013 0930h	Aqueous	Ion Balance
1308284-004F	Cell 4A	8/13/2013 0930h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-005A	Cell 4A LDS	8/13/2013 0945h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-005B	Cell 4A LDS	8/13/2013 0945h	Aqueous	pH by 9040C
1308284-005B	Cell 4A LDS	8/13/2013 0945h	Aqueous	Anions, E300.0
1308284-005B	Cell 4A LDS	8/13/2013 0945h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-005B	Cell 4A LDS	8/13/2013 0945h	Aqueous	Conductivity (Specific Conductance)



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284  
**Date Received:** 8/15/2013 1433h

**Contact:** Garrin Palmer

463 West 3600 South  
Salt Lake City, UT 84115

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 e-mail: awal@awal-labs.com

web: www.awal-labs.com

Kyle F. Gross  
 Laboratory Director

Jose Rocha  
 QA Officer

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1308284-005C	Cell 4A LDS	8/13/2013 0945h	Aqueous	Total Dissolved Solids, A2540C
1308284-005D	Cell 4A LDS	8/13/2013 0945h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-005D	Cell 4A LDS	8/13/2013 0945h	Aqueous	Ammonia, Aqueous
1308284-005E	Cell 4A LDS	8/13/2013 0945h	Aqueous	ICP Metals, Dissolved
1308284-005E	Cell 4A LDS	8/13/2013 0945h	Aqueous	ICPMS Metals, Dissolved
1308284-005E	Cell 4A LDS	8/13/2013 0945h	Aqueous	Mercury, Drinking Water Dissolved
1308284-005E	Cell 4A LDS	8/13/2013 0945h	Aqueous	Ion Balance
1308284-005F	Cell 4A LDS	8/13/2013 0945h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-006A	Cell 4B	8/13/2013 1015h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-006B	Cell 4B	8/13/2013 1015h	Aqueous	pH by 9040C
1308284-006B	Cell 4B	8/13/2013 1015h	Aqueous	Conductivity (Specific Conductance)
1308284-006B	Cell 4B	8/13/2013 1015h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-006B	Cell 4B	8/13/2013 1015h	Aqueous	Anions, E300.0
1308284-006C	Cell 4B	8/13/2013 1015h	Aqueous	Total Dissolved Solids, A2540C
1308284-006D	Cell 4B	8/13/2013 1015h	Aqueous	Ammonia, Aqueous
1308284-006D	Cell 4B	8/13/2013 1015h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-006E	Cell 4B	8/13/2013 1015h	Aqueous	ICP Metals, Dissolved
1308284-006E	Cell 4B	8/13/2013 1015h	Aqueous	ICPMS Metals, Dissolved
1308284-006E	Cell 4B	8/13/2013 1015h	Aqueous	Mercury, Drinking Water Dissolved
1308284-006E	Cell 4B	8/13/2013 1015h	Aqueous	Ion Balance
1308284-006F	Cell 4B	8/13/2013 1015h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-007A	Cell 65	8/13/2013 0945h	Aqueous	VOA by GC/MS Method 8260C/5030C
1308284-007B	Cell 65	8/13/2013 0945h	Aqueous	Anions, E300.0
1308284-007B	Cell 65	8/13/2013 0945h	Aqueous	pH by 9040C
1308284-007B	Cell 65	8/13/2013 0945h	Aqueous	Alkalinity/ Bicarbonate/ Carbonate, A2320B
1308284-007B	Cell 65	8/13/2013 0945h	Aqueous	Conductivity (Specific Conductance)
1308284-007C	Cell 65	8/13/2013 0945h	Aqueous	Total Dissolved Solids, A2540C
1308284-007D	Cell 65	8/13/2013 0945h	Aqueous	Ammonia, Aqueous
1308284-007D	Cell 65	8/13/2013 0945h	Aqueous	Nitrite/Nitrate (as N), E353.2
1308284-007E	Cell 65	8/13/2013 0945h	Aqueous	ICP Metals, Dissolved



**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284  
**Date Received:** 8/15/2013 1433h

**Contact:** Garrin Palmer

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1308284-007E	Cell 65	8/13/2013 0945h	Aqueous	ICPMS Metals, Dissolved
1308284-007E	Cell 65	8/13/2013 0945h	Aqueous	Mercury, Drinking Water Dissolved
1308284-007E	Cell 65	8/13/2013 0945h	Aqueous	Ion Balance
1308284-007F	Cell 65	8/13/2013 0945h	Aqueous	SVOAs by GC/MS Method 8270D
1308284-008A	Trip Blank	8/13/2013	Aqueous	VOA by GC/MS Method 8260C/5030C

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# Inorganic Case Narrative

**Client:** Energy Fuels Resources, Inc.  
**Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284

## Sample Receipt Information:

463 West 3600 South  
Salt Lake City, UT 84115

**Date of Receipt:** 8/15/2013  
**Date of Collection:** 8/13/2013  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None

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**Holding Time and Preservation Requirements:** The analysis and preparation of all samples were performed within the method holding times, with the exception of pH which was received outside of hold. All samples were properly preserved.

**Preparation and Analysis Requirements:** The samples were analyzed following the methods stated on the analytical reports.

**Analytical QC Requirements:** All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

**Batch QC Requirements:** MB, LCS, MS, MSD, RPD, DUP:

**Method Blanks (MB):** No target analytes were detected above reporting limits, with the following exception: Manganese was detected in MB-27241 analyzed 8/26/2013. As the result was less than 10% of the lowest reported sample concentration, it was deemed acceptable.

**Laboratory Control Samples (LCS):** All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

**Matrix Spike / Matrix Spike Duplicates (MS/MSD):** All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, with the following exceptions:

Sample ID	Analyte	QC	Explanation
1308284-004E	Multiple Analytes	MS/MSD	High analyte concentrations
1308284-004E	Thallium	MS/MSD	Sample matrix interference
1308284-004B	Fluoride	MS	Sample matrix interference
1308284-003B	Sulfate	MS/MSD	Sample matrix interference
1308284-004B	Alkalinity	MS/MSD	Sample matrix interference
1308284-004D	Ammonia	MS/MSD	High analyte concentrations
1308284-004D	Nitrate/Nitrite	MS/MSD	Sample matrix interference

**Duplicates (DUP):** The parameters that require a duplicate analysis had RPDs within the control limits.

**Corrective Action:** None required.



# Semivolatile Case Narrative

**Client:** Energy Fuels Resources, Inc.  
**Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284

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## Sample Receipt Information:

**Date of Receipt:** 8/15/2013  
**Date of Collection:** 8/13/2013  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None  
**Method:** SW-846 8270D/3510C  
**Analysis:** Semivolatile Organics

**General Set Comments:** No target analytes were observed above their reporting limits.

**Holding Time Requirements:** The preparations and analyses of the samples were performed within respective holding times.

**Preparation Requirements:** The samples were prepared and analyzed following the methods stated on the analytical reports.

**Analytical QC Requirements:** All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

**Batch QC Requirements:** MB, LCS, MS, MSD, RPD, and Surrogates:

**Method Blanks:** No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

**Laboratory Control Sample (LCS):** All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

**Matrix Spike / Matrix Spike Duplicate (MS/MSD):** All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, with the following exceptions: The MS and MSD percent recoveries were outside of control limits on 4-Nitrophenol for sample 1308284-004F due to sample matrix interference. RPD's on 4,6-Dinitro-2-methylphenol and 4-Nitrophenol were outside of control limits for sample 1308284-004F due to suspected sample non-homogeneity or matrix interference.

**Surrogates:** All surrogate recoveries were within established limits, with the following exceptions: 2-Fluorophenol was outside of control limits for sample 1308284-001F and 1308284-006F. 2,4,6-Tribromophenol, 2-Fluorophenol, and Phenol-d6 were outside of control limits for sample 1308284-005F and 1308284-007F. Repreparation and reanalysis of the sample yielded similar results indicating matrix interference.

**Corrective Action:** None required.

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# Volatile Case Narrative

**Client:** Energy Fuels Resources, Inc.  
**Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013  
**Lab Set ID:** 1308284

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## **Sample Receipt Information:**

463 West 3600 South  
Salt Lake City, UT 84115

**Date of Receipt:** 8/15/2013  
**Date of Collection:** 8/13/2013  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None  
**Method:** SW-846 8260C/5030C  
**Analysis:** Volatile Organic Compounds

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**General Set Comments:** Multiple target analytes were observed above reporting limits.

**Holding Time and Preservation Requirements:** All samples were received in appropriate containers and properly preserved. The analysis and preparation of all samples were performed within the method holding times following the methods stated on the analytical reports.

**Analytical QC Requirements:** All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

**Batch QC Requirements:** MB, LCS, MS, MSD, RPD, and Surrogates:

Kyle F. Gross  
Laboratory Director

**Method Blanks (MBs):** No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

**Laboratory Control Sample (LCSs):** All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

**Matrix Spike / Matrix Spike Duplicate (MS/MSD):** All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, with the following exceptions: The MS and MSD percent recoveries were outside of control limits on naphthalene and tetrahydrofuran for sample 1308284-004A due to sample matrix interference. The RPD for methylene chloride was outside of control limits due to suspected sample non-homogeneity or matrix interference.

**Surrogates:** All surrogate recoveries were within established limits.

**Corrective Action:** None required.



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS-27240</b>		Date Analyzed: 08/27/2013 1420h											
Test Code: 200.7-DIS		Date Prepared: 08/16/2013 1245h											
Calcium	9.26	mg/L	E200.7	0.0227	1.00	10.00	0	92.6	85 - 115				
Magnesium	9.01	mg/L	E200.7	0.102	1.00	10.00	0	90.1	85 - 115				
Sodium	9.04	mg/L	E200.7	0.0514	1.00	10.00	0	90.4	85 - 115				
Vanadium	0.192	mg/L	E200.7	0.00150	0.00500	0.2000	0	96.0	85 - 115				
<b>Lab Sample ID: LCS-27240</b>		Date Analyzed: 08/27/2013 1601h											
Test Code: 200.7-DIS		Date Prepared: 08/16/2013 1245h											
Potassium	9.14	mg/L	E200.7	0.203	1.00	10.00	0	91.4	85 - 115				
<b>Lab Sample ID: LCS-27241</b>		Date Analyzed: 08/26/2013 1615h											
Test Code: 200.8-DIS		Date Prepared: 08/16/2013 1245h											
Beryllium	0.182	mg/L	E200.8	0.0000698	0.00200	0.2000	0	91.0	85 - 115				
Cadmium	0.189	mg/L	E200.8	0.0000726	0.000500	0.2000	0	94.4	85 - 115				
Chromium	0.189	mg/L	E200.8	0.000938	0.00200	0.2000	0	94.4	85 - 115				
Cobalt	0.186	mg/L	E200.8	0.00364	0.00400	0.2000	0	93.2	85 - 115				
Iron	0.928	mg/L	E200.8	0.0472	0.100	1.000	0	92.8	85 - 115				
Lead	0.182	mg/L	E200.8	0.00126	0.00200	0.2000	0	90.9	85 - 115				
Manganese	0.190	mg/L	E200.8	0.00166	0.00200	0.2000	0	95.1	85 - 115				
Molybdenum	0.184	mg/L	E200.8	0.000496	0.00200	0.2000	0	92.2	85 - 115				
Nickel	0.186	mg/L	E200.8	0.000898	0.00200	0.2000	0	93.0	85 - 115				
Selenium	0.189	mg/L	E200.8	0.000686	0.00200	0.2000	0	94.5	85 - 115				
Silver	0.183	mg/L	E200.8	0.000101	0.00200	0.2000	0	91.4	85 - 115				
Uranium	0.180	mg/L	E200.8	0.0000598	0.00200	0.2000	0	90.1	85 - 115				
Zinc	0.933	mg/L	E200.8	0.00368	0.00500	1.000	0	93.3	85 - 115				
<b>Lab Sample ID: LCS-27241</b>		Date Analyzed: 08/28/2013 2103h											
Test Code: 200.8-DIS		Date Prepared: 08/16/2013 1245h											
Arsenic	0.197	mg/L	E200.8	0.00118	0.00200	0.2000	0	98.6	85 - 115				
Copper	0.193	mg/L	E200.8	0.00152	0.00200	0.2000	0	96.7	85 - 115				



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> LCS-27241	Date Analyzed: 08/28/2013 2203h												
<b>Test Code:</b> 200.8-DIS	Date Prepared: 08/16/2013 1245h												
Tin	0.996	mg/L	E200.8	0.000620	0.00200	1.000	0	99.6	85 - 115				
<b>Lab Sample ID:</b> LCS-27241	Date Analyzed: 08/29/2013 1235h												
<b>Test Code:</b> 200.8-DIS	Date Prepared: 08/16/2013 1245h												
Thallium	0.195	mg/L	E200.8	0.000222	0.00200	0.2000	0	97.4	85 - 115				
<b>Lab Sample ID:</b> LCS-27319	Date Analyzed: 08/22/2013 0826h												
<b>Test Code:</b> Hg-DW-DIS-245.1	Date Prepared: 08/21/2013 1450h												
Mercury	0.00343	mg/L	E245.1	0.0000175	0.000150	0.003330	0	103	85 - 115				



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB-27240</b>													
Date Analyzed: 08/27/2013 1415h													
Test Code: 200.7-DIS													
Date Prepared: 08/16/2013 1245h													
Calcium	< 1.00	mg/L	E200.7	0.0227	1.00								
Magnesium	< 1.00	mg/L	E200.7	0.102	1.00								
Sodium	< 1.00	mg/L	E200.7	0.0514	1.00								
Vanadium	< 0.00500	mg/L	E200.7	0.00150	0.00500								
<b>Lab Sample ID: MB-27240</b>													
Date Analyzed: 08/27/2013 1557h													
Test Code: 200.7-DIS													
Date Prepared: 08/16/2013 1245h													
Potassium	< 1.00	mg/L	E200.7	0.203	1.00								
<b>Lab Sample ID: MB-27241</b>													
Date Analyzed: 08/26/2013 1610h													
Test Code: 200.8-DIS													
Date Prepared: 08/16/2013 1245h													
Beryllium	< 0.00100	mg/L	E200.8	0.0000349	0.00100								
Cadmium	< 0.000250	mg/L	E200.8	0.0000363	0.000250								
Chromium	< 0.00100	mg/L	E200.8	0.000469	0.00100								
Cobalt	< 0.00200	mg/L	E200.8	0.00182	0.00200								
Iron	< 0.0500	mg/L	E200.8	0.0236	0.0500								
Lead	< 0.00100	mg/L	E200.8	0.000632	0.00100								
Manganese	0.00114	mg/L	E200.8	0.000832	0.00100								B
Molybdenum	< 0.00100	mg/L	E200.8	0.000248	0.00100								
Nickel	< 0.00100	mg/L	E200.8	0.000449	0.00100								
Selenium	< 0.00100	mg/L	E200.8	0.000343	0.00100								
Silver	< 0.00100	mg/L	E200.8	0.0000504	0.00100								
Uranium	< 0.00100	mg/L	E200.8	0.0000299	0.00100								
Zinc	< 0.00250	mg/L	E200.8	0.00184	0.00250								
<b>Lab Sample ID: MB-27241</b>													
Date Analyzed: 08/28/2013 2058h													
Test Code: 200.8-DIS													
Date Prepared: 08/16/2013 1245h													
Arsenic	< 0.00100	mg/L	E200.8	0.000589	0.00100								
Copper	0.00104	mg/L	E200.8	0.000758	0.00100								



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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27241	Date Analyzed:	08/28/2013	2153h										
<b>Test Code:</b> 200.8-DIS	Date Prepared:	08/16/2013	1245h										
Tin	< 0.00100	mg/L	E200.8	0.000310	0.00100								
<b>Lab Sample ID:</b> MB-27241	Date Analyzed:	08/29/2013	1145h										
<b>Test Code:</b> 200.8-DIS	Date Prepared:	08/16/2013	1245h										
Thallium	< 0.00200	mg/L	E200.8	0.000222	0.00200								
<b>Lab Sample ID:</b> MB-27319	Date Analyzed:	08/22/2013	0824h										
<b>Test Code:</b> Hg-DW-DIS-245.1	Date Prepared:	08/21/2013	1450h										
Mercury	< 0.000150	mg/L	E245.1	0.0000175	0.000150								

*B - The method blank was acceptable, as the method blank result is less than 10% of the lowest reported sample concentration.*



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004EMS</b> Date Analyzed: 08/27/2013 1621h													
Test Code: 200.7-DIS      Date Prepared: 08/16/2013 1245h													
Calcium	752	mg/L	E200.7	4.54	200	100.0	668	83.9	70 - 130				
Magnesium	3,580	mg/L	E200.7	20.4	200	100.0	3560	26.2	70 - 130				2
Potassium	853	mg/L	E200.7	40.6	200	100.0	773	80.0	70 - 130				
Sodium	6,400	mg/L	E200.7	10.3	200	100.0	6390	12.9	70 - 130				2
Vanadium	446	mg/L	E200.7	0.300	1.00	2.000	458	-610	70 - 130				2
<b>Lab Sample ID: 1308284-004EMS</b> Date Analyzed: 08/26/2013 1657h													
Test Code: 200.8-DIS      Date Prepared: 08/16/2013 1245h													
Iron	2,730	mg/L	E200.8	118	250	2.000	2620	5,530	75 - 125				2
<b>Lab Sample ID: 1308284-004EMS</b> Date Analyzed: 08/26/2013 1801h													
Test Code: 200.8-DIS      Date Prepared: 08/16/2013 1245h													
Manganese	142	mg/L	E200.8	0.832	1.00	2.000	143	-88.0	75 - 125				2
Uranium	113	mg/L	E200.8	0.0299	1.00	2.000	112	38.5	75 - 125				2
Zinc	190	mg/L	E200.8	1.84	2.50	10.00	183	74.0	75 - 125				2
<b>Lab Sample ID: 1308284-004EMS</b> Date Analyzed: 08/26/2013 1904h													
Test Code: 200.8-DIS      Date Prepared: 08/16/2013 1245h													
Beryllium	1.95	mg/L	E200.8	0.00174	0.0500	2.000	0.247	85.2	75 - 125				
Chromium	6.81	mg/L	E200.8	0.0234	0.0500	2.000	5.22	79.6	75 - 125				
Cobalt	24.0	mg/L	E200.8	0.0910	0.100	2.000	22.9	55.3	75 - 125				2
Lead	13.1	mg/L	E200.8	0.0316	0.0500	2.000	11.5	79.7	75 - 125				
Molybdenum	26.7	mg/L	E200.8	0.0124	0.0500	2.000	25.5	57.1	75 - 125				2
Nickel	44.0	mg/L	E200.8	0.0224	0.0500	2.000	43.3	34.8	75 - 125				2
<b>Lab Sample ID: 1308284-004EMS</b> Date Analyzed: 08/26/2013 2225h													
Test Code: 200.8-DIS      Date Prepared: 08/16/2013 1245h													
Cadmium	3.21	mg/L	E200.8	0.000363	0.00250	2.000	1.45	87.8	75 - 125				
Selenium	3.95	mg/L	E200.8	0.00343	0.0100	2.000	2.08	93.6	75 - 125				
Silver	1.87	mg/L	E200.8	0.000504	0.0100	2.000	0.144	86.4	75 - 125				



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Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** ME

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004EMS</b>		Date Analyzed: 08/28/2013 2135h											
Test Code: 200.8-DIS		Date Prepared: 08/16/2013 1245h											
Copper	537	mg/L	E200.8	0.758	1.00	2.000	540	-111	75 - 125				2
<b>Lab Sample ID: 1308284-004EMS</b>		Date Analyzed: 08/29/2013 0057h											
Test Code: 200.8-DIS		Date Prepared: 08/16/2013 1245h											
Arsenic	75.5	mg/L	E200.8	0.0589	0.100	2.000	73.7	90.6	75 - 125				
<b>Lab Sample ID: 1308284-004EMS</b>		Date Analyzed: 08/28/2013 2255h											
Test Code: 200.8-DIS		Date Prepared: 08/16/2013 1245h											
Tin	9.79	mg/L	E200.8	0.00310	0.0100	10.00	0.118	96.7	75 - 125				
<b>Lab Sample ID: 1308284-004EMS</b>		Date Analyzed: 08/29/2013 1222h											
Test Code: 200.8-DIS		Date Prepared: 08/16/2013 1245h											
Thallium	1.63	mg/L	E200.8	0.00222	0.0200	2.000	0.256	68.6	75 - 125				1
<b>Lab Sample ID: 1308284-004EMS</b>		Date Analyzed: 08/22/2013 0832h											
Test Code: Hg-DW-DIS-245.1		Date Prepared: 08/21/2013 1450h											
Mercury	0.00376	mg/L	E245.1	0.0000175	0.000150	0.003330	0.000786	89.2	85 - 115				

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004EMSD</b>													
Date Analyzed:		08/27/2013 1625h											
Test Code:		200.7-DIS											
Date Prepared:		08/16/2013 1245h											
Calcium	746	mg/L	E200.7	4.54	200	100.0	668	77.7	70 - 130	752	0.829	20	
Magnesium	3,590	mg/L	E200.7	20.4	200	100.0	3560	29.1	70 - 130	3580	0.0817	20	2
Potassium	858	mg/L	E200.7	40.6	200	100.0	773	85.0	70 - 130	853	0.583	20	
Sodium	6,410	mg/L	E200.7	10.3	200	100.0	6390	20.0	70 - 130	6400	0.111	20	2
Vanadium	446	mg/L	E200.7	0.300	1.00	2.000	458	-601	70 - 130	446	0.0412	20	2
<b>Lab Sample ID: 1308284-004EMSD</b>													
Date Analyzed:		08/26/2013 1703h											
Test Code:		200.8-DIS											
Date Prepared:		08/16/2013 1245h											
Iron	2,570	mg/L	E200.8	118	250	2.000	2620	-2,170	75 - 125	2730	5.81	20	2
<b>Lab Sample ID: 1308284-004EMSD</b>													
Date Analyzed:		08/26/2013 1806h											
Test Code:		200.8-DIS											
Date Prepared:		08/16/2013 1245h											
Manganese	145	mg/L	E200.8	0.832	1.00	2.000	143	100	75 - 125	142	2.63	20	
Uranium	116	mg/L	E200.8	0.0299	1.00	2.000	112	194	75 - 125	113	2.72	20	2
Zinc	198	mg/L	E200.8	1.84	2.50	10.00	183	151	75 - 125	190	3.98	20	2
<b>Lab Sample ID: 1308284-004EMSD</b>													
Date Analyzed:		08/26/2013 1910h											
Test Code:		200.8-DIS											
Date Prepared:		08/16/2013 1245h											
Beryllium	1.98	mg/L	E200.8	0.00174	0.0500	2.000	0.247	86.4	75 - 125	1.95	1.24	20	
Chromium	6.86	mg/L	E200.8	0.0234	0.0500	2.000	5.22	81.8	75 - 125	6.81	0.649	20	
Cobalt	24.3	mg/L	E200.8	0.0910	0.100	2.000	22.9	71.8	75 - 125	24	1.36	20	2
Lead	13.3	mg/L	E200.8	0.0316	0.0500	2.000	11.5	91.7	75 - 125	13.1	1.83	20	
Molybdenum	27.4	mg/L	E200.8	0.0124	0.0500	2.000	25.5	94.5	75 - 125	26.7	2.76	20	
Nickel	44.4	mg/L	E200.8	0.0224	0.0500	2.000	43.3	53.2	75 - 125	44	0.833	20	2
<b>Lab Sample ID: 1308284-004EMSD</b>													
Date Analyzed:		08/26/2013 2230h											
Test Code:		200.8-DIS											
Date Prepared:		08/16/2013 1245h											
Cadmium	3.26	mg/L	E200.8	0.000363	0.00250	2.000	1.45	90.5	75 - 125	3.21	1.66	20	
Selenium	3.93	mg/L	E200.8	0.00343	0.0100	2.000	2.08	92.5	75 - 125	3.95	0.578	20	
Silver	1.90	mg/L	E200.8	0.000504	0.0100	2.000	0.144	87.8	75 - 125	1.87	1.46	20	



