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November 28, 2012

**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 2012 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 'Jo Ann Tischler'.

**DENISON MINES (USA) CORP.**  
Jo Ann Tischler  
Director, Compliance and Permitting

CC: Ron F. Hochstein  
David C. Frydenlund  
Harold R. Roberts  
David E. Turk  
Kathy Weinel

**White Mesa Uranium Mill**  
**2012 Annual Tailings Cells Wastewater Sampling**  
**Report**

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

Prepared by:

**Energy Fuels Resources (USA) Inc.**  
225 Union Boulevard, Suite 600  
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**November 28, 2012**

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## 2012 ANNUAL TAILINGS CELLS WASTEWATER SAMPLING REPORT

### 1.0 INTRODUCTION

This is the 2012 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”).

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 (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 State of Utah Division of Radiation Control (“DRC”) with the Mill’s Third Quarter Groundwater Monitoring Report due December 1, of each year.

### 1.1 Sampling Plan Revisions

The *Mill’s Tailings and Slimes Drain Sampling and Analysis Program*, Revision: 0, was revised during the 2012 reporting period. The revisions were completed to address safety concerns for sampling personnel and to address inconsistencies between the actual sampling techniques used and the Revision 0 Sampling Plan. DRC approved Revision 2.1 of the Sampling Plan by letter dated August 2, 2012, which was received by EFRI on August 6, 2012.

## 2.0 SAMPLING EVENTS AND SAMPLING METHODOLOGY

### 2.1 Sampling Events

Samples of solutions from tailings Cells 1, 3, 4A, and 4B, the Cell 2 slimes drain and the Cells 4A and 4B LDSs were collected on August 15, 2012. Upon receipt of the data, review of the Semivolatile Organic Compounds (“SVOCs”) data from Cell 1 indicated that the required reporting limits (“RLS”) were not achievable due to matrix difficulties. The Cell 1 SVOC sample “solidified” during the extraction process prior to achieving the desired final volume, and as a result, the reporting limits were raised. The extraction difficulty most likely resulted from hyper-concentration of the tailings fluids over the summer when solution feed to Cell 1 ceased temporarily during the repairs to the liner. EFRI notified DRC via telephone on September 5, 2012 of the raised RL and the likely reasons for the difficulty. DRC directed EFRI to collect an additional SVOC sample from Cell 1 to attempt to address the raised RL. DRC noted that if the resampling did not address the issue, no further sampling was required. This sampling event did result in data with acceptable RLs, and no further sampling was conducted after October 22,

2012. EFRI collected an additional sample and duplicate for SVOC analysis from Cell 1 on October 22, 2012.

In accordance with the Permit, DRC was notified of the August 15, 2012 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 4B sample. DRC personnel did not request or require notification for resampling effort of the Cell 1 SVOCs on October 22, 2012.

Maps showing the locations of the tailings and slimes drain and, when applicable, LDS sampling locations are attached under Tab B. Tailings wastewater sampling required by the Permit is discussed in the remainder of this section.

### **2.2.1 Tailings Wastewater Compliance Monitoring**

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.

### **2.2 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.

### **2.3 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 the 2011 field data, the tailings, LDS and slimes drain samples were 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.

#### **2.3.1 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.

### **2.3.2 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.

### **2.3.3 Cell 4A and Cell 4B Leak Detection Systems**

The Cell 4A and 4B LDS samples were collected from the sampling stations 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.

### **2.3.4 Cells 1, 2, and 3 Leak Detection System**

The Cells 1, 2, and 3 LDSs were not sampled during the 2012 sampling event because the systems were dry.

## **2.4 Field QC Samples**

The field Quality Control (“QC”) samples generated during this sampling event included one duplicate for the August 15, 2012 sampling event, one duplicate for the October 22, 2012 Cell 1 resampling event and one trip blank per shipment to each laboratory which received samples for Volatile Organic Compounds (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.

## **2.5 Laboratory Results**

All analytical results were provided by one of the Mill’s two contract analytical laboratories, Energy Laboratories (“EL”) or America 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.

### **3.0 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 collected and analyzed is provided in Section 3.3.1. Discussion of adherence to the Sampling Plan is provided in Section 3.1. Analytical completeness review results are provided in Section 3.2. The steps and tests applied to check laboratory data QA/QC are discussed in Sections 3.3.1 through 3.3.9 below.

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 3.3, below.

#### **3.1 Adherence to Sampling Plan and Permit Requirements**

On a review of adherence by Mill personnel to the Permit, the QA Manager observed that QA/QC requirements established in the Permit, the QAP, and the Sampling Plan were being adhered to and that the requirements were implemented as required.