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QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** ME  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1308284-004EMSD	Date Analyzed:	08/28/2013	2141h										
<b>Test Code:</b> 200.8-DIS	Date Prepared:	08/16/2013	1245h										
Copper	541	mg/L	E200.8	0.758	1.00	2.000	540	45.0	75 - 125	537	0.578	20	2
<b>Lab Sample ID:</b> 1308284-004EMSD	Date Analyzed:	08/29/2013	0102h										
<b>Test Code:</b> 200.8-DIS	Date Prepared:	08/16/2013	1245h										
Arsenic	76.0	mg/L	E200.8	0.0589	0.100	2.000	73.7	115	75 - 125	75.5	0.636	20	
<b>Lab Sample ID:</b> 1308284-004EMSD	Date Analyzed:	08/28/2013	2305h										
<b>Test Code:</b> 200.8-DIS	Date Prepared:	08/16/2013	1245h										
Tin	9.78	mg/L	E200.8	0.00310	0.0100	10.00	0.118	96.6	75 - 125	9.79	0.0884	20	
<b>Lab Sample ID:</b> 1308284-004EMSD	Date Analyzed:	08/29/2013	1229h										
<b>Test Code:</b> 200.8-DIS	Date Prepared:	08/16/2013	1245h										
Thallium	1.79	mg/L	E200.8	0.00222	0.0200	2.000	0.256	76.5	75 - 125	1.63	9.27	20	1
<b>Lab Sample ID:</b> 1308284-004EMSD	Date Analyzed:	08/22/2013	0834h										
<b>Test Code:</b> Hg-DW-DIS-245.1	Date Prepared:	08/21/2013	1450h										
Mercury	0.00382	mg/L	E245.1	0.0000175	0.000150	0.003330	0.000786	91.0	85 - 115	0.00376	1.53	20	

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** WC

**QC Type:** DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1308284-004BDUP	Date Analyzed: 08/16/2013 1040h												
Test Code:	COND-W-2510B												
Conductivity	66,200	µmhos/cm	SM2510B	1.21	2.00					66300	0.121	5	
<b>Lab Sample ID:</b> 1308284-001BDUP	Date Analyzed: 08/15/2013 1751h												
Test Code:	PH-9040C												
pH @ 25° C	2.75	pH Units	SW9040C	1.00	1.00					2.74	0.364	10	H
<b>Lab Sample ID:</b> 1308284-002BDUP	Date Analyzed: 08/15/2013 1751h												
Test Code:	PH-9040C												
pH @ 25° C	3.02	pH Units	SW9040C	1.00	1.00					3.02	0	10	H
<b>Lab Sample ID:</b> 1308284-003BDUP	Date Analyzed: 08/15/2013 1751h												
Test Code:	PH-9040C												
pH @ 25° C	1.05	pH Units	SW9040C	1.00	1.00					1.05	0	10	H
<b>Lab Sample ID:</b> 1308284-004BDUP	Date Analyzed: 08/15/2013 1751h												
Test Code:	PH-9040C												
pH @ 25° C	1.48	pH Units	SW9040C	1.00	1.00					1.47	0.678	10	H
<b>Lab Sample ID:</b> 1308284-005BDUP	Date Analyzed: 08/15/2013 1810h												
Test Code:	PH-9040C												
pH @ 25° C	2.33	pH Units	SW9040C	1.00	1.00					2.32	0.430	10	H
<b>Lab Sample ID:</b> 1308284-006BDUP	Date Analyzed: 08/15/2013 1810h												
Test Code:	PH-9040C												
pH @ 25° C	1.65	pH Units	SW9040C	1.00	1.00					1.65	0	10	H
<b>Lab Sample ID:</b> 1308284-007BDUP	Date Analyzed: 08/15/2013 1810h												
Test Code:	PH-9040C												
pH @ 25° C	2.33	pH Units	SW9040C	1.00	1.00					2.32	0.430	10	H



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** WC  
**QC Type:** DUP

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-001CDUP</b> Date Analyzed: 08/16/2013 1440h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	143,000	mg/L	SM2540C	200	500					149000	3.83	5	
<b>Lab Sample ID: 1308284-004CDUP</b> Date Analyzed: 08/16/2013 1440h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	92,800	mg/L	SM2540C	200	500					90000	3.06	5	

*H - Sample was received outside of the holding time.*



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** WC

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS-R58065</b> Date Analyzed: 08/16/2013 1844h													
Test Code: 300.0-W													
Chloride	5.00	mg/L	E300.0	0.0114	0.100	5.000	0	100	90 - 110				
Fluoride	5.29	mg/L	E300.0	0.0126	0.100	5.000	0	106	90 - 110				
Sulfate	5.13	mg/L	E300.0	0.177	0.750	5.000	0	103	90 - 110				
<b>Lab Sample ID: LCS-R58133</b> Date Analyzed: 08/19/2013 1957h													
Test Code: 300.0-W													
Sulfate	5.03	mg/L	E300.0	0.177	0.750	5.000	0	101	90 - 110				
<b>Lab Sample ID: LCS-R58177</b> Date Analyzed: 08/20/2013 1641h													
Test Code: 300.0-W													
Fluoride	5.37	mg/L	E300.0	0.0126	0.100	5.000	0	107	90 - 110				
<b>Lab Sample ID: LCS-R58514</b> Date Analyzed: 08/28/2013 2129h													
Test Code: 300.0-W													
Chloride	4.71	mg/L	E300.0	0.0114	0.100	5.000	0	94.1	90 - 110				
Sulfate	4.92	mg/L	E300.0	0.177	0.750	5.000	0	98.3	90 - 110				
<b>Lab Sample ID: LCS-R58038</b> Date Analyzed: 08/16/2013 1104h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO <sub>3</sub> )	51,000	mg/L	SM2320B	4.53	10.0	50,000	0	102	90 - 110				
<b>Lab Sample ID: LCS-R58035</b> Date Analyzed: 08/16/2013 1040h													
Test Code: COND-W-2510B													
Conductivity	98.7	µmhos/cm	SM2510B	1.21	2.00	100.0	0	98.7	98 - 102				
<b>Lab Sample ID: LCS-27376</b> Date Analyzed: 08/23/2013 2054h													
Test Code: NH3-W-350.1      Date Prepared: 08/23/2013 1400h													
Ammonia (as N)	0.933	mg/L	E350.1	0.0277	0.0500	1.000	0	93.3	90 - 110				



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Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** WC  
**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS-R58116</b> Date Analyzed: 08/19/2013 1857h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.01	mg/L	E353.2	0.00252	0.100	1.000	0	101	90 - 110				
<b>Lab Sample ID: LCS-R58017</b> Date Analyzed: 08/15/2013 1751h													
Test Code: PH-9040C													
pH @ 25° C	9.03	pH Units	SW9040C	1.00	1.00	9.000	0	100	98 - 102				
<b>Lab Sample ID: LCS-R58019</b> Date Analyzed: 08/15/2013 1810h													
Test Code: PH-9040C													
pH @ 25° C	9.04	pH Units	SW9040C	1.00	1.00	9.000	0	100	98 - 102				
<b>Lab Sample ID: LCS-R58101</b> Date Analyzed: 08/16/2013 1440h													
Test Code: TDS-W-2540C													
Total Dissolved Solids	198	mg/L	SM2540C	4.00	10.0	205.0	0	96.6	80 - 120				



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** WC  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB-R58065</b> Date Analyzed: 08/16/2013 1821h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0114	0.100								
Fluoride	< 0.100	mg/L	E300.0	0.0126	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.177	0.750								
<b>Lab Sample ID: MB-R58133</b> Date Analyzed: 08/19/2013 1933h													
Test Code: 300.0-W													
Sulfate	< 0.750	mg/L	E300.0	0.177	0.750								
<b>Lab Sample ID: MB-R58177</b> Date Analyzed: 08/20/2013 1617h													
Test Code: 300.0-W													
Fluoride	< 0.100	mg/L	E300.0	0.0126	0.100								
<b>Lab Sample ID: MB-R58514</b> Date Analyzed: 08/28/2013 2106h													
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0114	0.100								
Sulfate	< 0.750	mg/L	E300.0	0.177	0.750								
<b>Lab Sample ID: MB-R58038</b> Date Analyzed: 08/16/2013 1104h													
Test Code: ALK-W-2320B													
Bicarbonate (as CaCO3)	< 1.00	mg/L	SM2320B	4.53	1.00								
Carbonate (as CaCO3)	< 1.00	mg/L	SM2320B	4.53	1.00								
<b>Lab Sample ID: MB-R58035</b> Date Analyzed: 08/16/2013 1040h													
Test Code: COND-W-2510B													
Conductivity	< 2.00	µmhos/cm	SM2510B	1.21	2.00								
<b>Lab Sample ID: MB-27376</b> Date Analyzed: 08/23/2013 2053h													
Test Code: NH3-W-350.1      Date Prepared: 08/23/2013 1400h													
Ammonia (as N)	< 0.0500	mg/L	E350.1	0.0277	0.0500								



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** WC

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-R58116	Date Analyzed: 08/19/2013 1856h												
<b>Test Code:</b> NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.100	mg/L	E353.2	0.00252	0.100								
<b>Lab Sample ID:</b> MB-R58101	Date Analyzed: 08/16/2013 1440h												
<b>Test Code:</b> TDS-W-2540C													
Total Dissolved Solids	< 10.0	mg/L	SM2540C	4.00	10.0								



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** WC

**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004BMS</b> Date Analyzed: 08/17/2013 0223h													
Test Code: 300.0-W													
Chloride	257,000	mg/L	E300.0	570	5,000	250,000	6420	100	90 - 110				
Fluoride	281,000	mg/L	E300.0	630	5,000	250,000	1990	112	90 - 110				1
Sulfate	336,000	mg/L	E300.0	8,850	37,500	250,000	83300	101	90 - 110				
<b>Lab Sample ID: 1308284-003BMS</b> Date Analyzed: 08/19/2013 2046h													
Test Code: 300.0-W													
Sulfate	592,000	mg/L	E300.0	8,850	37,500	250,000	440000	60.9	90 - 110				1
<b>Lab Sample ID: 1308333-001CMS</b> Date Analyzed: 08/20/2013 1730h													
Test Code: 300.0-W													
Fluoride	509	mg/L	E300.0	1.26	10.0	500.0	11.4	99.5	90 - 110				
<b>Lab Sample ID: 1308508-001CMS</b> Date Analyzed: 08/28/2013 2216h													
Test Code: 300.0-W													
Chloride	4,810	mg/L	E300.0	11.4	100	5,000	194	92.4	90 - 110				
Sulfate	5,080	mg/L	E300.0	177	750	5,000	249	96.6	90 - 110				
<b>Lab Sample ID: 1308284-004BMS</b> Date Analyzed: 08/16/2013 1104h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO <sub>3</sub> )	< 10.0	mg/L	SM2320B	4.53	10.0	50.00	0	0	80 - 120				1
<b>Lab Sample ID: 1308284-004DMS</b> Date Analyzed: 08/23/2013 2056h													
Test Code: NH3-W-350.1      Date Prepared: 08/23/2013 1400h													
Ammonia (as N)	505	mg/L	E350.1	13.9	25.0	50.00	1340	-1,670	90 - 110				2
<b>Lab Sample ID: 1308284-004DMS</b> Date Analyzed: 08/19/2013 1912h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	151	mg/L	E353.2	0.252	10.0	100.0	38.2	113	90 - 110				1

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** WC  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004BMSD</b> Date Analyzed: 08/17/2013 0248h													
Test Code: 300.0-W													
Chloride	253,000	mg/L	E300.0	570	5,000	250,000	6420	98.7	90 - 110	257000	1.40	20	
Fluoride	271,000	mg/L	E300.0	630	5,000	250,000	1990	108	90 - 110	281000	3.67	20	
Sulfate	329,000	mg/L	E300.0	8,850	37,500	250,000	83300	98.3	90 - 110	336000	2.25	20	
<b>Lab Sample ID: 1308284-003BMSD</b> Date Analyzed: 08/19/2013 2110h													
Test Code: 300.0-W													
Sulfate	594,000	mg/L	E300.0	8,850	37,500	250,000	440000	61.5	90 - 110	592000	0.272	20	1
<b>Lab Sample ID: 1308333-001CMSD</b> Date Analyzed: 08/20/2013 1754h													
Test Code: 300.0-W													
Fluoride	508	mg/L	E300.0	1.26	10.0	500.0	11.4	99.4	90 - 110	509	0.0763	20	
<b>Lab Sample ID: 1308508-001CMSD</b> Date Analyzed: 08/28/2013 2239h													
Test Code: 300.0-W													
Chloride	4,990	mg/L	E300.0	11.4	100	5,000	194	95.9	90 - 110	4810	3.58	20	
Sulfate	5,250	mg/L	E300.0	177	750	5,000	249	100	90 - 110	5080	3.42	20	
<b>Lab Sample ID: 1308284-004BMSD</b> Date Analyzed: 08/16/2013 1104h													
Test Code: ALK-W-2320B													
Alkalinity (as CaCO3)	< 10.0	mg/L	SM2320B	4.53	10.0	50.00	0	0	80 - 120	0	0	10	1
<b>Lab Sample ID: 1308284-004DMSD</b> Date Analyzed: 08/23/2013 2057h													
Test Code: NH3-W-350.1 Date Prepared: 08/23/2013 1400h													
Ammonia (as N)	1,240	mg/L	E350.1	13.9	25.0	50.00	1340	-200	90 - 110	505	84.2	10	2
<b>Lab Sample ID: 1308284-004DMSD</b> Date Analyzed: 08/19/2013 1914h													
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	156	mg/L	E353.2	0.252	10.0	100.0	38.2	118	90 - 110	151	3.49	10	1

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

<sup>2</sup> - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** MSSV

**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> LCS-27237	Date Analyzed:		08/19/2013 2332h										
<b>Test Code:</b> 8270-W	Date Prepared:		08/16/2013 1221h										
1,2,4-Trichlorobenzene	21.3	µg/L	SW8270D	3.48	10.0	80.00	0	26.7	10 - 104				
1,4-Dichlorobenzene	14.8	µg/L	SW8270D	2.31	10.0	80.00	0	18.4	10 - 118				
2,4,6-Trichlorophenol	44.2	µg/L	SW8270D	0.569	10.0	80.00	0	55.2	17 - 119				
2,4-Dimethylphenol	38.5	µg/L	SW8270D	1.06	10.0	80.00	0	48.2	10 - 131				
2,4-Dinitrotoluene	57.1	µg/L	SW8270D	0.895	10.0	80.00	0	71.3	42 - 219				
2-Chloronaphthalene	35.3	µg/L	SW8270D	2.13	10.0	80.00	0	44.1	23 - 126				
2-Chlorophenol	30.5	µg/L	SW8270D	0.952	10.0	80.00	0	38.1	15 - 128				
4,6-Dinitro-2-methylphenol	35.2	µg/L	SW8270D	0.569	10.0	80.00	0	44.0	30 - 198				
4-Chloro-3-methylphenol	44.4	µg/L	SW8270D	0.876	10.0	80.00	0	55.5	29 - 148				
4-Nitrophenol	21.9	µg/L	SW8270D	1.81	10.0	80.00	0	27.4	10 - 157				
Acenaphthene	39.1	µg/L	SW8270D	2.20	10.0	80.00	0	48.9	20 - 116				
Benzo(a)pyrene	59.6	µg/L	SW8270D	0.838	10.0	80.00	0	74.5	10 - 221				
N-Nitrosodi-n-propylamine	26.6	µg/L	SW8270D	1.28	10.0	80.00	0	33.2	20 - 148				
Pentachlorophenol	51.4	µg/L	SW8270D	0.876	10.0	80.00	0	64.3	21 - 153				
Phenol	18.6	µg/L	SW8270D	0.519	10.0	80.00	0	23.2	10 - 131				
Pyrene	52.9	µg/L	SW8270D	1.12	10.0	80.00	0	66.2	37 - 150				
Surr: 2,4,6-Tribromophenol	54.9	µg/L	SW8270D			80.00		68.6	10 - 165				
Surr: 2-Fluorobiphenyl	16.9	µg/L	SW8270D			40.00		42.2	10 - 118				
Surr: 2-Fluorophenol	20.3	µg/L	SW8270D			80.00		25.4	10 - 121				
Surr: Nitrobenzene-d5	11.9	µg/L	SW8270D			40.00		29.7	10 - 127				
Surr: Phenol-d6	17.2	µg/L	SW8270D			80.00		21.5	10 - 124				
Surr: Terphenyl-d14	29.1	µg/L	SW8270D			40.00		72.7	51 - 221				



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27237	Date Analyzed:		08/19/2013 2305h										
<b>Test Code:</b> 8270-W	Date Prepared:		08/16/2013 1221h										
1,2,4-Trichlorobenzene	< 10.0	µg/L	SW8270D	3.48	10.0								
1,2-Dichlorobenzene	< 10.0	µg/L	SW8270D	2.69	10.0								
1,3-Dichlorobenzene	< 10.0	µg/L	SW8270D	2.32	10.0								
1,4-Dichlorobenzene	< 10.0	µg/L	SW8270D	2.31	10.0								
1-Methylnaphthalene	< 10.0	µg/L	SW8270D	2.04	10.0								
2,4,5-Trichlorophenol	< 10.0	µg/L	SW8270D	0.978	10.0								
2,4,6-Trichlorophenol	< 10.0	µg/L	SW8270D	0.569	10.0								
2,4-Dichlorophenol	< 10.0	µg/L	SW8270D	0.696	10.0								
2,4-Dimethylphenol	< 10.0	µg/L	SW8270D	1.06	10.0								
2,4-Dinitrophenol	< 10.0	µg/L	SW8270D	0.609	10.0								
2,4-Dinitrotoluene	< 10.0	µg/L	SW8270D	0.895	10.0								
2,6-Dinitrotoluene	< 10.0	µg/L	SW8270D	0.996	10.0								
2-Chloronaphthalene	< 10.0	µg/L	SW8270D	2.13	10.0								
2-Chlorophenol	< 10.0	µg/L	SW8270D	0.952	10.0								
2-Methylnaphthalene	< 10.0	µg/L	SW8270D	1.78	10.0								
2-Methylphenol	< 10.0	µg/L	SW8270D	0.771	10.0								
2-Nitrophenol	< 10.0	µg/L	SW8270D	0.723	10.0								
3&4-Methylphenol	< 10.0	µg/L	SW8270D	1.65	10.0								
3,3'-Dichlorobenzidine	< 10.0	µg/L	SW8270D	1.07	10.0								
4,6-Dinitro-2-methylphenol	< 10.0	µg/L	SW8270D	0.569	10.0								
4-Bromophenyl phenyl ether	< 10.0	µg/L	SW8270D	1.27	10.0								
4-Chloro-3-methylphenol	< 10.0	µg/L	SW8270D	0.876	10.0								
4-Chlorophenyl phenyl ether	< 10.0	µg/L	SW8270D	0.559	10.0								
4-Nitrophenol	< 10.0	µg/L	SW8270D	1.81	10.0								
Acenaphthene	< 10.0	µg/L	SW8270D	2.20	10.0								
Acenaphthylene	< 10.0	µg/L	SW8270D	2.07	10.0								
Anthracene	< 10.0	µg/L	SW8270D	1.12	10.0								
Azobenzene	< 10.0	µg/L	SW8270D	0.649	10.0								
Benz(a)anthracene	< 10.0	µg/L	SW8270D	0.865	10.0								
Benzidine	< 10.0	µg/L	SW8270D	2.10	10.0								



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** MSSV

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27237	Date Analyzed:	08/19/2013	2305h										
<b>Test Code:</b> 8270-W	Date Prepared:	08/16/2013	1221h										
Benzo(a)pyrene	< 10.0	µg/L	SW8270D	0.838	10.0								
Benzo(b)fluoranthene	< 10.0	µg/L	SW8270D	2.83	10.0								
Benzo(g,h,i)perylene	< 10.0	µg/L	SW8270D	0.923	10.0								
Benzo(k)fluoranthene	< 10.0	µg/L	SW8270D	1.11	10.0								
Bis(2-chloroethoxy)methane	< 10.0	µg/L	SW8270D	1.28	10.0								
Bis(2-chloroethyl) ether	< 10.0	µg/L	SW8270D	1.02	10.0								
Bis(2-chloroisopropyl) ether	< 10.0	µg/L	SW8270D	0.807	10.0								
Bis(2-ethylhexyl) phthalate	< 10.0	µg/L	SW8270D	1.21	10.0								
Butyl benzyl phthalate	< 10.0	µg/L	SW8270D	0.916	10.0								
Chrysene	< 10.0	µg/L	SW8270D	1.34	10.0								
Dibenz(a,h)anthracene	< 10.0	µg/L	SW8270D	0.988	10.0								
Diethyl phthalate	< 10.0	µg/L	SW8270D	1.03	10.0								
Dimethyl phthalate	< 10.0	µg/L	SW8270D	0.619	10.0								
Di-n-butyl phthalate	< 10.0	µg/L	SW8270D	1.32	10.0								
Di-n-octyl phthalate	< 10.0	µg/L	SW8270D	0.637	10.0								
Fluoranthene	< 10.0	µg/L	SW8270D	1.06	10.0								
Fluorene	< 10.0	µg/L	SW8270D	1.80	10.0								
Hexachlorobenzene	< 10.0	µg/L	SW8270D	0.828	10.0								
Hexachlorobutadiene	< 10.0	µg/L	SW8270D	3.27	10.0								
Hexachlorocyclopentadiene	< 10.0	µg/L	SW8270D	4.37	10.0								
Hexachloroethane	< 10.0	µg/L	SW8270D	2.14	10.0								
Indeno(1,2,3-cd)pyrene	< 10.0	µg/L	SW8270D	3.31	10.0								
Isophorone	< 10.0	µg/L	SW8270D	1.22	10.0								
Naphthalene	< 10.0	µg/L	SW8270D	1.66	10.0								
Nitrobenzene	< 10.0	µg/L	SW8270D	1.01	10.0								
N-Nitrosodimethylamine	< 10.0	µg/L	SW8270D	0.695	10.0								
N-Nitrosodi-n-propylamine	< 10.0	µg/L	SW8270D	1.28	10.0								
N-Nitrosodiphenylamine	< 10.0	µg/L	SW8270D	1.11	10.0								
Pentachlorophenol	< 10.0	µg/L	SW8270D	0.876	10.0								
Phenanthrene	< 10.0	µg/L	SW8270D	0.795	10.0								



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QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27237	Date Analyzed:		08/19/2013 2305h										
<b>Test Code:</b> 8270-W	Date Prepared:		08/16/2013 1221h										
Phenol	< 10.0	µg/L	SW8270D	0.519	10.0								
Pyrene	< 10.0	µg/L	SW8270D	1.12	10.0								
Pyridine	< 10.0	µg/L	SW8270D	4.45	10.0								
Surr: 2,4,6-Tribromophenol	35.0	µg/L	SW8270D			80.00		43.7	10 - 165				
Surr: 2-Fluorobiphenyl	13.8	µg/L	SW8270D			40.00		34.6	10 - 118				
Surr: 2-Fluorophenol	24.4	µg/L	SW8270D			80.00		30.5	10 - 121				
Surr: Nitrobenzene-d5	11.1	µg/L	SW8270D			40.00		27.8	10 - 127				
Surr: Phenol-d6	18.7	µg/L	SW8270D			80.00		23.4	10 - 124				
Surr: Terphenyl-d14	26.7	µg/L	SW8270D			40.00		66.8	51 - 221				

Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of previously issued reports.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1308284-004FMS	Date Analyzed: 08/20/2013 0214h												
<b>Test Code:</b> 8270-W	Date Prepared: 08/16/2013 1221h												
1,2,4-Trichlorobenzene	25.3	µg/L	SW8270D	3.48	10.0	80.00	0	31.6	20 - 107				
1,4-Dichlorobenzene	18.1	µg/L	SW8270D	2.31	10.0	80.00	0	22.7	11 - 90				
2,4,6-Trichlorophenol	79.5	µg/L	SW8270D	0.569	10.0	80.00	0	99.4	10 - 223				
2,4-Dimethylphenol	47.3	µg/L	SW8270D	1.06	10.0	80.00	0	59.2	10 - 176				
2,4-Dinitrotoluene	80.2	µg/L	SW8270D	0.895	10.0	80.00	0	100	21 - 191				
2-Chloronaphthalene	43.1	µg/L	SW8270D	2.13	10.0	80.00	0	53.8	12 - 132				
2-Chlorophenol	34.2	µg/L	SW8270D	0.952	10.0	80.00	0	42.8	20 - 107				
4,6-Dinitro-2-methylphenol	30.8	µg/L	SW8270D	0.569	10.0	80.00	0	38.5	20 - 250				
4-Chloro-3-methylphenol	68.0	µg/L	SW8270D	0.876	10.0	80.00	0	85.0	10 - 136				
4-Nitrophenol	5.16	µg/L	SW8270D	1.81	10.0	80.00	0	6.45	10 - 135				
Acenaphthene	47.5	µg/L	SW8270D	2.20	10.0	80.00	0	59.4	21 - 113				
Benzo(a)pyrene	56.8	µg/L	SW8270D	0.838	10.0	80.00	0	71.0	15 - 169				
N-Nitrosodi-n-propylamine	51.0	µg/L	SW8270D	1.28	10.0	80.00	0	63.8	10 - 133				
Pentachlorophenol	95.5	µg/L	SW8270D	0.876	10.0	80.00	0	119	10 - 131				
Phenol	38.3	µg/L	SW8270D	0.519	10.0	80.00	0	47.9	10 - 71				
Pyrene	62.1	µg/L	SW8270D	1.12	10.0	80.00	0	77.6	23 - 150				
Surr: 2,4,6-Tribromophenol	87.2	µg/L	SW8270D			80.00		109	14 - 159				
Surr: 2-Fluorobiphenyl	17.1	µg/L	SW8270D			40.00		42.7	10 - 124				
Surr: 2-Fluorophenol	27.4	µg/L	SW8270D			80.00		34.3	10 - 106				
Surr: Nitrobenzene-d5	14.8	µg/L	SW8270D			40.00		36.9	10 - 180				
Surr: Phenol-d6	32.8	µg/L	SW8270D			80.00		41.0	10 - 122				
Surr: Terphenyl-d14	33.8	µg/L	SW8270D			40.00		84.6	10 - 221				

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1308284-004FMSD	Date Analyzed:	08/20/2013 0240h											
<b>Test Code:</b> 8270-W	Date Prepared:	08/16/2013 1221h											
1,2,4-Trichlorobenzene	21.9	µg/L	SW8270D	3.48	10.0	80.00	0	27.4	20 - 107	25.3	14.3	25	
1,4-Dichlorobenzene	15.5	µg/L	SW8270D	2.31	10.0	80.00	0	19.4	11 - 90	18.1	15.8	25	
2,4,6-Trichlorophenol	73.2	µg/L	SW8270D	0.569	10.0	80.00	0	91.5	10 - 223	79.5	8.29	25	
2,4-Dimethylphenol	41.2	µg/L	SW8270D	1.06	10.0	80.00	0	51.4	10 - 176	47.3	14.0	25	
2,4-Dinitrotoluene	81.3	µg/L	SW8270D	0.895	10.0	80.00	0	102	21 - 191	80.2	1.31	25	
2-Chloronaphthalene	37.0	µg/L	SW8270D	2.13	10.0	80.00	0	46.3	12 - 132	43.1	15.1	25	
2-Chlorophenol	30.6	µg/L	SW8270D	0.952	10.0	80.00	0	38.3	20 - 107	34.3	11.2	25	
4,6-Dinitro-2-methylphenol	40.9	µg/L	SW8270D	0.569	10.0	80.00	0	51.1	20 - 250	30.8	28.0	25	@
4-Chloro-3-methylphenol	60.6	µg/L	SW8270D	0.876	10.0	80.00	0	75.7	10 - 136	68	11.5	25	
4-Nitrophenol	< 10.0	µg/L	SW8270D	1.81	10.0	80.00	0	0	10 - 135	5.16	200	25	'@
Acenaphthene	41.2	µg/L	SW8270D	2.20	10.0	80.00	0	51.5	21 - 113	47.5	14.3	25	
Benzo(a)pyrene	64.3	µg/L	SW8270D	0.838	10.0	80.00	0	80.4	15 - 169	56.8	12.4	25	
N-Nitrosodi-n-propylamine	47.6	µg/L	SW8270D	1.28	10.0	80.00	0	59.5	10 - 133	51	7.00	25	
Pentachlorophenol	76.4	µg/L	SW8270D	0.876	10.0	80.00	0	95.4	10 - 131	95.5	22.3	25	
Phenol	35.3	µg/L	SW8270D	0.519	10.0	80.00	0	44.2	10 - 71	38.3	8.15	25	
Pyrene	61.2	µg/L	SW8270D	1.12	10.0	80.00	0	76.5	23 - 150	62.1	1.44	25	
Surr: 2,4,6-Tribromophenol	76.7	µg/L	SW8270D			80.00		95.9	14 - 159				
Surr: 2-Fluorobiphenyl	14.8	µg/L	SW8270D			40.00		36.9	10 - 124				
Surr: 2-Fluorophenol	25.6	µg/L	SW8270D			80.00		32.0	10 - 106				
Surr: Nitrobenzene-d5	13.0	µg/L	SW8270D			40.00		32.4	10 - 180				
Surr: Phenol-d6	29.2	µg/L	SW8270D			80.00		36.6	10 - 122				
Surr: Terphenyl-d14	32.4	µg/L	SW8270D			40.00		81.0	10 - 221				

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

' - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS VOC 081613A</b> Date Analyzed: 08/16/2013 0741h													
Test Code: 8260-W													
Benzene	23.7	µg/L	SW8260C	0.149	2.00	20.00	0	119	62 - 127				
Chloroform	23.3	µg/L	SW8260C	0.277	2.00	20.00	0	116	67 - 132				
Methylene chloride	17.3	µg/L	SW8260C	0.155	2.00	20.00	0	86.5	32 - 185				
Naphthalene	16.9	µg/L	SW8260C	0.547	2.00	20.00	0	84.6	28 - 136				
Tetrahydrofuran	20.3	µg/L	SW8260C	0.874	2.00	20.00	0	101	43 - 146				
Toluene	24.0	µg/L	SW8260C	0.429	2.00	20.00	0	120	64 - 129				
Xylenes, Total	64.3	µg/L	SW8260C	0.870	2.00	60.00	0	107	52 - 134				
Surr: 1,2-Dichloroethane-d4	51.9	µg/L	SW8260C			50.00		104	76 - 138				
Surr: 4-Bromofluorobenzene	50.5	µg/L	SW8260C			50.00		101	77 - 121				
Surr: Dibromofluoromethane	53.4	µg/L	SW8260C			50.00		107	67 - 128				
Surr: Toluene-d8	52.2	µg/L	SW8260C			50.00		104	81 - 135				
<b>Lab Sample ID: LCS VOC 081913A</b> Date Analyzed: 08/19/2013 1122h													
Test Code: 8260-W													
Benzene	20.2	µg/L	SW8260C	0.149	2.00	20.00	0	101	62 - 127				
Chloroform	20.1	µg/L	SW8260C	0.277	2.00	20.00	0	100	67 - 132				
Methylene chloride	19.8	µg/L	SW8260C	0.155	2.00	20.00	0	98.9	32 - 185				
Naphthalene	18.6	µg/L	SW8260C	0.547	2.00	20.00	0	93.3	28 - 136				
Tetrahydrofuran	16.1	µg/L	SW8260C	0.874	2.00	20.00	0	80.4	43 - 146				
Toluene	22.1	µg/L	SW8260C	0.429	2.00	20.00	0	110	64 - 129				
Xylenes, Total	61.4	µg/L	SW8260C	0.870	2.00	60.00	0	102	52 - 134				
Surr: 1,2-Dichloroethane-d4	46.6	µg/L	SW8260C			50.00		93.1	76 - 138				
Surr: 4-Bromofluorobenzene	52.3	µg/L	SW8260C			50.00		105	77 - 121				
Surr: Dibromofluoromethane	50.2	µg/L	SW8260C			50.00		100	67 - 128				
Surr: Toluene-d8	52.8	µg/L	SW8260C			50.00		106	81 - 135				



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.

**Lab Set ID:** 1308284

**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer

**Dept:** MSVOA

**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC 081613A</b>		Date Analyzed: 08/16/2013 0819h											
Test Code: 8260-W													
2-Butanone	< 20.0	µg/L	SW8260C	1.45	20.0								
Acetone	< 20.0	µg/L	SW8260C	3.35	20.0								
Benzene	< 1.00	µg/L	SW8260C	0.149	1.00								
Carbon tetrachloride	< 1.00	µg/L	SW8260C	0.137	1.00								
Chloroform	< 1.00	µg/L	SW8260C	0.277	1.00								
Chloromethane	< 1.00	µg/L	SW8260C	0.127	1.00								
Methylene chloride	< 1.00	µg/L	SW8260C	0.155	1.00								
Naphthalene	< 1.00	µg/L	SW8260C	0.547	1.00								
Tetrahydrofuran	< 1.00	µg/L	SW8260C	0.874	1.00								
Toluene	< 1.00	µg/L	SW8260C	0.429	1.00								
Xylenes, Total	< 1.00	µg/L	SW8260C	0.870	1.00								
Surr: 1,2-Dichloroethane-d4	54.7	µg/L	SW8260C			50.00		109	76 - 138				
Surr: 4-Bromofluorobenzene	52.2	µg/L	SW8260C			50.00		104	77 - 121				
Surr: Dibromofluoromethane	54.0	µg/L	SW8260C			50.00		108	67 - 128				
Surr: Toluene-d8	50.9	µg/L	SW8260C			50.00		102	81 - 135				

<b>Lab Sample ID: MB VOC 081913A</b>		Date Analyzed: 08/19/2013 1200h											
Test Code: 8260-W													
2-Butanone	< 20.0	µg/L	SW8260C	1.45	20.0								
Acetone	< 20.0	µg/L	SW8260C	3.35	20.0								
Benzene	< 1.00	µg/L	SW8260C	0.149	1.00								
Carbon tetrachloride	< 1.00	µg/L	SW8260C	0.137	1.00								
Chloroform	< 1.00	µg/L	SW8260C	0.277	1.00								
Chloromethane	< 1.00	µg/L	SW8260C	0.127	1.00								
Methylene chloride	< 1.00	µg/L	SW8260C	0.155	1.00								
Naphthalene	< 1.00	µg/L	SW8260C	0.547	1.00								
Tetrahydrofuran	< 1.00	µg/L	SW8260C	0.874	1.00								
Toluene	< 1.00	µg/L	SW8260C	0.429	1.00								
Xylenes, Total	< 1.00	µg/L	SW8260C	0.870	1.00								
Surr: 1,2-Dichloroethane-d4	49.1	µg/L	SW8260C			50.00		98.2	76 - 138				

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QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB VOC 081913A	Date Analyzed: 08/19/2013 1200h												
<b>Test Code:</b> 8260-W													
Surr: 4-Bromofluorobenzene	46.2	µg/L	SW8260C			50.00		92.3	77 - 121				
Surr: Dibromofluoromethane	51.0	µg/L	SW8260C			50.00		102	67 - 128				
Surr: Toluene-d8	51.1	µg/L	SW8260C			50.00		102	81 - 135				

*Reissue of a previously generated report. Information has been added, updated, or revised. Information herein supersedes that of previously issued reports.*



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004AMS</b>		Date Analyzed: 08/16/2013 1259h											
Test Code: 8260-W													
Benzene	22.8	µg/L	SW8260C	0.149	2.00	20.00	0	114	66 - 145				
Chloroform	22.5	µg/L	SW8260C	0.277	2.00	20.00	0	112	50 - 146				
Methylene chloride	15.4	µg/L	SW8260C	0.155	2.00	20.00	0	77.2	30 - 192				
Naphthalene	31.4	µg/L	SW8260C	0.547	2.00	20.00	0	157	41 - 131				
Tetrahydrofuran	46.2	µg/L	SW8260C	0.874	2.00	20.00	0	231	43 - 146				
Toluene	21.4	µg/L	SW8260C	0.429	2.00	20.00	0	107	18 - 192				
Xylenes, Total	59.4	µg/L	SW8260C	0.870	2.00	60.00	0	99.0	42 - 167				
Surr: 1,2-Dichloroethane-d4	50.3	µg/L	SW8260C			50.00		101	72 - 151				
Surr: 4-Bromofluorobenzene	50.2	µg/L	SW8260C			50.00		100	80 - 128				
Surr: Dibromofluoromethane	49.2	µg/L	SW8260C			50.00		98.5	80 - 124				
Surr: Toluene-d8	45.4	µg/L	SW8260C			50.00		90.8	77 - 129				
<b>Lab Sample ID: 1308316-001AMS</b>		Date Analyzed: 08/19/2013 1555h											
Test Code: 8260-W													
Benzene	616	µg/L	SW8260C	2.98	40.0	400.0	186	108	66 - 145				
Chloroform	428	µg/L	SW8260C	5.54	40.0	400.0	0	107	50 - 146				
Methylene chloride	382	µg/L	SW8260C	3.10	40.0	400.0	0	95.4	30 - 192				
Naphthalene	386	µg/L	SW8260C	10.9	40.0	400.0	0	96.4	41 - 131				
Tetrahydrofuran	365	µg/L	SW8260C	17.5	40.0	400.0	0	91.2	43 - 146				
Toluene	720	µg/L	SW8260C	8.58	40.0	400.0	295	106	18 - 192				
Xylenes, Total	1,390	µg/L	SW8260C	17.4	40.0	1,200	126	106	42 - 167				
Surr: 1,2-Dichloroethane-d4	883	µg/L	SW8260C			1,000		88.3	72 - 151				
Surr: 4-Bromofluorobenzene	863	µg/L	SW8260C			1,000		86.3	80 - 128				
Surr: Dibromofluoromethane	919	µg/L	SW8260C			1,000		91.9	80 - 124				
Surr: Toluene-d8	904	µg/L	SW8260C			1,000		90.4	77 - 129				

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1308284  
**Project:** Annual Tailings 2013

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1308284-004AMSD</b>		Date Analyzed: 08/16/2013 1318h											
Test Code: 8260-W													
Benzene	23.2	µg/L	SW8260C	0.149	2.00	20.00	0	116	66 - 145	22.8	1.74	25	
Chloroform	20.6	µg/L	SW8260C	0.277	2.00	20.00	0	103	50 - 146	22.5	8.63	25	
Methylene chloride	11.4	µg/L	SW8260C	0.155	2.00	20.00	0	57.2	30 - 192	15.4	29.8	25	@
Naphthalene	30.7	µg/L	SW8260C	0.547	2.00	20.00	0	154	41 - 131	31.4	2.09	25	'
Tetrahydrofuran	44.3	µg/L	SW8260C	0.874	2.00	20.00	0	222	43 - 146	46.2	4.20	25	'
Toluene	23.2	µg/L	SW8260C	0.429	2.00	20.00	0	116	18 - 192	21.5	7.62	25	
Xylenes, Total	63.0	µg/L	SW8260C	0.870	2.00	60.00	0	105	42 - 167	59.4	5.80	25	
Surr: 1,2-Dichloroethane-d4	39.8	µg/L	SW8260C			50.00		79.6	72 - 151				
Surr: 4-Bromofluorobenzene	47.5	µg/L	SW8260C			50.00		95.1	80 - 128				
Surr: Dibromofluoromethane	43.1	µg/L	SW8260C			50.00		86.2	80 - 124				
Surr: Toluene-d8	44.8	µg/L	SW8260C			50.00		89.6	77 - 129				
<b>Lab Sample ID: 1308316-001AMSD</b>		Date Analyzed: 08/19/2013 1614h											
Test Code: 8260-W													
Benzene	601	µg/L	SW8260C	2.98	40.0	400.0	186	104	66 - 145	616	2.53	25	
Chloroform	416	µg/L	SW8260C	5.54	40.0	400.0	0	104	50 - 146	428	2.94	25	
Methylene chloride	376	µg/L	SW8260C	3.10	40.0	400.0	0	94.0	30 - 192	382	1.43	25	
Naphthalene	379	µg/L	SW8260C	10.9	40.0	400.0	0	94.8	41 - 131	386	1.67	25	
Tetrahydrofuran	376	µg/L	SW8260C	17.5	40.0	400.0	0	94.0	43 - 146	365	2.92	25	
Toluene	687	µg/L	SW8260C	8.58	40.0	400.0	295	98.0	18 - 192	720	4.69	25	
Xylenes, Total	1,320	µg/L	SW8260C	17.4	40.0	1,200	126	99.6	42 - 167	1390	5.38	25	
Surr: 1,2-Dichloroethane-d4	917	µg/L	SW8260C			1,000		91.7	72 - 151				
Surr: 4-Bromofluorobenzene	918	µg/L	SW8260C			1,000		91.8	80 - 128				
Surr: Dibromofluoromethane	961	µg/L	SW8260C			1,000		96.1	80 - 124				
Surr: Toluene-d8	936	µg/L	SW8260C			1,000		93.6	77 - 129				

@ - High RPD due to suspected sample non-homogeneity or matrix interference.

' - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.

# American West Analytical Laboratories

8/9/13  
UL  
Denison

## WORK ORDER Summary

Work Order: **1308284** Page 1 of 6

**Client:** Energy Fuels Resources, Inc.

Due Date: 8/29/2013

**Client ID:** DEN100

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013

**QC Level:** III

WO Type: Project

**Comments:** QC 3 (Summary/No chromatograms). Use CAUTION when handling these samples. Use sample #4 for MS/MSD. PH received outside of hold. Metals filtered upon receipt. Project specific DL's: see COC. Run 200.8 on the Agilent. EDD-Denison. Email Group;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1308284-001A	Cell 1	8/13/2013 0740h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
				<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>				
1308284-001B				300.0-W		<input checked="" type="checkbox"/>	DF - wc	1
				<i>3 SEL Analytes: CL F SO4</i>				
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF - wc	
				<i>2 SEL Analytes: ALKB ALKC</i>				
				COND-W-2510B		<input type="checkbox"/>	DF - wc	
				PH-9040C		<input type="checkbox"/>	DF - wc	
1308284-001C				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds	
				<i>1 SEL Analytes: TDS</i>				
1308284-001D				NH3-W-350.1		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NH3N</i>				
				NH3-W-PR		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NO3NO2N</i>				
1308284-001E				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: CA MG K NA V</i>				
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				200.8-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>				
				200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				FILTER-PR		<input type="checkbox"/>	DIS MET/HG	
				HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>1 SEL Analytes: HG</i>				
				HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>				
1308284-001F				3510-SVOA-PR		<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
				<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>				
1308284-002A	Slimes #2	8/13/2013 0855h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
				<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>				

# WORK ORDER Summary

Work Order: **1308284** Page 2 of 6

Client: Energy Fuels Resources, Inc.

Due Date: 8/29/2013

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1308284-002B	Slimes #2	8/13/2013 0855h	8/15/2013 1433h	300.0-W	Aqueous	<input checked="" type="checkbox"/>	DF - wc	1
<i>3 SEL Analytes: CL F SO4</i>								
ALK-W-2320B				<input checked="" type="checkbox"/>		DF - wc		
<i>2 SEL Analytes: ALKB ALKC</i>								
				COND-W-2510B		<input type="checkbox"/>	DF - wc	
				PH-9040C		<input type="checkbox"/>	DF - wc	
1308284-002C				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds	
<i>1 SEL Analytes: TDS</i>								
1308284-002D				NH3-W-350.1		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
<i>1 SEL Analytes: NH3N</i>								
				NH3-W-PR		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
<i>1 SEL Analytes: NO3NO2N</i>								
1308284-002E				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>5 SEL Analytes: CA MG K NA V</i>								
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				200.8-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>								
				200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				FILTER-PR		<input type="checkbox"/>	DIS MET/HG	
				HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>1 SEL Analytes: HG</i>								
				HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>								
1308284-002F				3510-SVOA-PR		<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>								
1308284-003A	Cell 3	8/13/2013 1100h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>								
1308284-003B				300.0-W		<input checked="" type="checkbox"/>	DF - wc	1
<i>3 SEL Analytes: CL F SO4</i>								
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF - wc	
<i>2 SEL Analytes: ALKB ALKC</i>								
				COND-W-2510B		<input type="checkbox"/>	DF - wc	
				PH-9040C		<input type="checkbox"/>	DF - wc	
1308284-003C				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds	
<i>1 SEL Analytes: TDS</i>								

# WORK ORDER Summary

Work Order: **1308284** Page 3 of 6

Client: Energy Fuels Resources, Inc.

Due Date: 8/29/2013

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1308284-003D	Cell 3	8/13/2013 1100h	8/15/2013 1433h	NH3-W-350.1	Aqueous	<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	1
<i>1 SEL Analytes: NH3N</i>								
NH3-W-PR				<input checked="" type="checkbox"/>		DF - no2/no3 & nh3		
				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NO3NO2N</i>				
1308284-003E				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: CA MG K NA V</i>				
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				200.8-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>				
				200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				FILTER-PR		<input type="checkbox"/>	DIS MET/HG	
				HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>1 SEL Analytes: HG</i>				
				HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>				
1308284-003F				3510-SVOA-PR		<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
				<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>				
1308284-004A	Cell 4A	8/13/2013 0930h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
				<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>				
1308284-004B				300.0-W		<input checked="" type="checkbox"/>	DF - wc	1
				<i>3 SEL Analytes: CL F SO4</i>				
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF - wc	
				<i>2 SEL Analytes: ALKB ALKC</i>				
				COND-W-2510B		<input type="checkbox"/>	DF - wc	
				PH-9040C		<input type="checkbox"/>	DF - wc	
1308284-004C				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds	
				<i>1 SEL Analytes: TDS</i>				
1308284-004D				NH3-W-350.1		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NH3N</i>				
				NH3-W-PR		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NO3NO2N</i>				
1308284-004E				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: CA MG K NA V</i>				
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	

# WORK ORDER Summary

Work Order: **1308284** Page 4 of 6

Client: Energy Fuels Resources, Inc.

Due Date: 8/29/2013

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage			
1308284-004E	Cell 4A	8/13/2013 0930h	8/15/2013 1433h	200.8-DIS	Aqueous	<input checked="" type="checkbox"/>	DIS MET/HG	1		
				<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>						
				200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG			
				FILTER-PR		<input type="checkbox"/>	DIS MET/HG			
				HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG			
				<i>1 SEL Analytes: HG</i>						
				HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG			
1308284-004F				IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG			
				<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>						
				3510-SVOA-PR		<input type="checkbox"/>	Walkin-Semi	4		
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi			
<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>										
1308284-005A	Cell 4A LDS	8/13/2013 0945h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3		
<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>										
1308284-005B				300.0-W		<input checked="" type="checkbox"/>	DF - wc	1		
				<i>3 SEL Analytes: CL F SO4</i>						
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF - wc			
				<i>2 SEL Analytes: ALKB ALKC</i>						
1308284-005C				COND-W-2510B		<input type="checkbox"/>	DF - wc			
				PH-9040C		<input type="checkbox"/>	DF - wc			
				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds			
<i>1 SEL Analytes: TDS</i>										
1308284-005D				NH3-W-350.1		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3			
				<i>1 SEL Analytes: NH3N</i>						
				NH3-W-PR		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3			
1308284-005E				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3			
				<i>1 SEL Analytes: NO3NO2N</i>						
				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG			
				<i>5 SEL Analytes: CA MG K NA V</i>						
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG			
				200.8-DIS		<input checked="" type="checkbox"/>	DIS MET/HG			
				<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>						
200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG							
FILTER-PR		<input type="checkbox"/>	DIS MET/HG							
HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG							
<i>1 SEL Analytes: HG</i>										
HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG							
IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG							
<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>										

# WORK ORDER Summary

Work Order: **1308284** Page 5 of 6

Client: Energy Fuels Resources, Inc.

Due Date: 8/29/2013

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1308284-005F	Cell 4A LDS	8/13/2013 0945h	8/15/2013 1433h	3510-SVOA-PR	Aqueous	<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>								
1308284-006A	Cell 4B	8/13/2013 1015h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>								
1308284-006B				300.0-W		<input checked="" type="checkbox"/>	DF - wc	1
<i>3 SEL Analytes: CL F SO4</i>								
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF - wc	
<i>2 SEL Analytes: ALKB ALKC</i>								
				COND-W-2510B		<input type="checkbox"/>	DF - wc	
				PH-9040C		<input type="checkbox"/>	DF - wc	
1308284-006C				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds	
<i>1 SEL Analytes: TDS</i>								
1308284-006D				NH3-W-350.1		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
<i>1 SEL Analytes: NH3N</i>								
				NH3-W-PR		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
<i>1 SEL Analytes: NO3NO2N</i>								
1308284-006E				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>5 SEL Analytes: CA MG K NA V</i>								
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				200.8-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>								
				200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				FILTER-PR		<input type="checkbox"/>	DIS MET/HG	
				HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>1 SEL Analytes: HG</i>								
				HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG	
<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>								
1308284-006F				3510-SVOA-PR		<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>								
1308284-007A	Cell 65	8/13/2013 0945h	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>								
1308284-007B				300.0-W		<input checked="" type="checkbox"/>	DF - wc	1
<i>3 SEL Analytes: CL F SO4</i>								
				ALK-W-2320B		<input checked="" type="checkbox"/>	DF - wc	
<i>2 SEL Analytes: ALKB ALKC</i>								

# WORK ORDER Summary

Work Order: **1308284**

Page 6 of 6

Client: Energy Fuels Resources, Inc.