#### **3.2 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.

#### **3.3 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.

### **3.3.1 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.

### **3.3.2 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.

### **3.3.3 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.

### **3.3.4 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.

### **3.3.5 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 SVOCs as noted in Section 2.1. The Cell 1 tailings fluid sample was recollected and the reanalyzed sample 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 but one, the reported value for the analyte was higher than the increased detection limit. The one case in which the reported value for the analyte was not higher than the increased reporting limit involved the tetrahydrofuran ("THF") results for the Cell 1 tailings fluid. The THF result in Cell 1 tailings fluid had a positive detection reported as 2.90 ug/L due to sample dilutions which were necessary due to interferences from high concentrations of other analytes (most likely metals) in the sample. The permit requires a reporting limit less than the Groundwater Quality Standard ("GWQS") of 46.0 ug/L. The RL was 10.0 ug/L which is below the GWQS; however, the

positive result was less than 10 ug/L. The laboratory applied a "J" flag to the positive results indicating that the positive detection is estimated. The RL requirements in the Permit were met and the THF data in Cell 1 tailings fluid are acceptable and usable. No corrective action is required as the Permit required RL was met and there are no requirements in the permit that the data be reported above the RL.

### **3.3.6 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 reporting limit for all VOCs.

### **3.3.7 QA/QC Evaluation for Sample Duplicates**

Section 9.1.4 a) of the QAP states that RPDs 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 mercury and gross alpha in the duplicate pair Cell 2 slimes drain/Cell 65. These mercury results are not greater than 5 times the required reporting limit and the RPD is greater than 20 percent (24%). Both of the mercury sample results reported for Cell 2 slimes drain/Cell 65 were not five times greater than the reporting limit of 0.5 ug/L and as such the deviation from the 20% RPD requirement is acceptable. Results of the RPD test are provided under Tab E. The radiologic duplicates are discussed in Section 3.3.8 below.

### **3.3.8 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 GWCL (for the tailings wastewater samples the GWQS will be used), shall have a counting variance that is equal to or less than 20% of the reported activity concentration. An error term may be greater than 20% of the reported activity concentration when the sum of the activity concentration and error term is less than or equal to the GWQS.

Results of routine radiologic sample QC are provided under Tab E. All tailings 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 Slimes #2/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. In addition, reanalysis was completed as the samples were within the holding time. The reanalysis results also exceeded the comparability check specified above.

The lack of comparability of both duplicate sets is indicative of a matrix interference. There is no affect on the usability of the data due to the gross alpha duplicate results exceeding the comparability criteria because the nature of the sample solution caused the noncompliance.

### **3.3.9 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, DUSA'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 3.3.5.

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.

Seventeen 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 were two surrogate compounds in the VOCs

that were above the acceptance limit specified by the laboratory. The results were above the upper limit or had a high recovery, indicating a high bias to the sample results. A high bias means that the reported result for this analyte will tend to be higher than it actually is. There is no affect on the quality or usability of the data.

There are six 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 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. Bicarbonate and sulfate were reported in the method blanks from EL. Method blank results are included in Tab E. In all cases the samples were nondetect for bicarbonate. The QAP criteria were not met because the method blank was within an order of magnitude of the sample results; however, since the sample results were all nondetect there is no effect on the quality and usability of the bicarbonate sample data. In all cases the sample results for sulfate were more than an order of magnitude greater than the method blanks and the QAP criteria were met. The QAP requirement to analyze a method blank with each batch and evaluate the results has been completed as required.

#### **4.0 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.

#### **5.0 SUMMARY AND CONCLUSIONS**

##### **5.1 Cell 1**

Cell 1 solutions were acidic in nature with a laboratory pH of 1.9. As expected, the solutions contained high concentrations of metals and limited VOCs. SVOCs were not detected in the October 22, 2012 sample. Regarding major ions; chloride, 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, silver, uranium, vanadium and zinc.

Regarding VOCs, acetone was detected at approximately 3.25 times less than the 2010 sample result. Acetone, chloroform, methylethyl ketone (“MEK”), chloromethane, methylene chloride and naphthalene increased from the 2011 sample result. THF was detected at a concentration lower than the previously reported RLs. When comparing these data to prior samplings, metals were present in similar concentration ratios to previous sample results. Overall, the concentrations reported in the 2012 sample increased from the 2011 sample most likely because solutions were not added to the cell during the period of the liner repairs which were conducted as weather permitted from late summer 2010 to June 2012. The liner repairs minimized the fluids placed in tailings Cell 1, which allowed evaporation and concentration of the inorganic constituents present in the tailings fluids.