Due Date: 8/29/2013

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1308284-007B	Cell 65	8/13/2013 0945h	8/15/2013 1433h	COND-W-2510B	Aqueous	<input type="checkbox"/>	DF - wc	1
				PH-9040C		<input type="checkbox"/>	DF - wc	
1308284-007C				TDS-W-2540C		<input checked="" type="checkbox"/>	ww - tds	
				<i>1 SEL Analytes: TDS</i>				
1308284-007D				NH3-W-350.1		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NH3N</i>				
				NH3-W-PR		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				NO2/NO3-W-353.2		<input checked="" type="checkbox"/>	DF - no2/no3 & nh3	
				<i>1 SEL Analytes: NO3NO2N</i>				
1308284-007E				200.7-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: CA MG K NA V</i>				
				200.7-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				200.8-DIS		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>17 SEL Analytes: AS BE CD CR CO CU FE PB MN MO NI SE AG TL SN U ZN</i>				
				200.8-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				FILTER-PR		<input type="checkbox"/>	DIS MET/HG	
				HG-DW-DIS-245.1		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>1 SEL Analytes: HG</i>				
				HG-DW-DIS-PR		<input checked="" type="checkbox"/>	DIS MET/HG	
				IONBALANCE		<input checked="" type="checkbox"/>	DIS MET/HG	
				<i>5 SEL Analytes: BALANCE Anions Cations TDS-Balance TDS-Calc</i>				
1308284-007F				3510-SVOA-PR		<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
				<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>				
1308284-008A	Trip Blank	8/13/2013	8/15/2013 1433h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOCFridge	3
				<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>				



**Amercian West  
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 www.awal-labs.com

**CHAIN OF CUSTODY**

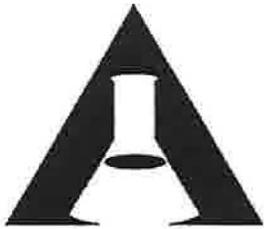
All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1308284  
 AWAL Lab Sample Set #  
 Page 1 of 2

Client: **Energy Fuels Resources, Inc.**  
 Address: **6425 S. Hwy. 191  
 Blanding, UT 84511**  
 Contact: **Garrin Palmer**  
 Phone #: **(435) 678-2221** Cell #: **(435) 459-9463**  
 Email: **gpalmer@energyfuels.com; KWeinel@energyfuels.com;  
 dturk@energyfuels.com**  
 Project Name: **Annual Tailings 2013**  
 PO #:  
 Sampler Name: **Garrin Palmer, Tanner Holliday**

QC Level:		Turn Around Time:		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.		Due Date:									
3		Standard				8/29/13									
Laboratory Use Only		Samples Were:		Known Hazards & Sample Comments		COC Tape Was:									
		<input checked="" type="checkbox"/> Include EDD: <b>LOCUS UPLOAD</b> <b>EXCEL</b> <input checked="" type="checkbox"/> Field Filtered For: <del>Residuals</del>				1 Shipped or hand delivered 2 Ambient or Chilled 3 Temperature <u>2.7</u> °C 4 Received Broken/Leaking (Improperly Sealed) Y <input type="checkbox"/> N <input checked="" type="checkbox"/> 5 Properly Preserved Y <input type="checkbox"/> N <input type="checkbox"/> Checked at bench Y <input type="checkbox"/> N <input type="checkbox"/> 6 Received Within Holding Times Y <input type="checkbox"/> N <input checked="" type="checkbox"/>									
		For Compliance With: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> Non-Compliance <input type="checkbox"/> Other:				1 Present on Outer Package Y <input type="checkbox"/> N <input type="checkbox"/> NA 2 Unbroken on Sample Package Y <input type="checkbox"/> N <input type="checkbox"/> NA 3 Present on Samples Y <input type="checkbox"/> N <input type="checkbox"/> NA 4 Unbroken on Sample Y <input type="checkbox"/> N <input type="checkbox"/> NA									
Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	NO2/NO3 (353.2)	NH3 (4500G or 350.1)	Fl, Cl, SO4 (4500 or 300.0)	TDS (2540C)	Carb/Bicarb (2920B)	Dissolved Metals (200.7/200.8/245.1)	As, Be, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, Sn, U, V, Zn, Na, K, Mg, Ca	Ion Balance	VOCs (8260C)	Known Hazards & Sample Comments	Discrepancies Between Sample Labels and COC Record?
Cell 1	8/13/2013	740	9	W	x	x	x	x	x	x	x	x	x	Metals were NOT field	Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
Slimes #2	8/13/2013	855	9	W	x	x	x	x	x	x	x	x	x	filtered or preserved.	Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
Cell 3	8/13/2013	1100	9	W	x	x	x	x	x	x	x	x	x		Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
Cell 4A	8/13/2013	930	11	W	x	x	x	x	x	x	x	x	x	Please use caution when	Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
Cell 4A LDS	8/13/2013	945	9	W	x	x	x	x	x	x	x	x	x	handling samples.	Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
Cell 4B	8/13/2013	1015	9	W	x	x	x	x	x	x	x	x	x		Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
Cell 65	8/13/2013	945	9	W	x	x	x	x	x	x	x	x	x	MS and MSD samples	Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
TRIP BLANK	8/13/13												X	were collected at Cell 4A. (For SVOCs)	Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>
added per Kathy Weinel 8/16/13 - PHL															

Relinquished by: Signature: <i>Garrin Palmer</i>	Date: 8/15/13	Received by: Signature: <i>Elina Hagedorn</i>	Date: 8/15/13	Special Instructions:  Sample containers for metals were NOT field filtered. See the Analytical Scope of Work for Reporting Limits and VOC analyte list.
Print Name: Garrin Palmer	Time: 1433	Print Name: Elina Hagedorn	Time: 1433	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	



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**CHAIN OF CUSTODY**

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1308284

AWAL Lab Sample Set #  
 Page 2 of 2

QC Level:		Turn Around Time:		Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.		Due Date:	
3		Standard					
						<input type="checkbox"/> Report down to the MDL <input type="checkbox"/> Include EDD: <input checked="" type="checkbox"/> Lab Filter for: <b>Metals</b> <input type="checkbox"/> Field Filtered For: <b>z</b>	
						<b>For Compliance With:</b> <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> Non-Compliance <input type="checkbox"/> Other:	
				<b>Known Hazards &amp; Sample Comments</b>		<b>Laboratory Use Only</b>	
						<b>Samples Were:</b> 1 Shipped or hand delivered 2 Ambient or Chilled 3 Temperature <b>2.7 °C</b> 4 Received Broken/Leaking (Improperly Sealed) Y N 5 Properly Preserved Y N Checked at bench Y N 6 Received Within Flaking Times Y N <b>PH 8/15/13 PH</b>	
						<b>COC Tape Was:</b> 1 Present on Outer Package Y N NA 2 Unbroken on Outer Package Y N NA 3 Present on Sample Y N NA 4 Unbroken on Sample Y N NA Discrepancies Between Sample Labels and COC Records? Y N	

Client: **Energy Fuels Resources, Inc.**  
 Address: **6425 S. Hwy. 191**  
**Blanding, UT 84511**  
 Contact: **Garrin Palmer**  
 Phone #: **(435) 678-2221** Cell #: **(435) 459-9463**  
 Email: **gpalmer@energyfuels.com; KWeinel@energyfuels.com; dturk@energyfuels.com**  
 Project Name: **Annual Tailings 2013**  
 Project #:  
 PO #:  
 Sampler Name: **Garrin Palmer, Tanner Holliday**

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	SVOC's	Ph	Conductivity											
Cell 1	8/13/2013	740	9	W	x	x	x											
Slimes #2	8/13/2013	855	9	W	x	x	x											
Cell 3	8/13/2013	1100	9	W	x	x	x											
Cell 4A	8/13/2013	930	11	W	x	x	x											
Cell 4A LDS	8/13/2013	945	9	W	x	x	x											
Cell 4B	8/13/2013	1015	9	W	x	x	x											
Cell 65	8/13/2013	945	9	W	x	x	x											

Relinquished by: Signature: <i>Garrin Palmer</i>	Date: 8/15/13 Time: 1433	Received by: Signature: <i>Tanner Holliday</i>	Date: 8/15/13 Time: 1433
Print Name: <i>Garrin Palmer</i>		Print Name: <i>Tanner Holliday</i>	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:
Print Name:		Print Name:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:
Print Name:		Print Name:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:
Print Name:		Print Name:	

Special Instructions:

Table 3 – AWAL Analyte List, Reporting Limits and Analytical Method Requirements

Contaminant	Analytical Methods to be Used	Reporting Limit	Maximum Holding Times	Sample Preservation Requirements	Sample Temperature Requirements
<b>Nutrients</b>					
Ammonia (as N)	A4500-NH <sub>3</sub> G or E350.1	0.05 mg/L	28 days	H <sub>2</sub> SO <sub>4</sub> to pH<2	≤ 6°C
Nitrate & Nitrite (as N)	E353.1 or E353.2	0.1 mg/L	28 days	H <sub>2</sub> SO <sub>4</sub> to pH<2	≤ 6°C
<b>Volatile Organic Compounds – Groundwater, Seeps and Springs and Tailings Impoundment</b>					
Acetone	SW8260B or SW8260C	20 µg/L	14 days	HCl to pH<2	≤ 6°C
Benzene	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
2-Butanone (MEK)	SW8260B or SW8260C	20 µg/L	14 days	HCl to pH<2	≤ 6°C
Carbon Tetrachloride	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Chloroform	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Chloromethane	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Dichloromethane (Methylene Chloride)	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Naphthalene	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Tetrahydrofuran	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Toluene	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
Xylenes (total)	SW8260B or SW8260C	1.0 µg/L	14 days	HCl to pH<2	≤ 6°C
<b>Others</b>					
Fluoride	A4500-F C or E300.0	0.1 mg/L	28 days	None	≤ 6°C
TDS	A2540 C	10 mg/L	7 days	None	≤ 6°C

Contaminant	Analytical Methods to be Used	Reporting Limit	Maximum Holding Times	Sample Preservation Requirements	Sample Temperature Requirements
<b>General Inorganics</b>					
Chloride	A4500-Cl B or A4500-Cl E or E300.0	1 mg/L	28 days	None	≤ 6°C
Sulfate	A4500-SO4 E or E300.0	1 mg/L	28 days	None	≤ 6°C
Carbonate as CO3	A2320 B	1 mg/L	14 days	None	≤ 6°C
Bicarbonate as HCO3	A2320 B	1 mg/L	14 days	None	
<b>Volatile Organic Compounds – Chloroform Program</b>					
<del>Carbon Tetrachloride</del>	<del>SW8260B or SW8260C</del>	<del>1.0 µg/L</del>	<del>14 days</del>	<del>HCl to pH&lt;2</del>	<del>≤ 6°C</del>
<del>Chloroform</del>	<del>SW8260B or SW8260C</del>	<del>1.0 µg/L</del>	<del>14 days</del>	<del>HCl to pH&lt;2</del>	<del>≤ 6°C</del>
<del>Dichloromethane (Methylene Chloride)</del>	<del>SW8260B or SW8260C</del>	<del>1.0 µg/L</del>	<del>14 days</del>	<del>HCl to pH&lt;2</del>	<del>≤ 6°C</del>
<del>Chloromethane</del>	<del>SW8260B or SW8260C</del>	<del>1.0 µg/L</del>	<del>14 days</del>	<del>HCl to pH&lt;2</del>	<del>≤ 6°C</del>
<b>SVOCs – Tailings Impoundment Samples Only</b>					
1,2,4-Trichlorobenzene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
1,2-Dichlorobenzene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
1,3-Dichlorobenzene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
1,4-Dichlorobenzene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
1-Methylnaphthalene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2,4,5-Trichlorophenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2,4,6-Trichlorophenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2,4-Dichlorophenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2,4-Dimethylphenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2,4-Dinitrophenol	SW8270D	<20 µg/L	7/40 days	None	≤ 6°C
2,4-Dinitrotoluene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2,6-Dinitrotoluene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2-Chloronaphthalene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2-Chlorophenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2-Methylnaphthalene	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2-Methylphenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
2-Nitrophenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
3&4-Methylphenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
3,3'-Dichlorobenzidine	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C
4,6-Dinitro-2-methylphenol	SW8270D	<10 µg/L	7/40 days	None	≤ 6°C

Contaminant	Analytical Methods to be Used	Reporting Limit	Maximum Holding Times	Sample Preservation Requirements	Sample Temperature Requirements
4-Bromophenylphenyl ether	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
4-Chloro-3-methylphenol	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
4-Chlorophenyl phenyl ether	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
4-Nitrophenol	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Acenaphthene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Acenaphthylene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Anthracene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Azobenzene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Benz(a)anthracene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Benzidine	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Benzo(a)pyrene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Benzo(b)fluoranthene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Benzo(g,h,i)perylene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Benzo(k)fluoranthene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Bis(2-hloroethoxy)methane	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Bis(2-chloroethyl) ether	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Bis(2-chloroisopropyl) ether	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Bis(2-ethylhexyl) phthalate	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Butyl benzyl phthalate	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Chrysene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Dibenz(a,h)anthracene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Diethyl phthalate	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Dimethyl phthalate	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Di-n-butyl phthalate	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Di-n-octyl phthalate	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Fluoranthene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Fluorene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Hexachlorobenzene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Hexachlorobutadiene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Hexachlorocyclopentadiene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Hexachloroethane	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Indeno(1,2,3-cd)pyrene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Isophorone	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Naphthalene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Nitrobenzene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
N-Nitrosodimethylamine	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
N-Nitrosodi-n-propylamine	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
N-Nitrosodiphenylamine	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Pentachlorophenol	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Phenanthrene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Phenol	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C
Pyrene	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C

*4-Chlorophenol  
 LIBRARY SEARCH added 9/4/13  
 per Kathy Weiner - RW*

Contaminant	Analytical Methods to be Used	Reporting Limit	Maximum Holding Times	Sample Preservation Requirements	Sample Temperature Requirements
Pyridine	SW8270D	<10 ug/L	7/40 days	None	≤ 6°C

Holding time for SVOCs is 7 days to extraction and 40 days for analysis of the extract.

Table 4 Fee Schedule

Analyte/ Group	Cost per Sample
Nitrate	
Ammonia	
VOCs (GW program)	
VOCs (Chloroform Program)	
Fluoride	
TDS	
Chloride	
Sulfate	
Carb/Bicarb	
SVOCs	

Table 3 – GEL Groundwater, Tailings Impoundment, and Seeps and Springs Sampling

Contaminant	Analytical Methods to be Used	Reporting Limit	Maximum Holding Times	Sample Preservation Requirements	Sample Temperature Requirements
<b>Heavy Metals</b>					
Arsenic	E200.7 or E200.8	5 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Beryllium	E200.7 or E200.8	0.50 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Cadmium	E200.7 or E200.8	0.50 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Chromium	E200.7 or E200.8	25 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Cobalt	E200.7 or E200.8	10 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Copper	E200.7 or E200.8	10 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Iron	E200.7 or E200.8	30 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Lead	E200.7 or E200.8	1.0 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Manganese	E200.7 or E200.8	10 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Mercury	E 245.1 or E200.7 or E200.8	0.50 µg/L	28 days	HNO <sub>3</sub> to pH<2	None
Molybdenum	E200.7 or E200.8	10 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Nickel	E200.7 or E200.8	20 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Selenium	E200.7 or E200.8	5 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Silver	E200.7 or E200.8	10 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Thallium	E200.7 or E200.8	0.50 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Tin	E200.7 or E200.8	100 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Uranium	E200.7 or E200.8	0.30 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Vanadium	E200.7 or E200.8	15 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Zinc	E200.7 or E200.8	10 µg/L	6 months	HNO <sub>3</sub> to pH<2	None
Sodium	E200.7	0.5 mg/L	6 months	HNO <sub>3</sub> to pH<2	None
Potassium	E200.7	0.5 mg/L	6 months	HNO <sub>3</sub> to pH<2	None
Magnesium	E200.7	0.5 mg/L	6 months	HNO <sub>3</sub> to pH<2	None
Calcium	E200.7	0.5 mg/L	6 months	HNO <sub>3</sub> to pH<2	None
<b>Radiologics</b>					
Gross Alpha	E 900.8 or E900.1	1.0 pCi/L	6 months	HNO <sub>3</sub> to pH<2	None -RW 2/27/2013

Table 4 Fee Schedule

Analyte/ Group	Cost per Sample
Full Suite Metals	
Partial Suite Metals (cost per individual metal)	
Gross alpha	

\*\* - per email from Kathy Weinel 3/27/13 -RW

Run ION BALANCE when the full metals suite has been requested, per email from Kathy Weinel 3/27/13

Ion Balance to include:

Total Anions, Measured

Total Cations, Measured

TDS Ratio, Measured/Calculated

TDS, Calculated

-RW 3/27/13

Sample Set: 1308284

Preservation Check Sheet

Sample Set Extension and pH

Bottle Type	Preservative	All OK	Except													
			-001	-002	-003	-004	-005	-006	-007							
Ammonia	pH <2 H <sub>2</sub> SO <sub>4</sub>		Yes													
COD	pH <2 H <sub>2</sub> SO <sub>4</sub>															
Cyanide	PH >12 NaOH															
Metals	pH <2 HNO <sub>3</sub>															
NO <sub>2</sub> & NO <sub>3</sub>	pH <2 H <sub>2</sub> SO <sub>4</sub>		Yes													
Nutrients	pH <2 H <sub>2</sub> SO <sub>4</sub>															
O & G	pH <2 HCL															
Phenols	pH <2 H <sub>2</sub> SO <sub>4</sub>															
Sulfide	pH > 9NaOH, Zn Acetate															
TKN	pH <2 H <sub>2</sub> SO <sub>4</sub>															
TOC	pH <2 H <sub>3</sub> PO <sub>4</sub>															
TOX	pH <2 H <sub>2</sub> SO <sub>4</sub>															
T PO <sub>4</sub>	pH <2 H <sub>2</sub> SO <sub>4</sub>															
TPH	pH <2 HCL															

2nd  
8/16/13

- Procedure:
- 1) Pour a small amount of sample in the sample lid
  - 2) Pour sample from Lid gently over wide range pH paper
  - 3) **Do Not** dip the pH paper in the sample bottle or lid
  - 4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
  - 5) Flag COC, notify client if requested
  - 6) Place client conversation on COC
  - 7) Samples may be adjusted

Frequency: All samples requiring preservation



Garrin Palmer  
Energy Fuels Resources, Inc.  
6425 S. Hwy 191  
Blanding, UT 84511  
TEL: (435) 678-2221

RE: Annual Tailings 2013 Resample

Dear Garrin Palmer:

Lab Set ID: 1309104

463 West 3600 South  
Salt Lake City, UT 84115

American West Analytical Laboratories received 4 sample(s) on 9/6/2013 for the analyses presented in the following report.

Phone: (801) 263-8686  
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web: [www.awal-labs.com](http://www.awal-labs.com)

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

**Kyle F.  
Gross**  
Digitally signed by Kyle F. Gross  
DN: cn=Kyle F. Gross, o=AWAL,  
ou=AWAL-Laboratory Director,  
email=kyle@awal-labs.com, c=US  
Date: 2013.09.19 16:03:59 -06'00'

Approved by:

Laboratory Director or designee



## SAMPLE SUMMARY

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tailings 2013 Resample  
**Lab Set ID:** 1309104  
**Date Received:** 9/6/2013 1200h

**Contact:** Garrin Palmer

463 West 3600 South  
Salt Lake City, UT 84115

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web: www.awal-labs.com

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Date Collected</u>	<u>Matrix</u>	<u>Analysis</u>
1309104-001A	Cell 1	9/4/2013 1215h	Aqueous	SVOAs by GC/MS Method 8270D
1309104-002A	Cell 3	9/4/2013 1230h	Aqueous	SVOAs by GC/MS Method 8270D
1309104-002B	Cell 3	9/4/2013 1230h	Aqueous	VOA by GC/MS Method 8260C/5030C
1309104-003A	Cell 70	9/4/2013 1215h	Aqueous	SVOAs by GC/MS Method 8270D
1309104-004A	Trip Blank	9/4/2013	Aqueous	VOA by GC/MS Method 8260C/5030C

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



## Semivolatile Case Narrative

**Client:** Energy Fuels Resources, Inc.  
**Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013 Resample  
**Lab Set ID:** 1309104

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Salt Lake City, UT 84115

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web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

### Sample Receipt Information:

**Date of Receipt:** 9/6/2013  
**Date of Collection:** 9/4/2013  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None  
**Method:** SW-846 8270D/3510C  
**Analysis:** Semivolatile Organics

**General Set Comments:** No target analytes were observed above their reporting limits.

**Holding Time Requirements:** The preparations and analyses of the samples were performed within respective holding times.

**Preparation Requirements:** The samples were prepared and analyzed following the methods stated on the analytical reports.

**Analytical QC Requirements:** All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

**Batch QC Requirements:** MB, LCS, MS, MSD, RPD, and Surrogates:

**Method Blanks:** No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

**Laboratory Control Sample (LCS):** All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

**Matrix Spike / Matrix Spike Duplicate (MS/MSD):** All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, with the following exceptions:

Sample ID	Analyte	QC	Explanation
1309104-002A	4,6-Dinitro-2-methylphenol	MS/MSD	Sample matrix interference
1309104-002A	4-Nitrophenol	MS/MSD	Sample matrix interference
1309104-002A	Phenol	MS	Sample matrix interference

**Surrogates:** All surrogate recoveries were within established limits.

**Corrective Action:** None required.



## Volatile Case Narrative

**Client:** Energy Fuels Resources, Inc.  
**Contact:** Garrin Palmer  
**Project:** Annual Tailings 2013 Resample  
**Lab Set ID:** 1309104

---

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

### **Sample Receipt Information:**

**Date of Receipt:** 9/6/2013  
**Date of Collection:** 9/4/2013  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None  
**Method:** SW-846 8260C/5030C  
**Analysis:** Volatile Organic Compounds

**General Set Comments:** Multiple target analytes were observed above reporting limits.

**Holding Time and Preservation Requirements:** All samples were received in appropriate containers and properly preserved. The analysis and preparation of all samples were performed within the method holding times following the methods stated on the analytical reports.

**Analytical QC Requirements:** All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

**Batch QC Requirements:** MB, LCS, MS, MSD, RPD, and Surrogates:

**Method Blanks (MBs):** No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

**Laboratory Control Sample (LCSs):** All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

**Matrix Spike / Matrix Spike Duplicate (MS/MSD):** All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, indicating no apparent matrix interferences.

**Surrogates:** All surrogate recoveries were within established limits.

**Corrective Action:** None required.



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS-27638</b>		Date Analyzed: 09/11/2013 0702h											
<b>Test Code: 8270-W</b>		Date Prepared: 09/09/2013 1033h											
1,2,4-Trichlorobenzene	33.1	µg/L	SW8270D	3.48	10.0	80.00	0	41.4	10 - 104				
1,4-Dichlorobenzene	21.3	µg/L	SW8270D	2.31	10.0	80.00	0	26.6	10 - 118				
2,4,6-Trichlorophenol	74.2	µg/L	SW8270D	0.569	10.0	80.00	0	92.8	17 - 119				
2,4-Dimethylphenol	65.4	µg/L	SW8270D	1.06	10.0	80.00	0	81.7	10 - 131				
2,4-Dinitrotoluene	82.7	µg/L	SW8270D	0.895	10.0	80.00	0	103	42 - 219				
2-Chloronaphthalene	50.1	µg/L	SW8270D	2.13	10.0	80.00	0	62.6	23 - 126				
2-Chlorophenol	49.2	µg/L	SW8270D	0.952	10.0	80.00	0	61.5	15 - 128				
4,6-Dinitro-2-methylphenol	75.1	µg/L	SW8270D	0.569	10.0	80.00	0	93.9	30 - 198				
4-Chloro-3-methylphenol	80.8	µg/L	SW8270D	0.876	10.0	80.00	0	101	29 - 148				
4-Nitrophenol	56.9	µg/L	SW8270D	1.81	10.0	80.00	0	71.1	10 - 157				
Acenaphthene	61.0	µg/L	SW8270D	2.20	10.0	80.00	0	76.2	20 - 116				
Benzo(a)pyrene	69.1	µg/L	SW8270D	0.838	10.0	80.00	0	86.3	10 - 221				
N-Nitrosodi-n-propylamine	49.4	µg/L	SW8270D	1.28	10.0	80.00	0	61.8	20 - 148				
Pentachlorophenol	78.8	µg/L	SW8270D	0.876	10.0	80.00	0	98.4	21 - 153				
Phenol	39.4	µg/L	SW8270D	0.519	10.0	80.00	0	49.2	10 - 131				
Pyrene	83.9	µg/L	SW8270D	1.12	10.0	80.00	0	105	37 - 150				
Surr: 2,4,6-Tribromophenol	90.1	µg/L	SW8270D			80.00		113	10 - 165				
Surr: 2-Fluorobiphenyl	26.1	µg/L	SW8270D			40.00		65.2	10 - 118				
Surr: 2-Fluorophenol	30.1	µg/L	SW8270D			80.00		37.6	10 - 121				
Surr: Nitrobenzene-d5	18.2	µg/L	SW8270D			40.00		45.5	10 - 127				
Surr: Phenol-d6	30.0	µg/L	SW8270D			80.00		37.4	10 - 124				
Surr: Terphenyl-d14	44.7	µg/L	SW8270D			40.00		112	51 - 221				



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** LCSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> LCSD-27638	Date Analyzed:		09/11/2013 0725h										
<b>Test Code:</b> 8270-W	Date Prepared:		09/09/2013 1033h										
1,2,4-Trichlorobenzene	37.1	µg/L	SW8270D	3.48	10.0	80.00	0	46.4	10 - 104	33.1	11.3	25	
1,4-Dichlorobenzene	25.4	µg/L	SW8270D	2.31	10.0	80.00	0	31.8	10 - 118	21.3	17.6	25	
2,4,6-Trichlorophenol	74.8	µg/L	SW8270D	0.569	10.0	80.00	0	93.5	17 - 119	74.2	0.805	25	
2,4-Dimethylphenol	58.1	µg/L	SW8270D	1.06	10.0	80.00	0	72.6	10 - 131	65.4	11.8	25	
2,4-Dinitrotoluene	85.7	µg/L	SW8270D	0.895	10.0	80.00	0	107	42 - 219	82.7	3.57	25	
2-Chloronaphthalene	54.0	µg/L	SW8270D	2.13	10.0	80.00	0	67.5	23 - 126	50.1	7.42	25	
2-Chlorophenol	48.4	µg/L	SW8270D	0.952	10.0	80.00	0	60.5	15 - 128	49.2	1.64	25	
4,6-Dinitro-2-methylphenol	76.4	µg/L	SW8270D	0.569	10.0	80.00	0	95.5	30 - 198	75.1	1.70	25	
4-Chloro-3-methylphenol	77.6	µg/L	SW8270D	0.876	10.0	80.00	0	97.0	29 - 148	80.8	4.10	25	
4-Nitrophenol	52.5	µg/L	SW8270D	1.81	10.0	80.00	0	65.6	10 - 157	56.9	7.99	25	
Acenaphthene	64.8	µg/L	SW8270D	2.20	10.0	80.00	0	81.0	20 - 116	61	6.06	25	
Benzo(a)pyrene	71.8	µg/L	SW8270D	0.838	10.0	80.00	0	89.8	10 - 221	69.1	3.90	25	
N-Nitrosodi-n-propylamine	54.9	µg/L	SW8270D	1.28	10.0	80.00	0	68.6	20 - 148	49.4	10.5	25	
Pentachlorophenol	77.7	µg/L	SW8270D	0.876	10.0	80.00	0	97.1	21 - 153	78.8	1.36	25	
Phenol	36.6	µg/L	SW8270D	0.519	10.0	80.00	0	45.8	10 - 131	39.4	7.21	25	
Pyrene	86.1	µg/L	SW8270D	1.12	10.0	80.00	0	108	37 - 150	83.9	2.51	25	
Surr: 2,4,6-Tribromophenol	89.0	µg/L	SW8270D			80.00		111	10 - 165				
Surr: 2-Fluorobiphenyl	28.2	µg/L	SW8270D			40.00		70.5	10 - 118				
Surr: 2-Fluorophenol	28.8	µg/L	SW8270D			80.00		36.0	10 - 121				
Surr: Nitrobenzene-d5	20.1	µg/L	SW8270D			40.00		50.3	10 - 127				
Surr: Phenol-d6	26.6	µg/L	SW8270D			80.00		33.2	10 - 124				
Surr: Terphenyl-d14	45.2	µg/L	SW8270D			40.00		113	51 - 221				



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27638	Date Analyzed:		09/11/2013 0638h										
<b>Test Code:</b> 8270-W	Date Prepared:		09/09/2013 1033h										
1,2,4-Trichlorobenzene	< 10.0	µg/L	SW8270D	3.48	10.0								
1,2-Dichlorobenzene	< 10.0	µg/L	SW8270D	2.69	10.0								
1,3-Dichlorobenzene	< 10.0	µg/L	SW8270D	2.32	10.0								
1,4-Dichlorobenzene	< 10.0	µg/L	SW8270D	2.31	10.0								
1-Methylnaphthalene	< 10.0	µg/L	SW8270D	2.04	10.0								
2,4,5-Trichlorophenol	< 10.0	µg/L	SW8270D	0.978	10.0								
2,4,6-Trichlorophenol	< 10.0	µg/L	SW8270D	0.569	10.0								
2,4-Dichlorophenol	< 10.0	µg/L	SW8270D	0.696	10.0								
2,4-Dimethylphenol	< 10.0	µg/L	SW8270D	1.06	10.0								
2,4-Dinitrophenol	< 10.0	µg/L	SW8270D	0.609	10.0								
2,4-Dinitrotoluene	< 10.0	µg/L	SW8270D	0.895	10.0								
2,6-Dinitrotoluene	< 10.0	µg/L	SW8270D	0.996	10.0								
2-Chloronaphthalene	< 10.0	µg/L	SW8270D	2.13	10.0								
2-Chlorophenol	< 10.0	µg/L	SW8270D	0.952	10.0								
2-Methylnaphthalene	< 10.0	µg/L	SW8270D	1.78	10.0								
2-Methylphenol	< 10.0	µg/L	SW8270D	0.771	10.0								
2-Nitrophenol	< 10.0	µg/L	SW8270D	0.723	10.0								
3&4-Methylphenol	< 10.0	µg/L	SW8270D	1.65	10.0								
3,3'-Dichlorobenzidine	< 10.0	µg/L	SW8270D	1.07	10.0								
4,6-Dinitro-2-methylphenol	< 10.0	µg/L	SW8270D	0.569	10.0								
4-Bromophenyl phenyl ether	< 10.0	µg/L	SW8270D	1.27	10.0								
4-Chloro-3-methylphenol	< 10.0	µg/L	SW8270D	0.876	10.0								
4-Chlorophenyl phenyl ether	< 10.0	µg/L	SW8270D	0.559	10.0								
4-Nitrophenol	< 10.0	µg/L	SW8270D	1.81	10.0								
Acenaphthene	< 10.0	µg/L	SW8270D	2.20	10.0								
Acenaphthylene	< 10.0	µg/L	SW8270D	2.07	10.0								
Anthracene	< 10.0	µg/L	SW8270D	1.12	10.0								
Azobenzene	< 10.0	µg/L	SW8270D	0.649	10.0								
Benz(a)anthracene	< 10.0	µg/L	SW8270D	0.865	10.0								
Benzidine	< 10.0	µg/L	SW8270D	2.10	10.0								

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27638	Date Analyzed:		09/11/2013 0638h										
<b>Test Code:</b> 8270-W	Date Prepared:		09/09/2013 1033h										
Benzo(a)pyrene	< 10.0	µg/L	SW8270D	0.838	10.0								
Benzo(b)fluoranthene	< 10.0	µg/L	SW8270D	2.83	10.0								
Benzo(g,h,i)perylene	< 10.0	µg/L	SW8270D	0.923	10.0								
Benzo(k)fluoranthene	< 10.0	µg/L	SW8270D	1.11	10.0								
Bis(2-chloroethoxy)methane	< 10.0	µg/L	SW8270D	1.28	10.0								
Bis(2-chloroethyl) ether	< 10.0	µg/L	SW8270D	1.02	10.0								
Bis(2-chloroisopropyl) ether	< 10.0	µg/L	SW8270D	0.807	10.0								
Bis(2-ethylhexyl) phthalate	< 10.0	µg/L	SW8270D	1.21	10.0								
Butyl benzyl phthalate	< 10.0	µg/L	SW8270D	0.916	10.0								
Chrysene	< 10.0	µg/L	SW8270D	1.34	10.0								
Dibenz(a,h)anthracene	< 10.0	µg/L	SW8270D	0.988	10.0								
Diethyl phthalate	< 10.0	µg/L	SW8270D	1.03	10.0								
Dimethyl phthalate	< 10.0	µg/L	SW8270D	0.619	10.0								
Di-n-butyl phthalate	< 10.0	µg/L	SW8270D	1.32	10.0								
Di-n-octyl phthalate	< 10.0	µg/L	SW8270D	0.637	10.0								
Fluoranthene	< 10.0	µg/L	SW8270D	1.06	10.0								
Fluorene	< 10.0	µg/L	SW8270D	1.80	10.0								
Hexachlorobenzene	< 10.0	µg/L	SW8270D	0.828	10.0								
Hexachlorobutadiene	< 10.0	µg/L	SW8270D	3.27	10.0								
Hexachlorocyclopentadiene	< 10.0	µg/L	SW8270D	4.37	10.0								
Hexachloroethane	< 10.0	µg/L	SW8270D	2.14	10.0								
Indeno(1,2,3-cd)pyrene	< 10.0	µg/L	SW8270D	3.31	10.0								
Isophorone	< 10.0	µg/L	SW8270D	1.22	10.0								
Naphthalene	< 10.0	µg/L	SW8270D	1.66	10.0								
Nitrobenzene	< 10.0	µg/L	SW8270D	1.01	10.0								
N-Nitrosodimethylamine	< 10.0	µg/L	SW8270D	0.695	10.0								
N-Nitrosodi-n-propylamine	< 10.0	µg/L	SW8270D	1.28	10.0								
N-Nitrosodiphenylamine	< 10.0	µg/L	SW8270D	1.11	10.0								
Pentachlorophenol	< 10.0	µg/L	SW8270D	0.876	10.0								
Phenanthrene	< 10.0	µg/L	SW8270D	0.795	10.0								

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## QC SUMMARY REPORT

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**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> MB-27638	Date Analyzed:	09/11/2013 0638h											
<b>Test Code:</b> 8270-W	Date Prepared:	09/09/2013 1033h											
Phenol	< 10.0	µg/L	SW8270D	0.519	10.0								
Pyrene	< 10.0	µg/L	SW8270D	1.12	10.0								
Pyridine	< 10.0	µg/L	SW8270D	4.45	10.0								
Surr: 2,4,6-Tribromophenol	74.6	µg/L	SW8270D			80.00		93.2	10 - 165				
Surr: 2-Fluorobiphenyl	23.3	µg/L	SW8270D			40.00		58.2	10 - 118				
Surr: 2-Fluorophenol	31.8	µg/L	SW8270D			80.00		39.7	10 - 121				
Surr: Nitrobenzene-d5	18.9	µg/L	SW8270D			40.00		47.2	10 - 127				
Surr: Phenol-d6	27.5	µg/L	SW8270D			80.00		34.4	10 - 124				
Surr: Terphenyl-d14	42.3	µg/L	SW8270D			40.00		106	51 - 221				



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID:</b> 1309104-002AMS	Date Analyzed:	09/12/2013 1625h											
<b>Test Code:</b> 8270-W	Date Prepared:	09/09/2013 1033h											
1,2,4-Trichlorobenzene	30.6	µg/L	SW8270D	3.48	10.0	80.00	0	38.2	20 - 107				
1,4-Dichlorobenzene	22.9	µg/L	SW8270D	2.31	10.0	80.00	0	28.6	11 - 90				
2,4,6-Trichlorophenol	62.4	µg/L	SW8270D	0.569	10.0	80.00	0	78.0	10 - 223				
2,4-Dimethylphenol	60.5	µg/L	SW8270D	1.06	10.0	80.00	0	75.6	10 - 176				
2,4-Dinitrotoluene	72.3	µg/L	SW8270D	0.895	10.0	80.00	0	90.4	21 - 191				
2-Chloronaphthalene	43.7	µg/L	SW8270D	2.13	10.0	80.00	0	54.7	12 - 132				
2-Chlorophenol	44.0	µg/L	SW8270D	0.952	10.0	80.00	0	55.0	20 - 107				
4,6-Dinitro-2-methylphenol	10.4	µg/L	SW8270D	0.569	10.0	80.00	0	13.0	20 - 250				1
4-Chloro-3-methylphenol	73.7	µg/L	SW8270D	0.876	10.0	80.00	0	92.1	10 - 136				
4-Nitrophenol	147	µg/L	SW8270D	1.81	10.0	80.00	0	184	10 - 135				1
Acenaphthene	52.6	µg/L	SW8270D	2.20	10.0	80.00	0	65.8	21 - 113				
Benzo(a)pyrene	60.9	µg/L	SW8270D	0.838	10.0	80.00	0	76.2	15 - 169				
N-Nitrosodi-n-propylamine	66.9	µg/L	SW8270D	1.28	10.0	80.00	0	83.6	10 - 133				
Pentachlorophenol	79.3	µg/L	SW8270D	0.876	10.0	80.00	0	99.2	10 - 131				
Phenol	58.8	µg/L	SW8270D	0.519	10.0	80.00	0	73.5	10 - 71				1
Pyrene	69.7	µg/L	SW8270D	1.12	10.0	80.00	0	87.1	23 - 150				
Surr: 2,4,6-Tribromophenol	78.5	µg/L	SW8270D			80.00		98.1	14 - 159				
Surr: 2-Fluorobiphenyl	20.6	µg/L	SW8270D			40.00		51.6	10 - 124				
Surr: 2-Fluorophenol	33.6	µg/L	SW8270D			80.00		42.0	10 - 106				
Surr: Nitrobenzene-d5	16.0	µg/L	SW8270D			40.00		40.1	10 - 180				
Surr: Phenol-d6	60.2	µg/L	SW8270D			80.00		75.2	10 - 122				
Surr: Terphenyl-d14	36.9	µg/L	SW8270D			40.00		92.2	10 - 221				

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSSV  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1309104-002AMSD</b>		Date Analyzed: 09/12/2013 1905h											
<b>Test Code: 8270-W</b>		Date Prepared: 09/09/2013 1033h											
1,2,4-Trichlorobenzene	31.5	µg/L	SW8270D	3.48	10.0	80.00	0	39.4	20 - 107	30.6	2.97	25	
1,4-Dichlorobenzene	24.0	µg/L	SW8270D	2.31	10.0	80.00	0	30.0	11 - 90	22.9	4.95	25	
2,4,6-Trichlorophenol	60.9	µg/L	SW8270D	0.569	10.0	80.00	0	76.2	10 - 223	62.4	2.43	25	
2,4-Dimethylphenol	55.8	µg/L	SW8270D	1.06	10.0	80.00	0	69.7	10 - 176	60.5	8.15	25	
2,4-Dinitrotoluene	67.0	µg/L	SW8270D	0.895	10.0	80.00	0	83.7	21 - 191	72.3	7.61	25	
2-Chloronaphthalene	45.2	µg/L	SW8270D	2.13	10.0	80.00	0	56.5	12 - 132	43.7	3.26	25	
2-Chlorophenol	40.6	µg/L	SW8270D	0.952	10.0	80.00	0	50.7	20 - 107	44	8.09	25	
4,6-Dinitro-2-methylphenol	11.2	µg/L	SW8270D	0.569	10.0	80.00	0	14.0	20 - 250	10.4	6.76	25	
4-Chloro-3-methylphenol	65.2	µg/L	SW8270D	0.876	10.0	80.00	0	81.5	10 - 136	73.7	12.3	25	
4-Nitrophenol	121	µg/L	SW8270D	1.81	10.0	80.00	0	152	10 - 135	147	19.4	25	
Acenaphthene	51.5	µg/L	SW8270D	2.20	10.0	80.00	0	64.4	21 - 113	52.6	2.15	25	
Benzo(a)pyrene	57.5	µg/L	SW8270D	0.838	10.0	80.00	0	71.8	15 - 169	60.9	5.84	25	
N-Nitrosodi-n-propylamine	62.9	µg/L	SW8270D	1.28	10.0	80.00	0	78.6	10 - 133	66.9	6.15	25	
Pentachlorophenol	73.0	µg/L	SW8270D	0.876	10.0	80.00	0	91.3	10 - 131	79.3	8.26	25	
Phenol	52.8	µg/L	SW8270D	0.519	10.0	80.00	0	66.0	10 - 71	58.8	10.8	25	
Pyrene	68.5	µg/L	SW8270D	1.12	10.0	80.00	0	85.7	23 - 150	69.7	1.64	25	
Surr: 2,4,6-Tribromophenol	73.7	µg/L	SW8270D			80.00		92.1	14 - 159				
Surr: 2-Fluorobiphenyl	18.3	µg/L	SW8270D			40.00		45.8	10 - 124				
Surr: 2-Fluorophenol	30.6	µg/L	SW8270D			80.00		38.3	10 - 106				
Surr: Nitrobenzene-d5	14.1	µg/L	SW8270D			40.00		35.3	10 - 180				
Surr: Phenol-d6	54.5	µg/L	SW8270D			80.00		68.2	10 - 122				
Surr: Terphenyl-d14	36.2	µg/L	SW8270D			40.00		90.4	10 - 221				

<sup>1</sup> - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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Kyle F. Gross  
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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: LCS VOC 091113A</b> Date Analyzed: 09/11/2013 0744h													
Test Code: 8260-W													
Benzene	19.7	µg/L	SW8260C	0.149	2.00	20.00	0	98.4	62 - 127				
Chloroform	20.1	µg/L	SW8260C	0.277	2.00	20.00	0	101	67 - 132				
Methylene chloride	22.0	µg/L	SW8260C	0.155	2.00	20.00	0	110	32 - 185				
Naphthalene	19.3	µg/L	SW8260C	0.547	2.00	20.00	0	96.5	28 - 136				
Tetrahydrofuran	16.9	µg/L	SW8260C	0.874	2.00	20.00	0	84.4	43 - 146				
Toluene	18.3	µg/L	SW8260C	0.429	2.00	20.00	0	91.3	64 - 129				
Xylenes, Total	57.0	µg/L	SW8260C	0.870	2.00	60.00	0	95.0	52 - 134				
Surr: 1,2-Dichloroethane-d4	52.6	µg/L	SW8260C			50.00		105	76 - 138				
Surr: 4-Bromofluorobenzene	47.4	µg/L	SW8260C			50.00		94.9	77 - 121				
Surr: Dibromofluoromethane	52.2	µg/L	SW8260C			50.00		104	67 - 128				
Surr: Toluene-d8	47.8	µg/L	SW8260C			50.00		95.7	81 - 135				
<b>Lab Sample ID: LCS VOC 091213A</b> Date Analyzed: 09/12/2013 0707h													
Test Code: 8260-W													
Benzene	20.6	µg/L	SW8260C	0.149	2.00	20.00	0	103	62 - 127				
Chloroform	20.8	µg/L	SW8260C	0.277	2.00	20.00	0	104	67 - 132				
Methylene chloride	22.1	µg/L	SW8260C	0.155	2.00	20.00	0	111	32 - 185				
Naphthalene	19.3	µg/L	SW8260C	0.547	2.00	20.00	0	96.6	28 - 136				
Tetrahydrofuran	16.2	µg/L	SW8260C	0.874	2.00	20.00	0	81.0	43 - 146				
Toluene	19.6	µg/L	SW8260C	0.429	2.00	20.00	0	97.9	64 - 129				
Xylenes, Total	60.7	µg/L	SW8260C	0.870	2.00	60.00	0	101	52 - 134				
Surr: 1,2-Dichloroethane-d4	53.0	µg/L	SW8260C			50.00		106	76 - 138				
Surr: 4-Bromofluorobenzene	46.9	µg/L	SW8260C			50.00		93.9	77 - 121				
Surr: Dibromofluoromethane	51.6	µg/L	SW8260C			50.00		103	67 - 128				
Surr: Toluene-d8	48.0	µg/L	SW8260C			50.00		95.9	81 - 135				



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## QC SUMMARY REPORT

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**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC 091113A</b>		Date Analyzed: 09/11/2013 0823h											
Test Code: 8260-W													
2-Butanone	< 20.0	µg/L	SW8260C	1.45	20.0								
Acetone	< 20.0	µg/L	SW8260C	3.35	20.0								
Benzene	< 1.00	µg/L	SW8260C	0.149	1.00								
Carbon tetrachloride	< 1.00	µg/L	SW8260C	0.137	1.00								
Chloroform	< 1.00	µg/L	SW8260C	0.277	1.00								
Chloromethane	< 1.00	µg/L	SW8260C	0.127	1.00								
Methylene chloride	< 1.00	µg/L	SW8260C	0.155	1.00								
Naphthalene	< 1.00	µg/L	SW8260C	0.547	1.00								
Tetrahydrofuran	< 1.00	µg/L	SW8260C	0.874	1.00								
Toluene	< 1.00	µg/L	SW8260C	0.429	1.00								
Xylenes, Total	< 1.00	µg/L	SW8260C	0.870	1.00								
Surr: 1,2-Dichloroethane-d4	56.7	µg/L	SW8260C			50.00		113	76 - 138				
Surr: 4-Bromofluorobenzene	46.0	µg/L	SW8260C			50.00		92.1	77 - 121				
Surr: Dibromofluoromethane	53.0	µg/L	SW8260C			50.00		106	67 - 128				
Surr: Toluene-d8	47.2	µg/L	SW8260C			50.00		94.4	81 - 135				

**Lab Sample ID: MB VOC 091213A** Date Analyzed: 09/12/2013 0745h  
Test Code: 8260-W

2-Butanone	< 20.0	µg/L	SW8260C	1.45	20.0								
Acetone	< 20.0	µg/L	SW8260C	3.35	20.0								
Benzene	< 1.00	µg/L	SW8260C	0.149	1.00								
Carbon tetrachloride	< 1.00	µg/L	SW8260C	0.137	1.00								
Chloroform	< 1.00	µg/L	SW8260C	0.277	1.00								
Chloromethane	< 1.00	µg/L	SW8260C	0.127	1.00								
Methylene chloride	< 1.00	µg/L	SW8260C	0.155	1.00								
Naphthalene	< 1.00	µg/L	SW8260C	0.547	1.00								
Tetrahydrofuran	< 1.00	µg/L	SW8260C	0.874	1.00								
Toluene	< 1.00	µg/L	SW8260C	0.429	1.00								
Xylenes, Total	< 1.00	µg/L	SW8260C	0.870	1.00								
Surr: 1,2-Dichloroethane-d4	55.3	µg/L	SW8260C			50.00		111	76 - 138				



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## QC SUMMARY REPORT

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**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: MB VOC 091213A</b>		Date Analyzed: 09/12/2013 0745h											
Test Code: 8260-W													
Surr: 4-Bromofluorobenzene	47.6	µg/L	SW8260C			50.00		95.2	77 - 121				
Surr: Dibromofluoromethane	52.7	µg/L	SW8260C			50.00		105	67 - 128				
Surr: Toluene-d8	46.9	µg/L	SW8260C			50.00		93.9	81 - 135				



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1309104-002BMS</b>		Date Analyzed: 09/11/2013 1534h											
<b>Test Code: 8260-W</b>													
Benzene	221	µg/L	SW8260C	1.49	20.0	200.0	0	110	66 - 145				
Chloroform	246	µg/L	SW8260C	2.77	20.0	200.0	21.7	112	50 - 146				
Methylene chloride	241	µg/L	SW8260C	1.55	20.0	200.0	0	121	30 - 192				
Naphthalene	232	µg/L	SW8260C	5.47	20.0	200.0	0	116	41 - 131				
Tetrahydrofuran	248	µg/L	SW8260C	8.74	20.0	200.0	0	124	43 - 146				
Toluene	200	µg/L	SW8260C	4.29	20.0	200.0	0	100	18 - 192				
Xylenes, Total	628	µg/L	SW8260C	8.70	20.0	600.0	0	105	42 - 167				
Surr: 1,2-Dichloroethane-d4	539	µg/L	SW8260C			500.0		108	72 - 151				
Surr: 4-Bromofluorobenzene	447	µg/L	SW8260C			500.0		89.4	80 - 128				
Surr: Dibromofluoromethane	514	µg/L	SW8260C			500.0		103	80 - 124				
Surr: Toluene-d8	446	µg/L	SW8260C			500.0		89.2	77 - 129				



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1309104  
**Project:** Annual Tailings 2013 Resample

**Contact:** Garrin Palmer  
**Dept:** MSVOA  
**QC Type:** MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
<b>Lab Sample ID: 1309104-002BMSD</b>		Date Analyzed: 09/11/2013 1553h											
<b>Test Code: 8260-W</b>													
Benzene	214	µg/L	SW8260C	1.49	20.0	200.0	0	107	66 - 145	221	3.36	25	
Chloroform	237	µg/L	SW8260C	2.77	20.0	200.0	21.7	108	50 - 146	246	3.69	25	
Methylene chloride	230	µg/L	SW8260C	1.55	20.0	200.0	0	115	30 - 192	241	4.75	25	
Naphthalene	226	µg/L	SW8260C	5.47	20.0	200.0	0	113	41 - 131	232	2.49	25	
Tetrahydrofuran	236	µg/L	SW8260C	8.74	20.0	200.0	0	118	43 - 146	248	5.13	25	
Toluene	194	µg/L	SW8260C	4.29	20.0	200.0	0	97.0	18 - 192	200	3.25	25	
Xylenes, Total	613	µg/L	SW8260C	8.70	20.0	600.0	0	102	42 - 167	628	2.48	25	
Surr: 1,2-Dichloroethane-d4	524	µg/L	SW8260C			500.0		105	72 - 151				
Surr: 4-Bromofluorobenzene	441	µg/L	SW8260C			500.0		88.2	80 - 128				
Surr: Dibromofluoromethane	498	µg/L	SW8260C			500.0		99.7	80 - 124				
Surr: Toluene-d8	441	µg/L	SW8260C			500.0		88.3	77 - 129				