### **5.2 Cell 3**

Cell 3 solutions were acidic in nature, with a laboratory pH of 2.4. As expected, the solutions contained high concentrations of metals and limited VOCs. SVOCs were not detected. Regarding major ions, chloride, fluoride, magnesium, ammonia, 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 chromium, cobalt, copper, iron, manganese, nickel, uranium, vanadium and zinc. With respect to VOCs, acetone, chloroform, and chloromethane, were detected. All of the VOC concentrations decreased from 2011. When comparing these data to prior samplings, metals were present in similar concentration ratios to previous sample results. Overall, the concentrations reported in the 2012 sample increased from the 2011 sample most likely due to the fact that Cell 3 is no longer used for the disposal of fluids in preparation for eventual closure. The lack of fluids placed in tailings Cell 3 allowed evaporation and concentration of the inorganic constituents present in the remaining fluids present.

### **5.3 Cell 4A**

Cell 4A solutions were acidic in nature, with a laboratory pH of 1.2. 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, magnesium, ammonia, sodium and sulfate. For 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 compounds being acetone and THF. Overall, the concentrations reported in the 2012 sample remained the same as 2011 or decreased from the 2011 sample.

### **5.4 Cell 4B**

Cell 4B solutions were acidic in nature, with a laboratory pH of 1.5. As expected, the solutions contained high concentrations of metals, limited VOCs and, with the exception of Bis (2-ethylhexyl) phthalate, SVOCs were not detected. Bis (2-ethylhexyl) phthalate is a commonly

used plasticizer and may be present in sampling equipment (gloves, tubing). As was the case for Cells 1 and 3, and Cell 4A, Cell 4B fluid exhibited the highest major ion concentrations for chloride, magnesium, ammonia, potassium, sodium and sulfate. For 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 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, chloromethane, and THF. Overall, the concentrations reported in the 2012 sample remained the same as 2011 sample.

### **5.5 Cell 2 Slimes Drain**

Cell 2 Slimes drain fluid was acidic in nature, with a laboratory pH of 3.0. As expected, the solutions contained high concentrations of metals, and limited VOCs. SVOCs were not detected. Major ions which were highest in concentration by one or more orders of magnitude included chloride, 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 were limited to low concentrations of acetone, chloroform, chloromethane, MEK, naphthalene, THF, toluene, and xylenes. Overall, the concentrations reported in the 2012 sample remained approximately the same as the 2011 sample. Minor concentration changes were noted, which are within the analytical accuracy of the methods used for analysis.

### **5.6 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.

### **5.7 Cell 2 Leak Detection System**

The Cell 2 LDS was not sampled during the 2012 sampling event the Cell 2 LDS is now dry and covered to prevent precipitation inflow.

### **5.8 Cells 1 and 3 Leak Detection System**

The Cells 1 and 3 leak detection systems were not sampled during the 2012 sampling event because the systems were dry.

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

Fluids in the Cell 4A leak detection system were acidic in nature with a lab pH of 2.1. As expected, the solutions contained high concentrations of metals, limited VOCs and, with the exception of Bis (2-ethylhexyl) phthalate, SVOCs were not detected. Bis (2-ethylhexyl) phthalate is a commonly used plasticizer and may be present in sampling equipment (gloves,

tubing). The major ions which exhibited the greatest concentrations included chloride, magnesium, ammonia, sodium and sulfate. For metals, arsenic, cobalt, copper, iron, manganese, molybdenum, nickel, uranium, vanadium and zinc were one or more orders of magnitude greater in concentration than the other metals analyzed. The VOC's acetone, chloromethane, chloroform, MEK, naphthalene and THF were measured at low concentration. Overall, the concentrations reported in the 2012 sample decreased from the 2011 sample. Increases were slight and within the analytical accuracy of the methods used for analysis.

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

Fluids in the Cell 4B leak detection system were acidic in nature with a lab pH of 2.4. As expected, the solutions contained high concentrations of metals, limited VOCs and, with the exception of Bis (2-ethylhexyl) phthalate, SVOCs were not detected. Bis (2-ethylhexyl) phthalate is a commonly used plasticizer and may be present in sampling equipment (gloves, tubing). The major ions which exhibited the greatest concentrations included chloride, 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 in concentration than the other metals analyzed. The VOC's acetone, chloromethane, chloroform, MEK, and THF were measured at low concentration. Overall, the concentrations reported in the 2012 sample stayed the same or increased slightly from the 2011 sample. The increase is most likely due to increased usage during 2012.