## WORK ORDER Summary

 Work Order: **1309104** Page 1 of 1

**Client:** Energy Fuels Resources, Inc.

**Due Date:** 9/20/2013

**Client ID:** DEN100

**Contact:** Garrin Palmer

**Project:** Annual Tailings 2013 Resample

**QC Level:** III

**WO Type:** Project

**Comments:** QC 3 (Summary/No chromatograms). Use CAUTION when handling these samples. Project specific DL's: see COC. 8270 LIBRARY SEARCH: 4-Chlorophenol. EDD-Denison. Email Group. MS/MSD samples were collected on sample #2.;

*sh*

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1309104-001A	Cell 1	9/4/2013 1215h	9/6/2013 1200h	3510-SVOA-PR	Aqueous	<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
				<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>				
1309104-002A	Cell 3	9/4/2013 1230h	9/6/2013 1200h	3510-SVOA-PR	Aqueous	<input type="checkbox"/>	Walkin-Semi	4
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
				<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>				
1309104-002B				8260-W		<input checked="" type="checkbox"/>	VOC	3
				<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>				
1309104-003A	Cell 70	9/4/2013 1215h	9/6/2013 1200h	3510-SVOA-PR	Aqueous	<input type="checkbox"/>	Walkin-Semi	2
				8270-W		<input checked="" type="checkbox"/>	Walkin-Semi	
				<i>Test Group: 8270-W-Custom; # of Analytes: 63 / # of Surr: 6</i>				
1309104-004A	Trip Blank	9/4/2013	9/6/2013 1200h	8260-W	Aqueous	<input checked="" type="checkbox"/>	VOC	3
				<i>Test Group: 8260-W-Custom; # of Analytes: 11 / # of Surr: 4</i>				



**American West  
Analytical Laboratories**

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**CHAIN OF CUSTODY**

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1309104  
 AWAL Lab Sample Set #  
 Page 1 of 1

QC Level:				Turn Around Time:				Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.				Due Date:			
3				Standard											
1	2	3	4	5	6	7	8	9	10	11	12	<input checked="" type="checkbox"/> Include EDD: <b>LOCUS UPLOAD EXCEL</b> <input type="checkbox"/> Field Filtered For:	Laboratory Use Only		
													Samples Were: <i>Feed X</i> 1 Shipped and delivered 2 Ambient of <i>2.9</i> °C 3 Temperature <i>2.9</i> °C 4 Received Broken/Leaking (Improperly Sealed) Y <input type="checkbox"/> N <input checked="" type="checkbox"/> 5 Properly Preserved Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Checked at bench Y <input type="checkbox"/> N <input type="checkbox"/> 6 Received Within Holding Times Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
												For Compliance With: <input type="checkbox"/> NELAP <input type="checkbox"/> RCRA <input type="checkbox"/> CWA <input type="checkbox"/> SDWA <input type="checkbox"/> ELAP / A2LA <input type="checkbox"/> NLLAP <input type="checkbox"/> Non-Compliance <input type="checkbox"/> Other:		Known Hazards & Sample Comments	
Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	VOCs (8260C)	SVOC's									
1 Cell 1	9/4/2013	1215	2	w		x									
2 Cell 3	9/4/2013	1230	7	w	x	x	MS and MSD samples were					COC Tape Was:			
3 Cell 70	9/4/2013	1215	2	w		x	collected with the cell 3					1 Present on Outer Package Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>			
4 Trip Blank	9/4/2013		3	w	x		svoc samples.					2 Unbroken on Outer Package Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>			
5 Temp Blank							Please use caution handling					3 Present on Sample Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input type="checkbox"/>			
							samples. They are tailings					4 Unbroken on Sample Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input type="checkbox"/>			
							samples and are nasty.					Discrepancies Between Sample Labels and COC Record Y <input checked="" type="checkbox"/> N <input type="checkbox"/>			

Client: **Energy Fuels Resources, Inc.**  
 Address: **6425 S. Hwy. 191**  
**Blanding, UT 84511**  
 Contact: **Garrin Palmer**  
 Phone #: **(435) 678-2221** Cell #:  
**gpalmer@energyfuels.com; KWeincl@energyfuels.com;**  
**dturk@energyfuels.com**  
 Project Name: **Annual Tailings 2013 Resample**  
 Project #:  
 PO #:  
 Sampler Name: **Garrin Palmer**

Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	VOCs (8260C)	SVOC's							
1 Cell 1	9/4/2013	1215	2	w		x							
2 Cell 3	9/4/2013	1230	7	w	x	x	MS and MSD samples were					COC Tape Was:	
3 Cell 70	9/4/2013	1215	2	w		x	collected with the cell 3					1 Present on Outer Package Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>	
4 Trip Blank	9/4/2013		3	w	x		svoc samples.					2 Unbroken on Outer Package Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/>	
5 Temp Blank							Please use caution handling					3 Present on Sample Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input type="checkbox"/>	
							samples. They are tailings					4 Unbroken on Sample Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA <input type="checkbox"/>	
							samples and are nasty.					Discrepancies Between Sample Labels and COC Record Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	

Relinquished by: Signature: <i>Garrin Palmer</i>	Date: <i>9/5/13</i>	Received by: Signature: <i>[Signature]</i>	Date:	Special Instructions:
Print Name: <i>Garrin Palmer</i>	Time: <i>1200</i>	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature: <i>[Signature]</i>	Date: <i>9/6/13</i>	
Print Name:	Time:	Print Name: <i>Elma Hayes</i>	Time: <i>1200</i>	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	
Relinquished by: Signature:	Date:	Received by: Signature:	Date:	
Print Name:	Time:	Print Name:	Time:	

Tab D

Chemical and Radiological Summary Tables

**Cell 1**  
**Chemical and Radiological Characteristics**

Constituent	1987	2003 (Avg)	2007 (Avg)	2008	2009	2010	2011	2012	2013	2013 (resample)
<b>Major Ions (mg/l)</b>										
Carbonate	<5	<1	ND	ND	<1	<1	<1	<1	<1	NS
Bicarbonate	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS
Calcium	630	307	483.8	604	635	711	577	426	768	NS
Chloride	8000	6728	37340	9830	20700	7440	33800	78000	9900	NS
Fluoride	<100	3005	31.72	0.3	0.4	28.4	69.2	62.9	4130	NS
Magnesium	7900	5988	21220	6550	16200	5410	14300	16000	4470	NS
Nitrogen-Ammonia	7800	3353	10628	5250	15200	8120	12900	9750	3900	NS
Nitrogen-Nitrate	<100	41.8	269.4	64.9	142	58	212	556	128	NS
Potassium	NA	647	5698	1880	4140	1840	4510	9750	6580	NS
Sodium	10000	8638	62600	13200	39000	16700	29500	41700	15900	NS
Sulfate	190000	63667	287600	118000	232000	107000	182000	158000	100000	NS
pH (s.u.)	0.70	1.88	0.80	1.53	1.15	2.73	2.23	1.9	2.74	NS
TDS	120000	94700	357400	131000	140000	130000	216000	342000	149000	NS
Conductivity (umhos/cm)	NA	NA	NA	NA	365000	110000	112000	136000	94200	NS
<b>Metals (ug/l)</b>										
Arsenic	440000	121267	849000	271000	436000	74400	299000	25500	9800	NS
Beryllium	780	475	2262	500	410	338	1270	3180	415	NS
Cadmium	6600	3990	29320	8790	9120	2940	13700	30700	2380	NS
Chromium	13000	6365	29940	6760	18700	5620	22700	12100	8350	NS
Cobalt	120000	NA	88240	23500	97500	16200	56000	53100	25500	NS
Copper	740000	196667	881000	360000	168000	125000	483000	885000	544000	NS
Iron	3400000	2820000	13480000	3280000	2390000	3400000	8940000	840000	1420000	NS
Lead	<20000	3393	27420	11200	10600	9240	23600	17000	2810	NS
Manganese	140000	162500	990200	206000	723000	173000	735000	1560000	188000	NS
Mercury	NA	NA	ND	ND	7.61	7.2	61.4	117	6.16	NS
Molybdenum	240000	50550	415600	106000	142000	35300	235000	434000	16800	NS
Nickel	370000	36950	40860	32000	156000	27500	43700	15000	39100	NS
Selenium	<20000	1862	15420	13000	14800	5220	11600	8090	2690	NS
Silver	<5000	NA	1559.2	449	558	155	1110	4310	329	NS
Thallium	45000	NA	407.8	165	387	193	560	13	63.3	NS
Tin	<5000	NA	6512	1240	2290	263	1500	<100	<100	NS
Uranium	105000	134517	788600	416000	578000	159000	838000	1450000	140000	NS
Vanadium	280000	348000	2208200	1200000	773000	752000	2500000	1940000	98200	NS
Zinc	1300000	NA	642940	476000	229000	171000	398000	811000	228000	NS
<b>Radiologics (pCi/l)</b>										
Gross Alpha	NA	169333 <sup>1</sup>	29380	21900	16500	11300	3610	12600	32700	NS
<b>VOCS (ug/L)</b>										
Acetone	35	NA	66.5	110	710	260	80	310	41.1	NS
Benzene	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS
Carbon tetrachloride	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS
Chloroform	8	NA	6.7	6.6	16	4.9	13	19	7.62	NS
Chloromethane	NA	NA	ND	9.4	11	4.4	3.6	4.0	5	NS
MEK	NA	NA	ND	ND	120	65	<1	200	<20	NS
Methylene Chloride	11	NA	ND	ND	2.0	<1	<1	2	<1	NS
Naphthalene	<10000	NA	<10	ND	1.1	5.4	2	3	<1	NS
Tetrahydrofuran	NA	NA	150	<20	<100	<10	<500	2.9	<1	NS
Toluene	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS
Xylenes	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS
<b>SVOCS (ug/L)</b>										
1,2,4-Trichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
1,2-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
1,4-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
1-Methylnaphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2,4,5-Trichlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2,4,6-Trichlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2,4-Dichlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2,4-Dimethylphenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2,4-Dinitrophenol	NA	NA	NA	NA	<250	<20	<20	<20	<21.6	<20
2,4-Dinitrotoluene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10

**Cell 1**  
**Chemical and Radiological Characteristics**

Constituent	1987	2003 (Avg)	2007 (Avg)	2008	2009	2010	2011	2012	2013	2013 (resample)
<b>Major Ions (mg/l)</b>										
2,6-Dinitrotoluene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2-Chloronaphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2-Chlorophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2-Methylnaphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2-Methylphenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
2-Nitrophenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
3&4-Methylphenol	NA	NA	NA	NA	<22	<10	<10	<10	<10.8	<10
3,3'-Dichlorobenzidine	NA	NA	NA	NA	<100	<10	<10	<10	<10.8	<10
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	<250	<10	<10	<10	<10.8	<10
4-Bromophenyl phenyl ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
4-Chloro-3-methylphenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
4-Nitrophenol	NA	NA	NA	NA	<250	<10	<10	<10	<10.8	<10
Acenaphthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Acenaphthylene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Anthracene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Azobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Benz(a)anthracene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Benzidine	NA	NA	NA	NA	<100	<10	<10	<10	<10.8	<10
Benzo(a)pyrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Benzo(b)fluoranthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Benzo(g,h,i)perylene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Benzo(k)fluoranthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Bis(2-chloroethyl) ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Bis(2-chloroisopropyl) ether	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Bis(2-ethylhexyl) phthalate	NA	NA	NA	NA	<50	27	<10	<10	<10.8	<10
Butyl benzyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Chrysene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Dibenz(a,h)anthracene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Diethyl phthalate	NA	NA	NA	NA	170	<10	<10	<10	<10.8	<10
Dimethyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Di-n-butyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Di-n-octyl phthalate	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Fluoranthene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Fluorene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Hexachlorobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Hexachlorobutadiene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Hexachlorocyclopentadiene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Hexachloroethane	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Isophorone	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Naphthalene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Nitrobenzene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
N-Nitrosodimethylamine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
N-Nitrosodiphenylamine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Pentachlorophenol	NA	NA	NA	NA	<250	<10	<10	<10	<10.8	<10
Phenanthrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Phenol	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Pyrene	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10
Pyridine	NA	NA	NA	NA	<50	<10	<10	<10	<10.8	<10

<sup>1</sup> 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**

<b>Major Ions (mg/l)</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Carbonate	ND	ND	<1	<1	<1	<1	<1
Bicarbonate	ND	ND	<1	<1	<1	<1	<1
Calcium	572	528	508	496	474	462	465
Chloride	3700	3860	2750	3510	3110	3730	3270
Fluoride	3.3	ND	<0.1	2.4	2.1	1.32	161
Magnesium	4100	4030	3750	3790	3640	3760	3320
Nitrogen-Ammonia	4020	3620	3240	3820	2940	3540	1880
Nitrogen-Nitrate	30.9	20.3	38	126	38	27	47.2
Potassium	636	560	689	620	636	611	622
Sodium	4050	4600	4410	4770	4590	4380	3980
Sulfate	60600	74000	72200	63700	64200	58300	83700
pH (s.u.)	3.18	3.24	3.11	3.39	3.18	3.0	3.02
TDS	84300	74600	84100	79900	80200	83800	92200
Conductivity (umhos/cm)	NA	NA	88700	60200	51400	52900	51100
<b>Metals (ug/l)</b>							
Arsenic	26900	19300	14200	23500	17800	19400	21000
Beryllium	298	245	271	267	231	251	262
Cadmium	5500	5840	5510	6370	5580	5290	5780
Chromium	2750	2450	2230	2510	2380	2350	2290
Cobalt	46500	43800	38700	48200	42500	48700	44900
Copper	106000	154000	170000	148000	132000	138000	137000
Iron	2770000	3310000	3230000	2720000	2960000	2850000	2810000
Lead	566	528	403	586	501	619	515
Manganese	117000	130000	160000	144000	123000	141000	122000
Mercury	ND	ND	<0.5	<4	11.1	1.9	<0.5
Molybdenum	4080	3190	2240	4630	3510	3610	3650
Nickel	123000	122000	108000	126000	111000	125000	108000
Selenium	422	647	726	844	714	711	678
Silver	ND	ND	<10	<10	<10	<10	<10
Thallium	361	703	368	470	371	338	278
Tin	ND	ND	<100	<100	<100	<100	<100
Uranium	23000	29200	29900	30600	27100	33400	22800
Vanadium	409000	463000	536000	469000	454000	475000	452000
Zinc	767000	750000	582000	652000	574000	639000	631000
<b>Radiologics (pCi/l)</b>							
Gross Alpha	1290	1570	1580	1000	1230	1370 (2400)*	2270
<b>VOCS (ug/L)</b>							
Acetone	550	410	570	460	690	600	384
Benzene	ND	ND	<1	<1	<1	<1	<1
Carbon tetrachloride	ND	ND	<1	<1	<1	<1	<1
Chloroform	20	17	16	15	20	16	21.4
Chloromethane	1.8	ND	2.2	2.3	2	3	2.04
MEK	65	ND	100	83	130	100	95.5
Methylene Chloride	ND	ND	<1	<1	<1	<1	<1
Naphthalene	14	7.5	16	17	13	12	16.8
Tetrahydrofuran	15	NA	<100	<10	<10	3.2	3.98
Toluene	1.7	ND	2.6	2.6	3	2	3.23
Xylenes	1.5	ND	<1	2.2	<1	2	5.97
<b>SVOCS (ug/L)</b>							
1,2,4-Trichlorobenzene	NA	NA	<11	<10	<10	<10	<10
1,2-Dichlorobenzene	NA	NA	<11	<10	<10	<10	<10
1,3-Dichlorobenzene	NA	NA	<11	<10	<10	<10	<10
1,4-Dichlorobenzene	NA	NA	<11	<10	<10	<10	<10
1-Methylnaphthalene	NA	NA	<11	<10	<10	<10	<10
2,4,5-Trichlorophenol	NA	NA	<11	<10	<10	<10	<10
2,4,6-Trichlorophenol	NA	NA	<11	<10	<10	<10	<10
2,4-Dichlorophenol	NA	NA	<11	<10	<10	<10	<10
2,4-Dimethylphenol	NA	NA	<51	<20	<20	<10	<10
2,4-Dinitrophenol	NA	NA	<11	<10	<10	<20	<20
2,4-Dinitrotoluene	NA	NA	<11	<10	<10	<10	<10

**Cell 2 Slimes Drain**  
**Chemical and Radiological Characteristics**

Major Ions (mg/l)	2007	2008	2009	2010	2011	2012	2013
2,6-Dinitrotoluene	NA	NA	<11	<10	<10	<10	<10
2-Chloronaphthalene	NA	NA	<11	<10	<10	<10	<10
2-Chlorophenol	NA	NA	<11	<10	<10	<10	<10
2-Methylnaphthalene	NA	NA	<11	<10	<10	<10	<10
2-Methylphenol	NA	NA	<11	<10	<10	<10	<10
2-Nitrophenol	NA	NA	<11	<10	<10	<10	<10
3&4-Methylphenol	NA	NA	<21	<10	<10	<10	<10
3,3'-Dichlorobenzidine	NA	NA	<51	<10	<10	<10	<10
4,6-Dinitro-2-methylphenol	NA	NA	<11	<10	<10	<10	<10
4-Bromophenyl phenyl ether	NA	NA	<11	<10	<10	<10	<10
4-Chloro-3-methylphenol	NA	NA	<11	<10	<10	<10	<10
4-Chlorophenyl phenyl ether	NA	NA	<51	<10	<10	<10	<10
4-Nitrophenol	NA	NA	<11	<10	<10	<10	<10
Acenaphthene	NA	NA	<11	<10	<10	<10	<10
Acenaphthylene	NA	NA	<11	<10	<10	<10	<10
Anthracene	NA	NA	<11	<10	<10	<10	<10
Azobenzene	NA	NA	<11	<10	<10	<10	<10
Benz(a)anthracene	NA	NA	<21	<10	<10	<10	<10
Benzdine	NA	NA	<11	<10	<10	<10	<10
Benzo(a)pyrene	NA	NA	<11	<10	<10	<10	<10
Benzo(b)fluoranthene	NA	NA	<11	<10	<10	<10	<10
Benzo(g,h,i)perylene	NA	NA	<11	<10	<10	<10	<10
Benzo(k)fluoranthene	NA	NA	<11	<10	<10	<10	<10
Bis(2-chloroethoxy)methane	NA	NA	<11	<10	<10	<10	<10
Bis(2-chloroethyl) ether	NA	NA	<11	<10	<10	<10	<10
Bis(2-chloroisopropyl) ether	NA	NA	<11	<10	<10	<10	<10
Bis(2-ethylhexyl) phthalate	NA	NA	<11	<10	<10	<10	<10
Butyl benzyl phthalate	NA	NA	<11	<10	<10	<10	<10
Chrysene	NA	NA	<11	<10	<10	<10	<10
Dibenz(a,h)anthracene	NA	NA	<11	<10	<10	<10	<10
Diethyl phthalate	NA	NA	<11	<10	<10	<10	<10
Dimethyl phthalate	NA	NA	<11	<10	<10	<10	<10
Di-n-butyl phthalate	NA	NA	<11	<10	<10	<10	<10
Di-n-octyl phthalate	NA	NA	<11	<10	<10	<10	<10
Fluoranthene	NA	NA	<11	<10	<10	<10	<10
Fluorene	NA	NA	<11	<10	<10	<10	<10
Hexachlorobenzene	NA	NA	<11	<10	<10	<10	<10
Hexachlorobutadiene	NA	NA	<11	<10	<10	<10	<10
Hexachlorocyclopentadiene	NA	NA	<11	<10	<10	<10	<10
Hexachloroethane	NA	NA	<11	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	NA	NA	<11	<10	<10	<10	<10
Isophorone	NA	NA	<11	<10	<10	<10	<10
Naphthalene	NA	NA	<11	<10	<10	<10	<10
Nitrobenzene	NA	NA	<11	<10	<10	<10	<10
N-Nitrosodimethylamine	NA	NA	<11	<10	<10	<10	<10
N-Nitrosodi-n-propylamine	NA	NA	<11	<10	<10	<10	<10
N-Nitrosodiphenylamine	NA	NA	<51	<10	<10	<10	<10
Pentachlorophenol	NA	NA	<11	<10	<10	<10	<10
Phenanthrene	NA	NA	<11	<10	<10	<10	<10
Phenol	NA	NA	<11	10.7	<10	<10	<10
Pyrene	NA	NA	<11	<10	<10	<10	<10
Pyridine	NA	NA	<11	<10	<10	<10	<10

\* 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
<b>Major Ions (mg/l)</b>					
Carbonate	<1	<1	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	13.0			
Sodium	412	318			
Sulfate	2700	1780			
pH (s.u.)	6.60	7.36			
TDS	6750	5310			
Conductivity (umhos/cm)	11000	6500			
<b>Metals (ug/l)</b>					
Arsenic	<5	<5	Not Sampled	Not Sampled	Not Sampled
Beryllium	<0.50	<0.50			
Cadmium	33.4	1.10			
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			
<b>Radiologics (pCi/l)</b>					
Gross Alpha	13.5	7.3	Not Sampled	Not Sampled	Not Sampled
<b>VOCS (ug/L)</b>					
Acetone	<20	<20	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			
<b>SVOCS (ug/L)</b>					
1,2,4-Trichlorobenzene	NA	<10	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			

**Cell 2 LDS**  
**Chemical and Radiological Characteristics**

Constituent	2009	2010	2011	2012	2013
<b>Major Ions (mg/l)</b>					
2,4-Dinitrotoluene	NA	<10	Not Sampled	Not Sampled	Not Sampled
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			
4-Chloro-3-methylphenol	NA	<10			
4-Chlorophenyl phenyl ether	NA	<10			
4-Nitrophenol	NA	<10			
Acenaphthene	NA	<10			
Acenaphthylene	NA	<10			
Anthracene	NA	<10			
Azobenzene	NA	<10			
Benz(a)anthracene	NA	<10			
Benzidine	NA	<10			
Benzo(a)pyrene	NA	<10			
Benzo(b)fluoranthene	NA	<10			
Benzo(g,h,i)perylene	NA	<10			
Benzo(k)fluoranthene	NA	<10			
Bis(2-chloroethoxy)methane	NA	<10			
Bis(2-chloroethyl) ether	NA	<10			
Bis(2-chloroisopropyl) ether	NA	<10			
Bis(2-ethylhexyl) phthalate	NA	<10			
Butyl benzyl phthalate	NA	<10			
Chrysene	NA	<10			
Dibenz(a,h)anthracene	NA	<10			
Diethyl phthalate	NA	<10			
Dimethyl phthalate	NA	<10			
Di-n-butyl phthalate	NA	<10			
Di-n-octyl phthalate	NA	<10			
Fluoranthene	NA	<10			
Fluorene	NA	<10			
Hexachlorobenzene	NA	<10			
Hexachlorobutadiene	NA	<10			
Hexachlorocyclopentadiene	NA	<10			
Hexachloroethane	NA	<10			
Indeno(1,2,3-cd)pyrene	NA	<10			
Isophorone	NA	<10			
Naphthalene	NA	<10			
Nitrobenzene	NA	<10			
N-Nitrosodimethylamine	NA	<10			
N-Nitrosodi-n-propylamine	NA	<10			
N-Nitrosodiphenylamine	NA	<10			
Pentachlorophenol	NA	<10			
Phenanthrene	NA	<10			
Phenol	NA	<10			
Pyrene	NA	<10			
Pyridine	NA	<10			

**Cell 3**  
**Chemical and Radiological Characteristics**

Constituent	1987	2003 (Avg)	2007 (Avg)	2008	2009	2010	2011	2012	2013	2013 (resample)
<b>Major Ions (mg/l)</b>										
Carbonate	NA	<1	ND	ND	<1	<1	<1	<1	<1	NS
Bicarbonate	<5	NA	ND	ND	<1	<1	<1	<1	<1	NS
Calcium	300	418	887	478	628	560	200	591	586	NS
Chloride	NA	2460	15965	15400	17200	3470	40400	8880	38400	NS
Fluoride	<100	667	42.8	1.4	0.6	54.8	64.1	2300	12400	NS
Magnesium	5400	3386	15767	13100	17100	2500	22100	5680	15400	NS
Nitrogen-Ammonia	13900	1302	13867	9010	21600	2650	6470	6840	100	NS
Nitrogen-Nitrate	<100	20	102	44	142	26	261	64	277	NS
Potassium	NA	254	6657	4760	3820	782	2590	1190	2110	NS
Sodium	5900	3198	25583	22900	28600	5620	47900	6660	34400	NS
Sulfate	180000	33400	173667	167000	214000	40400	197000	80000	440000	NS
pH (s.u.)	0.82	2.28	1.60	1.79	1.4	2.18	1.27	2.4	1.05	NS
TDS	189000	51633	228500	193000	243000	56200	296000	120000	410000	NS
Conductivity (umhos/cm)	NA	NA	NA	NA	304000	59800	86400	80300	84300	NS
<b>Metals (ug/l)</b>										
Arsenic	163000	32867	256500	489000	ND	52900	263000	4340	66000	NS
Beryllium	540	430	913	840	905	206	1570	678	2570	NS
Cadmium	2600	1958	9260	15400	ND	1960	12200	3460	24000	NS
Chromium	12000	3742	14883	12800	ND	3360	22800	10900	30600	NS
Cobalt	48000	NA	82783	57000	ND	13000	76000	76100	99700	NS
Copper	360000	87333	505000	345000	ND	89000	768000	379000	954000	NS
Iron	2100000	1278333	4874500	4400000	5970000	1460000	1.02E+7	3400000	9700000	NS
Lead	<20000	2507	9647	16900	ND	17200	16700	1860	14400	NS
Manganese	82000	144000	496833	313000	ND	101000	587000	3110000	2470000	NS
Mercury	ND	NA	ND	16	ND	<4	30.9	9.6	21.6	NS
Molybdenum	52000	12250	122167	209000	14	21300	96200	790	56100	NS
Nickel	170000	20917	131833	241000	ND	23800	75800	150000	122000	NS
Selenium	<2000	910	5856	10200	ND	3080	6900	2460	7060	NS
Silver	<2500	NA	305	1010	ND	101	792	1850	3380	NS
Thallium	4700	NA	446	1200	ND	190	518	1080	694	NS
Tin	NA	NA	1090	1070	ND	155	325	<100	<100	NS
Uranium	118000	67833	332333	636000	3690	180000	458000	835000	1200000	NS
Vanadium	210000	158333	935000	1130000	ND	692000	2370000	836000	3220000	NS
Zinc	590000	NA	748833	515000	ND	134000	726000	652000	1430000	NS
<b>Radiologics (pCi/l)</b>										
Gross Alpha	NA	101583 <sup>1</sup>	16533	21700	17000	4030	11100	1530	81900	NS
<b>VOCS (ug/L)</b>										
Acetone	28	NA	80	100	67	37	330	64	302	159
Benzene	<5	NA	ND	ND	<1	<1	<1	<1	<5	<1
Carbon tetrachloride	<5	NA	ND	ND	<1	<1	<1	<1	<5	<1
Chloroform	6	NA	ND	11	4.2	2.6	31	2	56.3	21
Chloromethane	NA	NA	ND	ND	1.4	1.8	3.5	1	<5	2.58
MEK	NA	NA	ND	ND	<1	<1	67	<20	<100	24.5
Methylene Chloride	10	NA	ND	ND	<1	<1	7.4	<1	6.95	<1
Naphthalene	<10000	NA	ND	<10	<1	2.1	1.2	<1	<5	<1
Tetrahydrofuran	NA	NA	150	<20	<100	<10	<10	<1	<5	<1
Toluene	<5	NA	ND	ND	<1	<1	<1	<1	<5	<1
Xylenes	<5	NA	ND	ND	<1	<1	<1	<1	<5	<1
<b>SVOCS (ug/L)</b>										
1,2,4-Trichlorobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
1,2-Dichlorobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
1,4-Dichlorobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
1-Methylnaphthalene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2,4,5-Trichlorophenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2,4,6-Trichlorophenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2,4-Dichlorophenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2,4-Dimethylphenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2,4-Dinitrophenol	NA	NA	NA	NA	<53	<20	<20	<20	<21.1	<20
2,4-Dinitrotoluene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10

**Cell 3**  
**Chemical and Radiological Characteristics**

Constituent	1987	2003 (Avg)	2007 (Avg)	2008	2009	2010	2011	2012	2013	2013 (resample)
<b>Major Ions (mg/l)</b>										
2,6-Dinitrotoluene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2-Chloronaphthalene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2-Chlorophenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2-Methylnaphthalene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2-Methylphenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
2-Nitrophenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
3&4-Methylphenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
3,3'-Dichlorobenzidine	NA	NA	NA	NA	<21	<10	<10	<10	<10.5	<10
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	<53	<10	<10	<10	<10.5	<10
4-Bromophenyl phenyl ether	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
4-Chloro-3-methylphenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
4-Nitrophenol	NA	NA	NA	NA	<53	<10	<10	<10	<10.5	<10
Acenaphthene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Acenaphthylene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Anthracene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Azobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Benz(a)anthracene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Benzidine	NA	NA	NA	NA	<21	<10	<10	<10	<10.5	<10
Benzo(a)pyrene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Benzo(b)fluoranthene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Benzo(g,h,i)perylene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Benzo(k)fluoranthene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Bis(2-chloroethyl) ether	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Bis(2-chloroisopropyl) ether	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Bis(2-ethylhexyl) phthalate	NA	NA	NA	NA	<11	10.6	<10	<10	<10.5	<10
Butyl benzyl phthalate	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Chrysene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Dibenz(a,h)anthracene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Diethyl phthalate	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Dimethyl phthalate	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Di-n-butyl phthalate	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Di-n-octyl phthalate	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Fluoranthene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Fluorene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Hexachlorobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Hexachlorobutadiene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Hexachlorocyclopentadiene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Hexachloroethane	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Isophorone	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Naphthalene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Nitrobenzene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
N-Nitrosodimethylamine	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
N-Nitrosodiphenylamine	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Pentachlorophenol	NA	NA	NA	NA	<53	<10	<10	<10	<10.5	<10
Phenanthrene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Phenol	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Pyrene	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10
Pyridine	NA	NA	NA	NA	<11	<10	<10	<10	<10.5	<10

<sup>1</sup> 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**

<b>Constituent</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Major Ions (mg/l)</b>					
Carbonate	<1	<1	<1	<1	<1
Bicarbonate	<1	<1	<1	<1	<1
Calcium	627	598	558	591	668
Chloride	4650	7350	5870	4980	4530
Fluoride	0.3	21.6	30.6	43	1130
Magnesium	3250	4940	4720	2230	3660
Nitrogen-Ammonia	3140	5230	4930	1540	1340
Nitrogen-Nitrate	28	52	44	27	38.2
Potassium	980	1440	1450	558	773
Sodium	5980	11300	11400	7130	6860
Sulfate	67600	87100	267000	64900	83300
pH (s.u.)	1.40	1.99	1.73	1.2	1.47
TDS	81400	107000	108000	76000	90000
Conductivity (umhos/cm)	131000	101000	82100	78100	66300
<b>Metals (ug/l)</b>					
Arsenic	626000	109000	86600	60500	73700
Beryllium	296	215	323	167	247
Cadmium	1920	3670	2190	844	1450
Chromium	3220	7500	5900	5990	5220
Cobalt	9440	26500	22500	22900	22900
Copper	99200	168000	181000	433000	540000
Iron	2360000	2920000	3390000	3190000	2620000
Lead	5360	11800	11000	5270	11500
Manganese	178000	209000	131000	112000	143000
Mercury	1.19	<4	15.2	2.4	0.786
Molybdenum	24300	43800	24200	58200	25500
Nickel	17100	40900	43500	41300	43300
Selenium	4620	5810	4460	1310	2080
Silver	78	193	216	127	144
Thallium	162	350	410	250	256
Tin	257	378	319	169	118
Uranium	118000	217000	153000	91000	112000
Vanadium	918000	1090000	730000	237000	461000
Zinc	142000	224000	286000	200000	183000
<b>Radiologics (pCi/l)</b>					
Gross Alpha	8910	3400	8290	16300	15800
<b>VOCS (ug/L)</b>					
Acetone	60	55	100	25	28.4
Benzene	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Chloroform	4.0	8.5	10	<1	<1
Chloromethane	3.4	5.5	7.9	<1	<1
MEK	<1	<1	<1	<1	<20
Methylene Chloride	<1	<1	<1	<20	<1
Naphthalene	1.8	<1	<1	<1	<1
Tetrahydrofuran	<100	<10	<10	1.36	<1
Toluene	<1	<1	<1	<1	<1
Xylenes	<1	<1	<1	<1	<1
<b>SVOCS (ug/L)</b>					
1,2,4-Trichlorobenzene	<11	<10	<10	<10	<10
1,2-Dichlorobenzene	<11	<10	<10	<10	<10
1,3-Dichlorobenzene	<11	<10	<10	<10	<10
1,4-Dichlorobenzene	<11	<10	<10	<10	<10
1-Methylnaphthalene	<11	<10	<10	<10	<10
2,4,5-Trichlorophenol	<11	<10	<10	<10	<10
2,4,6-Trichlorophenol	<11	<10	<10	<10	<10
2,4-Dichlorophenol	<11	<10	<10	<10	<10
2,4-Dimethylphenol	<11	<10	<10	<10	<10
2,4-Dinitrophenol	<53	<20	<20	<20	<20
2,4-Dinitrotoluene	<11	<10	<10	<10	<10
2,6-Dinitrotoluene	<11	<10	<10	<10	<10
2-Chloronaphthalene	<11	<10	<10	<10	<10

**Cell 4A**  
**Chemical and Radiological Characteristics**

<b>Constituent</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Major Ions (mg/l)</b>					
2-Chlorophenol	<11	<10	<10	<10	<10
2-Methylnaphthalene	<11	<10	<10	<10	<10
2-Methylphenol	<11	<10	<10	<10	<10
2-Nitrophenol	<11	<10	<10	<10	<10
3&4-Methylphenol	<11	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<21	<10	<10	<10	<10
4,6-Dinitro-2-methylphenol	<53	<10	<10	<10	<10
4-Bromophenyl phenyl ether	<11	<10	<10	<10	<10
4-Chloro-3-methylphenol	<11	<10	<10	<10	<10
4-Chlorophenyl phenyl ether	<11	<10	<10	<10	<10
4-Nitrophenol	<53	<10	<10	<10	<10
Acenaphthene	<11	<10	<10	<10	<10
Acenaphthylene	<11	<10	<10	<10	<10
Anthracene	<11	<10	<10	<10	<10
Azobenzene	<11	<10	<10	<10	<10
Benz(a)anthracene	<11	<10	<10	<10	<10
Benzidine	<21	<10	<10	<10	<10
Benzo(a)pyrene	<11	<10	<10	<10	<10
Benzo(b)fluoranthene	<11	<10	<10	<10	<10
Benzo(g,h,i)perylene	<11	<10	<10	<10	<10
Benzo(k)fluoranthene	<11	<10	<10	<10	<10
Bis(2-chloroethoxy)methane	<11	<10	<10	<10	<10
Bis(2-chloroethyl) ether	<11	<10	<10	<10	<10
Bis(2-chloroisopropyl) ether	<11	<10	<10	<10	<10
Bis(2-ethylhexyl) phthalate	<11	19.6	<10	<10	<10
Butyl benzyl phthalate	<11	<10	<10	<10	<10
Chrysene	<11	<10	<10	<10	<10
Dibenz(a,h)anthracene	<11	<10	<10	<10	<10
Diethyl phthalate	<11	<10	<10	<10	<10
Dimethyl phthalate	<11	<10	<10	<10	<10
Di-n-butyl phthalate	<11	<10	<10	<10	<10
Di-n-octyl phthalate	<11	<10	<10	<10	<10
Fluoranthene	<11	<10	<10	<10	<10
Fluorene	<11	<10	<10	<10	<10
Hexachlorobenzene	<11	<10	<10	<10	<10
Hexachlorobutadiene	<11	<10	<10	<10	<10
Hexachlorocyclopentadiene	<11	<10	<10	<10	<10
Hexachloroethane	<11	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<11	<10	<10	<10	<10
Isophorone	<11	<10	<10	<10	<10
Naphthalene	<11	<10	<10	<10	<10
Nitrobenzene	<11	<10	<10	<10	<10
N-Nitrosodimethylamine	<11	<10	<10	<10	<10
N-Nitrosodi-n-propylamine	<11	<10	<10	<10	<10
N-Nitrosodiphenylamine	<11	<10	<10	<10	<10
Pentachlorophenol	<53	<10	<10	<10	<10
Phenanthrene	<11	<10	<10	<10	<10
Phenol	<11	<10	<10	<10	<10
Pyrene	<11	<10	<10	<10	<10
Pyridine	<11	<10	<10	<10	<10

**Cell 4A LDS**  
**Chemical and Radiological Characteristics**

Constituent	2009	2010	2011	2012	2013
<b>Major Ions (mg/l)</b>					
Carbonate	<1	<1	<1	<1	<1
Bicarbonate	<1	<1	<1	<1	<1
Calcium	558	474	470	453	429
Chloride	7570	4670	6040	2710	1910
Fluoride	0.7	39.4	46	27	1970
Magnesium	6390	3240	5100	2070	1710
Nitrogen-Ammonia	4480	2290	3480	1320	1010
Nitrogen-Nitrate	69	183	94	15	28.9
Potassium	1960	934	1500	503	305
Sodium	12600	6700	11000	3500	2930
Sulfate	92400	41700	77400	39600	31400
pH (s.u.)	1.98	2.53	2.32	2.1	2.32
TDS	117000	56900	93800	55400	49700
Conductivity (umhos/cm)	150000	49000	66600	39600	31300
<b>Metals (ug/l)</b>					
Arsenic	133000	54000	74700	44100	35700
Beryllium	536	295	367	180	188
Cadmium	4010	2650	3160	921	1170
Chromium	9140	3890	5940	3930	2630
Cobalt	37300	15200	21700	22300	44300
Copper	222000	116000	150000	481000	754000
Iron	3940000	1420000	2530000	2460000	1370000
Lead	5270	3400	4520	2300	165
Manganese	389000	157000	207000	95200	86300
Mercury	2.66	6.2	14.7	0.7	<0.5
Molybdenum	49200	23900	29300	10200	1200
Nickel	43900	23900	29600	35000	54600
Selenium	5250	2820	3780	1260	1020
Silver	204	62	127	44	24.8
Thallium	252	194	290	332	171
Tin	504	180	119	<100	<100
Uranium	284000	145000	168000	90200	75000
Vanadium	1150000	518000	770000	240000	157000
Zinc	298000	152000	204000	181000	163000
<b>Radiologics (pCi/l)</b>					
Gross Alpha	7020	3230	7440	4730	6930
<b>VOCS (ug/L)</b>					
Acetone	240	130	120	55	57
Benzene	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1
Chloroform	23	52	26	42	110
Chloromethane	7.9	13	3.8	6	9.93
MEK	78	50	82	36	<20
Methylene Chloride	<1	<1	<1	<1	<1
Naphthalene	<1	1.5	<1	1	2.35
Tetrahydrofuran	140	158	102	117	39.1
Toluene	<1	<1	<1	<1	<1
Xylenes	<1	<1	<1	<1	<1
<b>SVOCS (ug/L)</b>					
1,2,4-Trichlorobenzene	<11	<10	<10	<10	<10
1,2-Dichlorobenzene	<11	<10	<10	<10	<10
1,3-Dichlorobenzene	<11	<10	<10	<10	<10
1,4-Dichlorobenzene	<11	<10	<10	<10	<10
1-Methylnaphthalene	<11	<10	<10	<10	<10
2,4,5-Trichlorophenol	<11	<10	<10	<10	<10
2,4,6-Trichlorophenol	<11	<10	<10	<10	<10
2,4-Dichlorophenol	<11	<10	<10	<10	<10
2,4-Dimethylphenol	<11	<10	<10	<10	<10

**Cell 4A LDS**  
**Chemical and Radiological Characteristics**

<b>Constituent</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Major Ions (mg/l)</b>					
2,4-Dinitrophenol	<54	<20	<20	<20	<20
2,4-Dinitrotoluene	<11	<10	<10	<10	<10
2,6-Dinitrotoluene	<11	<10	<10	<10	<10
2-Chloronaphthalene	<11	<10	<10	<10	<10
2-Chlorophenol	<11	<10	<10	<10	<10
2-Methylnaphthalene	<11	<10	<10	<10	<10
2-Methylphenol	<11	<10	<10	<10	<10
2-Nitrophenol	<11	<10	<10	<10	<10
3&4-Methylphenol	<11	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<22	<10	<10	<10	<10
4,6-Dinitro-2-methylphenol	<54	<10	<10	<10	<10
4-Bromophenyl phenyl ether	<11	<10	<10	<10	<10
4-Chloro-3-methylphenol	<11	<10	<10	<10	<10
4-Chlorophenyl phenyl ether	<11	<10	<10	<10	<10
4-Nitrophenol	<54	<10	<10	<10	<10
Acenaphthene	<11	<10	<10	<10	<10
Acenaphthylene	<11	<10	<10	<10	<10
Anthracene	<11	<10	<10	<10	<10
Azobenzene	<11	<10	<10	<10	<10
Benz(a)anthracene	<11	<10	<10	<10	<10
Benzidine	<22	<10	<10	<10	<10
Benzo(a)pyrene	<11	<10	<10	<10	<10
Benzo(b)fluoranthene	<11	<10	<10	<10	<10
Benzo(g,h,i)perylene	<11	<10	<10	<10	<10
Benzo(k)fluoranthene	<11	<10	<10	<10	<10
Bis(2-chloroethoxy)methane	<11	<10	<10	<10	<10
Bis(2-chloroethyl) ether	<11	<10	<10	<10	<10
Bis(2-chloroisopropyl) ether	<11	<10	<10	<10	<10
Bis(2-ethylhexyl) phthalate	<11	54.9	54.9	16.6	<10
Butyl benzyl phthalate	<11	<10	<10	<10	<10
Chrysene	<11	<10	<10	<10	<10
Dibenz(a,h)anthracene	<11	<10	<10	<10	<10
Diethyl phthalate	<11	<10	<10	<10	<10
Dimethyl phthalate	<11	<10	<10	<10	<10
Di-n-butyl phthalate	<11	<10	<10	<10	<10
Di-n-octyl phthalate	<11	<10	<10	<10	<10
Fluoranthene	<11	<10	<10	<10	<10
Fluorene	<11	<10	<10	<10	<10
Hexachlorobenzene	<11	<10	<10	<10	<10
Hexachlorobutadiene	<11	<10	<10	<10	<10
Hexachlorocyclopentadiene	<11	<10	<10	<10	<10
Hexachloroethane	<11	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<11	<10	<10	<10	<10
Isophorone	<11	<10	<10	<10	<10
Naphthalene	<11	<10	<10	<10	<10
Nitrobenzene	<11	<10	<10	<10	<10
N-Nitrosodimethylamine	<11	<10	<10	<10	<10
N-Nitrosodi-n-propylamine	<11	<10	<10	<10	<10
N-Nitrosodiphenylamine	<11	<10	<10	<10	<10
Pentachlorophenol	<54	<10	<10	<10	<10
Phenanthrene	<11	<10	<10	<10	<10
Phenol	33	23.5	<10	<10	<10
Pyrene	<11	<10	<10	<10	<10
Pyridine	<11	<10	<10	<10	<10

**Cell 4B**

**Chemical and Radiological Characteristics**

<b>Constituent</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Major Ions (mg/l)</b>			
Carbonate	<1	<1	<1
Bicarbonate	<1	<1	<1
Calcium	570	580	662
Chloride	8290	8170	4570
Fluoride	26.7	23.3	1050
Magnesium	3910	4500	3560
Nitrogen-Ammonia	5220	5580	2060
Nitrogen-Nitrate	39	42	51.4
Potassium	1370	1650	1110
Sodium	9050	11700	3150
Sulfate	134000	119000	98100
pH (s.u.)	1.87	1.5	1.65
TDS	98000	128000	108000
Conductivity (umhos/cm)	76900	86900	72800
<b>Metals (ug/l)</b>			
Arsenic	67400	80000	65400
Beryllium	311	356	334
Cadmium	1990	2540	1990
Chromium	6860	8280	6390
Cobalt	17800	29300	21300
Copper	193000	340000	340000
Iron	2960000	3580000	2830000
Lead	9960	11600	9820
Manganese	128000	148000	154000
Mercury	13.7	2.6	1.49
Molybdenum	21400	27600	26100
Nickel	33900	50500	35100
Selenium	4670	4470	3900
Silver	137	169	137
Thallium	237	368	243
Tin	196	215	163
Uranium	133000	171000	110000
Vanadium	660000	783000	163000
Zinc	191000	270000	184000
<b>Radiologies (pCi/l)</b>			
Gross Alpha	8590	13600	14600
<b>VOCS (ug/L)</b>			
Acetone	130	94	43.5
Benzene	<1	<1	<1
Carbon tetrachloride	<1	<1	<1
Chloroform	9.4	4	8.06
Chloromethane	8.5	8	7.12
MEK	<1	<1	<20
Methylene Chloride	<1	<1	<1
Naphthalene	<1	<1	<1
Tetrahydrofuran	<10	11.1	<1
Toluene	<1	<1	<1
Xylenes	<1	<1	<1
<b>SVOCS (ug/L)</b>			
1,2,4-Trichlorobenzene	<10	<10	<10
1,2-Dichlorobenzene	<10	<10	<10
1,3-Dichlorobenzene	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10
1-Methylnaphthalene	<10	<10	<10
2,4,5-Trichlorophenol	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10
2,4-Dichlorophenol	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10
2,4-Dinitrophenol	<20	<20	<20
2,4-Dinitrotoluene	<10	<10	<10

Cell 4B

Chemical and Radiological Characteristics

Constituent	2011	2012	2013
<b>Major Ions (mg/l)</b>			
2,6-Dinitrotoluene	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10
2-Chlorophenol	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10
2-Methylphenol	<10	<10	<10
2-Nitrophenol	<10	<10	<10
3&4-Methylphenol	<10	<10	<10
3,3'-Dichlorobenzidine	<10	<10	<10
4,6-Dinitro-2-methylphenol	<10	<10	<10
4-Bromophenyl phenyl ether	<10	<10	<10
4-Chloro-3-methylphenol	<10	<10	<10
4-Chlorophenyl phenyl ether	<10	<10	<10
4-Nitrophenol	<10	<10	<10
Acenaphthene	<10	<10	<10
Acenaphthylene	<10	<10	<10
Anthracene	<10	<10	<10
Azobenzene	<10	<10	<10
Benz(a)anthracene	<10	<10	<10
Benzidine	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10
Bis(2-chloroethoxy)methane	<10	<10	<10
Bis(2-chloroethyl) ether	<10	<10	<10
Bis(2-chloroisopropyl) ether	<10	<10	<10
Bis(2-ethylhexyl) phthalate	410	19	<10
Butyl benzyl phthalate	<10	<10	<10
Chrysene	<10	<10	<10
Dibenz(a,h)anthracene	<10	<10	<10
Diethyl phthalate	<10	<10	<10
Dimethyl phthalate	<10	<10	<10
Di-n-butyl phthalate	<10	<10	<10
Di-n-octyl phthalate	<10	<10	<10
Fluoranthene	<10	<10	<10
Fluorene	<10	<10	<10
Hexachlorobenzene	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10
Hexachlorocyclopentadiene	<10	<10	<10
Hexachloroethane	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10
Isophorone	<10	<10	<10
Naphthalene	<10	<10	<10
Nitrobenzene	<10	<10	<10
N-Nitrosodimethylamine	<10	<10	<10
N-Nitrosodi-n-propylamine	<10	<10	<10
N-Nitrosodiphenylamine	<10	<10	<10
Pentachlorophenol	<10	<10	<10
Phenanthrene	<10	<10	<10
Phenol	<10	<10	<10
Pyrene	<10	<10	<10
Pyridine	<10	<10	<10

**Cell 4B LDS**  
**Chemical and Radiological Characteristics**

Constituent	2011	2012	2013
<b>Major Ions (mg/l)</b>			
Carbonate	<1	<1	Not Sampled - dry
Bicarbonate	<1	<1	
Calcium	486	456	
Chloride	3630	6850	
Fluoride	28.4	22	
Magnesium	3230	3360	
Nitrogen-Ammonia	4260	4090	
Nitrogen-Nitrate	30	31	
Potassium	1130	1060	
Sodium	8240	8080	
Sulfate	59900	99100	
pH (s.u.)	2.23	2.4	
TDS	85800	90200	
Conductivity (umhos/cm)	63000	62400	
<b>Metals (ug/l)</b>			
Arsenic	54200	41200	Not Sampled - dry
Beryllium	274	271	
Cadmium	1670	1740	
Chromium	6250	5930	
Cobalt	15600	19000	
Copper	176000	181000	
Iron	2450000	2120000	
Lead	6060	4420	
Manganese	118000	162000	
Mercury	12.3	3	
Molybdenum	16700	15000	
Nickel	30700	33700	
Selenium	3710	2880	
Silver	111	117	
Thallium	179	175	
Tin	332	<100	
Uranium	111000	132000	
Vanadium	518000	428000	
Zinc	172000	182000	
<b>Radiologics (pCi/l)</b>			
Gross Alpha	6000	7500	Not Sampled - dry
<b>VOCS (ug/L)</b>			
Acetone	390	370	Not Sampled - dry
Benzene	<1	<1	
Carbon tetrachloride	<1	<1	
Chloroform	20	19	
Chloromethane	11	11	
MEK	240	180	
Methylene Chloride	<1	<1	
Naphthalene	<1	<1	
Tetrahydrofuran	198	322	
Toluene	<1	<1	
Xylenes	<1	<1	
<b>SVOCS (ug/L)</b>			
1,2,4-Trichlorobenzene	<10	<10	Not Sampled - dry
1,2-Dichlorobenzene	<10	<10	
1,3-Dichlorobenzene	<10	<10	
1,4-Dichlorobenzene	<10	<10	
1-Methylnaphthalene	<10	<10	
2,4,5-Trichlorophenol	<10	<10	
2,4,6-Trichlorophenol	<10	<10	
2,4-Dichlorophenol	<10	<10	
2,4-Dimethylphenol	<10	<10	
2,4-Dinitrophenol	<20	<20	
2,4-Dinitrotoluene	<10	<10	
2,6-Dinitrotoluene	<10	<10	

**Cell 4B LDS**  
**Chemical and Radiological Characteristics**

Constituent	2011	2012	2013
<b>Major Ions (mg/l)</b>			
2-Chloronaphthalene	<10	<10	Not Sampled - dry
2-Chlorophenol	<10	<10	
2-Methylnaphthalene	<10	<10	
2-Methylphenol	<10	<10	
2-Nitrophenol	<10	<10	
3&4-Methylphenol	<10	<10	
3,3'-Dichlorobenzidine	<10	<10	
4,6-Dinitro-2-methylphenol	<10	<10	
4-Bromophenyl phenyl ether	<10	<10	
4-Chloro-3-methylphenol	<10	<10	
4-Chlorophenyl phenyl ether	<10	<10	
4-Nitrophenol	<10	<10	
Acenaphthene	<10	<10	
Acenaphthylene	<10	<10	
Anthracene	<10	<10	
Azobenzene	<10	<10	
Benz(a)anthracene	<10	<10	
Benzidine	<10	<10	
Benzo(a)pyrene	<10	<10	
Benzo(b)fluoranthene	<10	<10	
Benzo(g,h,i)perylene	<10	<10	
Benzo(k)fluoranthene	<10	<10	
Bis(2-chloroethoxy)methane	<10	<10	
Bis(2-chloroethyl) ether	<10	<10	
Bis(2-chloroisopropyl) ether	<10	<10	
Bis(2-ethylhexyl) phthalate	191	191	
Butyl benzyl phthalate	<10	<10	
Chrysene	<10	<10	
Dibenz(a,h)anthracene	<10	<10	
Diethyl phthalate	<10	<10	
Dimethyl phthalate	<10	<10	
Di-n-butyl phthalate	<10	<10	
Di-n-octyl phthalate	<10	<10	
Fluoranthene	<10	<10	
Fluorene	<10	<10	
Hexachlorobenzene	<10	<10	
Hexachlorobutadiene	<10	<10	
Hexachlorocyclopentadiene	<10	<10	
Hexachloroethane	<10	<10	
Indeno(1,2,3-cd)pyrene	<10	<10	
Isophorone	<10	<10	
Naphthalene	<10	<10	
Nitrobenzene	<10	<10	
N-Nitrosodimethylamine	<10	<10	
N-Nitrosodi-n-propylamine	<10	<10	
N-Nitrosodiphenylamine	<10	<10	
Pentachlorophenol	<10	<10	
Phenanthrene	<10	<10	
Phenol	<10	<10	
Pyrene	<10	<10	
Pyridine	<10	<10	

**1980 – 2003 IUC/NRC Tailings Wastewater Samples\*<sup>1</sup>**

<b>Constituent</b>	<b>Minimum</b>	<b>Maximum</b>
pH (Std units)	0.7	2.33
<b>Nutrients (mg/L)</b>		
Ammonia (N)	3.0	13900
Nitrite (N)	<100	<100
Nitrate (N)	24	24
Nitrate+Nitrite (N)	17.0	49.2
Phosphorus – total	88.1	620
TKN (N)	4900	5300
<b>Inorganics (mg/L)</b>		
Bicarbonate (HCO <sub>3</sub> )	<5	<5
Bromide	<500	<500
Carbonate (CO <sub>3</sub> )	<1	<5
Chloride	2110	8000
Cyanide – total	0.022	0.022
Fluoride	0.02	4400
Phosphate	<500	<500
Silica	110	400
Sulfate	29800	190000
Sulfide	<5	<5
TDS	43100	189000
TOC	76.0	81
TSS	31.0	115
<b>Metals (mg/l)</b>		
Aluminum	330	2530
Antimony	<20	<20
Arsenic	0.3	440
Barium	1.021	0.1
Beryllium	0.347	0.78
Boron	3.5	11.3
Cadmium	1.64	6.6
Calcium	90.0	630
Chromium	1.0	13
Cobalt	14.0	120
Copper	72.2	740
Iron	1080	3400
Gallium	<30	<30
Lead	0.21	6.0
Lithium	<10	<20
Magnesium	1800	7900
Manganese	74.0	222
Mercury	0.0008	17.6
Molybdenum	0.44	240
Nickel	7.2	370
Potassium	219.0	828
Selenium	0.18	2.4
Silver	0.005	0.14
Sodium	1400	10000
Strontium	3.6	14
Thallium	0.7	45
Tin	<5	<5
Titanium	6.5	33.3
Uranium	5.0	154
Vanadium	136	510
Zinc	50	1300
Zirconium	2.3	38.5
<b>Radiologics (pCi/L)</b>		
Gross Alpha	14000	189000
Gross Beta	74	116000
Lead-210	680	20700
Thorium-230	3650	76640
Thorium-232	49	121
Polonium-210	1410	1410
Radium-226	40	1690
Radium-228	1.9	1.9

### 1980 – 2003 IUC/NRC Tailings Wastewater Samples\*<sup>1</sup>

Constituent	Minimum	Maximum
Total Radium	42	1700
<b>Selected VOCs (ug/L)</b>		
Acetone	28	514
Benzene	<5	<5
2-butanone (MEK)	11	15.13
Carbon Disulfide	16	16
Carbon Tetrachloride	<5	<5
Chloroform	6	16.84
1,1-Dichloroethane	<5	<5
1,2-Dichloroethane	<5	<5
Dichloromethane	10	11
Tetrahydrofuran	N/A	N/A
Toluene	<5	6.25
Vinyl Chloride	<10	<10
Xylene (total)	<5	<5
<b>Selected Semivolatiles (ug/L)</b>		
Benzo(a)pyrene	<10	<10
Bis(2-ethylhexyl)phthalate	1	1
Chrysene	<10	<10
Diethyl phthalate	<10	18.1
Dimethylphthalate	2.7	2.7
Di-n-butylphthalate	1.08	1.08
Fluoranthene	<10	<10
2-Methylnaphthalene	<10	<10
Naphthalene	2.44	2.44
Phenol	<10	38.4

\*Reproduced from the Utah Division of Radiation Control Groundwater Quality Discharge Permit, Statement of Basis for a Uranium Mining Facility at White Mesa, South of Blanding, Utah, dated December 1, 2004.

<sup>1</sup>The data in the Utah Division of Radiation Control Groundwater Quality Discharge Permit, Statement of Basis are based on historical data collected from Cell 1, Cell 2, and Cell 3. The date of collection reflects which cells were operational at the time of sampling. The location of the samples and date of collection is referenced in the Statement of Basis.

Tab E

Quality Assurance and Data Validation Tables

**Table E-1 Holding Time Evaluation**

	Required Holding Time	Cell 1 Tailings Fluid	Cell 1 Tailings Fluid (resample)	Cell 2 Slimes Drain	Cell 3 Tailings Fluid	Cell 3 Tailings Fluid (resample)	Cell 4A Tailings Fluid	Cell 4A LDS	Cell 4B Tailings Fluid	Cell 4B LDS	Cell 65 (Duplicate of Cell 4A LDS)	Cell 70 (Duplicate of Cell 1 resample)
Major Ions												
Carbonate	14 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Bicarbonate	14 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Calcium	6 months	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Chloride	28 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Fluoride	28 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Magnesium	6 months	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Nitrogen-Ammonia	28 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Nitrogen-Nitrate	28 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Potassium	6 months	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Sodium	6 months	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Sulfate	28 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
pH (pH units)	N/A	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
TDS	7 days	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Conductivity (umhos/cm)	N/A	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Metals	6 months (except mercury which is 28 days)	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
Radiologics	6 months	OK	N/A	OK	OK	N/A	OK	OK	OK	OK	OK	N/A
VOCS (including THF)	14 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	OK	N/A
SVOCs	7 days to extraction/40 days for analysis	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

N/A - Due to matrix interference, the laboratory was unable to meet the required reporting limits for the semivolatile compounds ("SVOCs") on the original Cell 1 and Cell 3 Tailings Fluid samples. Additionally, the laboratory was unable to meet the required reporting limits for the volatile compounds ("VOCs") in the original Cell 3 Tailings Fluid sample. The sample and a duplicate for Cell 1 were recollected and analyzed for SVOCs only. The sample for Cell 3 was recollected and analyzed for VOCs and SVOCs.

**E-2 Laboratory Receipt Temperature Check**

Work Order Number/Lab Set ID	Receipt Temp
GEL - 331704	N/A
AWAL - 1308284	2.7°C
AWAL - 1309104	2.9°C

N/A = These shipments contained samples for the analysis of gross alpha only. Samples submitted for gross alpha analyses do not have a sample temperature requirement.

**E-3: Analytical Method Check - Routine Samples**

<b>Parameter</b>	<b>QAP/Permit Method</b>	<b>Method Used by Lab</b>
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	E200.8
Gross Alpha	E900.0 or E900.1	E900.1
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	A2540 C
Carbonate as CO <sub>3</sub> , Bicarbonate as HCO <sub>3</sub>	A2320 B	A2320 B
Calcium, Magnesium, Potassium, Sodium	E200.7	E200.7
SVOCs	SW8270D	SW8270D

**E-4 Reporting Limit Evaluation**

<b>Parameter</b>	<b>Permit-Specified RL</b>
Ammonia (as N)	25 mg/L
Nitrate + Nitrite (as N)	10 mg/L
<b>Metals ug/L</b>	
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
<b>VOCs ug/L</b>	
Acetone	700
Benzene	5
Carbon tetrachloride	5
Chloroform	70
Chloromethane	30
MEK	4000
Methylene Chloride	5
Naphthalene	100
Tetrahydrofuran	46
Toluene	1000
Xylenes	10000
<b>Major Ions</b>	
Chloride	1.0 mg/L
Fluoride	4 mg/L
Sulfate	1000 mg/L
TDS	1000 mg/L
Carbonate as CO <sub>3</sub> , Bicarbonate as HCO <sub>3</sub>	1*
Calcium, Magnesium, Potassium, Sodium	1*
<b>SVOCs (from the 8270D LLD) ug/L</b>	
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	10*
Benz(a)anthracene	10
Benzidine	10*
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	10*
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	10*
N-Nitrosodi-n-propylamine	10
N-Nitrosodiphenylamine	10
Pentachlorophenol	50
Phenanthrene	10
Phenol	10
Pyrene	10
Pyridine	10*

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 8270C. The  
reporting limits established by the laboratory are  
reported here. The reporting limits are comparable to  
other analytes in the same method.

E-5: Trip Blank Evaluation

All trip blanks for the 2013 sampling program were nondetect.

Blank	Sample Date	Laboratory
1	8/13/2013	AWAL
2	9/4/2013	AWAL

**E-6 Duplicate Sample Relative Percent Difference**

<b>Major Ions (mg/l)</b>	<b>Cell 4A LDS</b>	<b>Cell 65</b>	<b>RPD %</b>
Carbonate	<1	<1	NA
Bicarbonate	<1	<1	NA
Calcium	429	446	4
Chloride	1910	1950	2
Fluoride	1970	1360	37
Magnesium	1710	1790	5
Nitrogen-Ammonia	1010	1010	0
Nitrogen-Nitrate	28.9	28	3
Potassium	305	315	3
Sodium	2930	3060	4
Sulfate	31400	42300	30
pH (s.u.)	2.32	2.32	0
TDS	49700	46500	7
Conductivity (umhos/cm)	31300	31800	2
<b>Metals (ug/l)</b>			
Arsenic	35700	37300	4
Beryllium	188	194	3
Cadmium	1170	1250	7
Chromium	2630	2730	4
Cobalt	44300	45300	2
Copper	754000	778000	3
Iron	1370000	1410000	3
Lead	165	175	6
Manganese	86300	84300	2
Mercury	<0.5	<0.5	NA
Molybdenum	1200	1250	4
Nickel	54600	52800	3
Selenium	1020	1040	2
Silver	24.8	26.8	8
Thallium	171	166	3
Tin	<100	<100	NA
Uranium	75000	75000	0
Vanadium	157000	165000	5
Zinc	163000	166000	2
<b>Radiologics (pCi/l)</b>			
Gross Alpha*	6930	5310	7.14*
<b>VOCS (ug/L)</b>			
Acetone	57	62.6	9
Benzene	<1	<1	NA
Carbon tetrachloride	<1	<1	NA
Chloroform	110	112	2
Chloromethane	9.93	9.65	3
MEK	<20	<20	NA

**E-6 Duplicate Sample Relative Percent Difference**

<b>Major Ions (mg/l)</b>	<b>Cell 4A LDS</b>	<b>Cell 65</b>	<b>RPD %</b>
Methylene Chloride	<1	<1	NA
Naphthalene	2.35	2.32	1
Tetrahydrofuran	39.1	40.6	4
Toluene	<1	<1	NA
Xylenes	<1	<1	NA
<b>SVOCS (ug/L)</b>			
1,2,4-Trichlorobenzene	<10	<10	NA
1,2-Dichlorobenzene	<10	<10	NA
1,3-Dichlorobenzene	<10	<10	NA
1,4-Dichlorobenzene	<10	<10	NA
1-Methylnaphthalene	<10	<10	NA
2,4,5-Trichlorophenol	<10	<10	NA
2,4,6-Trichlorophenol	<10	<10	NA
2,4-Dichlorophenol	<10	<10	NA
2,4-Dimethylphenol	<10	<10	NA
2,4-Dinitrophenol	<20	<20	NA
2,4-Dinitrotoluene	<10	<10	NA
2,6-Dinitrotoluene	<10	<10	NA
2-Chloronaphthalene	<10	<10	NA
2-Chlorophenol	<10	<10	NA
2-Methylnaphthalene	<10	<10	NA
2-Methylphenol	<10	<10	NA
2-Nitrophenol	<10	<10	NA
3&4-Methylphenol	<10	<10	NA
3,3'-Dichlorobenzidine	<10	<10	NA
4,6-Dinitro-2-methylphenol	<10	<10	NA
4-Bromophenyl phenyl ether	<10	<10	NA
4-Chloro-3-methylphenol	<10	<10	NA
4-Chlorophenyl phenyl ether	<10	<10	NA
4-Nitrophenol	<10	<10	NA
Acenaphthene	<10	<10	NA
Acenaphthylene	<10	<10	NA
Anthracene	<10	<10	NA
Azobenzene	<10	<10	NA
Benz(a)anthracene	<10	<10	NA
Benzidine	<10	<10	NA
Benzo(a)pyrene	<10	<10	NA
Benzo(b)fluoranthene	<10	<10	NA
Benzo(g,h,i)perylene	<10	<10	NA
Benzo(k)fluoranthene	<10	<10	NA
Bis(2-chloroethoxy)methane	<10	<10	NA
Bis(2-chloroethyl) ether	<10	<10	NA
Bis(2-chloroisopropyl) ether	<10	<10	NA

**E-6 Duplicate Sample Relative Percent Difference**

Major Ions (mg/l)	Cell 4A LDS	Cell 65	RPD %
Bis(2-ethylhexyl) phthalate	<10	<10	NA
Butyl benzyl phthalate	<10	<10	NA
Chrysene	<10	<10	NA
Dibenz(a,h)anthracene	<10	<10	NA
Diethyl phthalate	<10	<10	NA
Dimethyl phthalate	<10	<10	NA
Di-n-butyl phthalate	<10	<10	NA
Di-n-octyl phthalate	<10	<10	NA
Fluoranthene	<10	<10	NA
Fluorene	<10	<10	NA
Hexachlorobenzene	<10	<10	NA
Hexachlorobutadiene	<10	<10	NA
Hexachlorocyclopentadiene	<10	<10	NA
Hexachloroethane	<10	<10	NA
Indeno(1,2,3-cd)pyrene	<10	<10	NA
Isophorone	<10	<10	NA
Naphthalene	<10	<10	NA
Nitrobenzene	<10	<10	NA
N-Nitrosodimethylamine	<10	<10	NA
N-Nitrosodi-n-propylamine	<10	<10	NA
N-Nitrosodiphenylamine	<10	<10	NA
Pentachlorophenol	<10	<10	NA
Phenanthrene	<10	<10	NA
Phenol	<10	<10	NA
Pyrene	<10	<10	NA
Pyridine	<10	<10	NA

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.

**E-6 Duplicate Sample Relative Percent Difference**

<b>SVOCS (ug/L)</b>	<b>Cell 1 Tailings Fluid (Resample)</b>	<b>Cell 70 Tailings Fluid (Resample)</b>	<b>RPD %</b>
1,2,4-Trichlorobenzene	<10	<10	NA
1,2-Dichlorobenzene	<10	<10	NA
1,3-Dichlorobenzene	<10	<10	NA
1,4-Dichlorobenzene	<10	<10	NA
1-Methylnaphthalene	<10	<10	NA
2,4,5-Trichlorophenol	<10	<10	NA
2,4,6-Trichlorophenol	<10	<10	NA
2,4-Dichlorophenol	<10	<10	NA
2,4-Dimethylphenol	<10	<10	NA
2,4-Dinitrophenol	<20	<20	NA
2,4-Dinitrotoluene	<10	<10	NA
2,6-Dinitrotoluene	<10	<10	NA
2-Chloronaphthalene	<10	<10	NA
2-Chlorophenol	<10	<10	NA
2-Methylnaphthalene	<10	<10	NA
2-Methylphenol	<10	<10	NA
2-Nitrophenol	<10	<10	NA
3&4-Methylphenol	<10	<10	NA
3,3'-Dichlorobenzidine	<10	<10	NA
4,6-Dinitro-2-methylphenol	<10	<10	NA
4-Bromophenyl phenyl ether	<10	<10	NA
4-Chloro-3-methylphenol	<10	<10	NA
4-Chlorophenyl phenyl ether	<10	<10	NA
4-Nitrophenol	<10	<10	NA
Acenaphthene	<10	<10	NA
Acenaphthylene	<10	<10	NA
Anthracene	<10	<10	NA
Azobenzene	<10	<10	NA
Benz(a)anthracene	<10	<10	NA
Benzidine	<10	<10	NA
Benzo(a)pyrene	<10	<10	NA
Benzo(b)fluoranthene	<10	<10	NA
Benzo(g,h,i)perylene	<10	<10	NA
Benzo(k)fluoranthene	<10	<10	NA
Bis(2-chloroethoxy)methane	<10	<10	NA
Bis(2-chloroethyl) ether	<10	<10	NA
Bis(2-chloroisopropyl) ether	<10	<10	NA

**E-6 Duplicate Sample Relative Percent Difference**

<b>SVOCS (ug/L)</b>	<b>Cell 1 Tailings Fluid (Resample)</b>	<b>Cell 70 Tailings Fluid (Resample)</b>	<b>RPD %</b>
Bis(2-ethylhexyl) phthalate	<10	<10	NA
Butyl benzyl phthalate	<10	<10	NA
Chrysene	<10	<10	NA
Dibenz(a,h)anthracene	<10	<10	NA
Diethyl phthalate	<10	<10	NA
Dimethyl phthalate	<10	<10	NA
Di-n-butyl phthalate	<10	<10	NA
Di-n-octyl phthalate	<10	<10	NA
Fluoranthene	<10	<10	NA
Fluorene	<10	<10	NA
Hexachlorobenzene	<10	<10	NA
Hexachlorobutadiene	<10	<10	NA
Hexachlorocyclopentadiene	<10	<10	NA
Hexachloroethane	<10	<10	NA
Indeno(1,2,3-cd)pyrene	<10	<10	NA
Isophorone	<10	<10	NA
Naphthalene	<10	<10	NA
Nitrobenzene	<10	<10	NA
N-Nitrosodimethylamine	<10	<10	NA
N-Nitrosodi-n-propylamine	<10	<10	NA
N-Nitrosodiphenylamine	<10	<10	NA
Pentachlorophenol	<10	<10	NA
Phenanthrene	<10	<10	NA
Phenol	<10	<10	NA
Pyrene	<10	<10	NA
Pyridine	<10	<10	NA

**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	32700	386	Y	15	NA
Cell 2 Slimes	2270	101	Y	15	NA
Cell 3	81900	1220	Y	15	NA
Cell 4A	15800	279	Y	15	NA
Cell 4A LDS	6930	172	Y	15	NA
Cell 4B	14600	290	Y	15	NA
Cell 65 (Duplicate of Cell 4A LDS)	5310	148	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
1308284	Cell 4A	Magnesium*	NC	NC	70-130	NC
1308284	Cell 4A	Sodium*	NC	NC	70-130	NC
1308284	Cell 4A	Vanadium*	NC	NC	70-130	NC
1308284	Cell 4A	Iron*	NC	NC	70-130	NC
1308284	Cell 4A	Manganese*	NC	NC	75-125	NC
1308284	Cell 4A	Uranium*	NC	NC	75-125	NC
1308284	Cell 4A	Zinc*	NC	NC	75-125	NC
1308284	Cell 4A	Cobalt*	NC	NC	75-125	NC
1308284	Cell 4A	Molybdenum*	NC	NC	75-125	NC
1308284	Cell 4A	Nickel*	NC	NC	75-125	NC
1308284	Cell 4A	Copper*	NC	NC	75-125	NC
1308284	Cell 4A	Thalium	68.6	76.5	75-125	9.27
1308284	Cell 4A	Fluoride	112	108	90-110	3.67
1308284	Cell 3	Sulfate	60.9	61.5	90-110	0.272
1308284	Cell 4A	Alkalinity (as CaCO3)	0	0	80-120	0
1308284	Cell 4A	Ammonia (as N)*	NC	NC	90-110	NC
1308284	Cell 4A	Nitrate+Nitrite as N	113	118	90-110	3.49
1308284	Cell 4A	4,6-Dinitro-2-methylphenol*	NC	NC	20-250	NC
1308284	Cell 4A	4-Nitrophenol*	NC	NC	10-135	NC
1308284	Cell 4A	Methylene chloride*	NC	NC	30-192	NC
1308284	Cell 4A	Naphthalene	157	154	41-131	2.09
1308284	Cell 4A	Tetrahydrofuran	231	222	43-146	4.2
1309104	Cell 3	4,6-Dinitro-2-methylphenol	13	14	20-250	6.76
1309104	Cell 3	4-Nitrophenol	184	147	10-135	19.4
1309104	Cell 3	Phenol	73.5	66	10-71	10.8

NC = Not Calculated

\*= Analyte concentration is too high for accurate matrix spike recovery and/or RPD.

**Surrogate % Recovery**

Lab Report	Well/Sample	Analyte	Surrogate %REC	Lab Specified REC Range	QAP Required Range
1308284	Cell 1	2-Fluorobiphenyl	7.33	10-106	None
1308284	Cell 4A LDS	2,4,6-Tribromophenol	3.5	14-159	None
1308284	Cell 4A LDS	2-Fluorophenol	1.66	10-106	None
1308284	Cell 4A LDS	Phenol-d6	1.46	10-122	None
1308284	Cell 4B	2-Fluorophenol	9.58	10-106	None
1308284	Cell 65	2,4,6-Tribromophenol	3.66	14-159	None
1308284	Cell 65	2-Fluorophenol	1.39	10-106	None
1308284	Cell 65	Phenol-d6	0.95	10-122	None

**Method Blank detections**

Lab Report	Well/Sample	Analyte	Reported Concentration
1308284	NA	Manganese	0.00114 mg/L