### **5.11 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, magnesium, ammonia, potassium, sodium and sulfate were predominant. VOCs with the greatest concentrations in tailings fluids were acetone, chloroform, MEK, THF and chloromethane. With the exception of Bis (2-ethylhexyl) phthalate, SVOCs were not detected.

## **6.0 CORRECTIVE ACTION REPORT**

No corrective action reports are required for the 2012 annual sampling event.

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

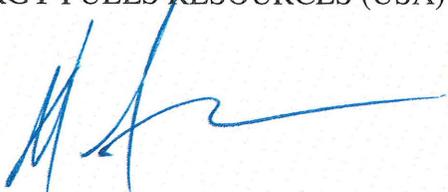
No corrective action reports were required for the 2011 annual sampling event and as such there is no assessment of previous actions necessary.

**7.0 SIGNATURE AND CERTIFICATION**

This document was prepared by Energy Fuels Resources (USA) Inc. on November 28, 2012.

ENERGY FUELS RESOURCES (USA) INC.

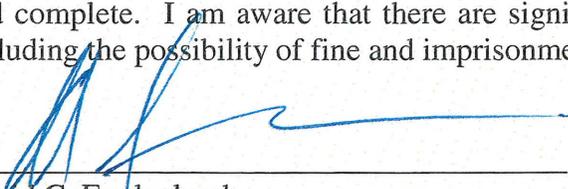
By:



David C. Frydenlund  
Senior Vice President, Regulatory Affairs and General Counsel

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.



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David C. Frydenlund  
Senior Vice President, Regulatory Affairs and General Counsel  
Energy Fuels Resources (USA) Inc.

## TABLES

**Table 1 Summary of 2012 Tailings Cell Wastewater Monitoring**

Location	Sample Date	Date of Laboratory Report	Work Order Number/Lab Set ID
Cell 1 Tailings Fluid	8/15/2012	EL – 10/17/2012** AWAL – 8/31/2012	EL – C12080790R1 AWAL - 1208302
Cell 1 Tailings Fluid (Resample)*	10/22/2012	AWAL – 11/2/2012	AWAL - 1210392
Cell 2 Slimes Drain	8/15/2012	EL – 10/17/2012** EL – 11/27/2012 AWAL – 8/31/2012	EL – C12080790R1 EL – C12080790R2*** AWAL - 1208302
Cell 3 Tailings Fluid	8/15/2012	EL – 10/17/2012** AWAL – 8/31/2012	EL – C12080790R1 AWAL - 1208302
Cell 4A Tailings Fluid	8/15/2012	EL – 10/17/2012** AWAL – 8/31/2012	EL – C12080790R1 AWAL - 1208302
Cell 4 LDS	8/15/2012	EL – 10/17/2012** AWAL – 8/31/2012	EL – C12080790R1 AWAL - 1208302
Cell 4B Tailings Fluid	8/15/2012	EL – 10/17/2012** AWAL – 8/31/2012	EL – C12080790R1 AWAL - 1208302
Cell 4B LDS	8/15/2012	EL – 10/17/2012** AWAL – 8/31/2012	EL – C12080790R1 AWAL - 1208302
Cell 65 (Duplicate of Cell 2 Slimes Drain)	8/15/2012	EL – 10/17/2012** EL – 11/27/2012 AWAL – 8/31/2012	EL – C12080790R1 EL – C12080790R2*** AWAL - 1208302
Cell 70 (Duplicate of Cell 1 Tailings Fluid Resample)*	10/22/2012	AWAL – 11/2/2012	AWAL - 1210392

\*Due to matrix interference on the original Cell 1 Tailings Fluid sample, the laboratory was unable to meet the required reporting limits for the semivolatile compounds (“SVOCs”). The sample and a duplicate were recollected and analyzed for SVOCs only.

\*\* Data package was originally submitted on October 12, 2012. A corrected data package was submitted on October 17, 2012.

\*\*\* As noted in Section 3.3.8 of this report, the Cell 2 Slimes Drain/Cell 65 gross alpha sample was reanalyzed due to poor duplicate comparability. The EL – C12080790R2 data package listed above contains the results of the gross alpha reanalysis.

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- E-3 Analytical Method Check
- E-4 Reporting Limit Evaluation
- E-5 Trip Blank Evaluation
- E-6 QA/QC Evaluation for Sample Duplicates
- E-7 Radiologics Counting Error
- E-8 Laboratory Matrix QC Evaluation

Tab A

Tailings and Slimes Drain Field Sheets

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

Location: Cell 1 Sampling Personnel: 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): N/A

Weather Conditions at Time of Sampling: clear

**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/Energy
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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
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"/>	AWAT
Conductivity	<input type="checkbox"/> Yes	<input 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: N/A

**Notes:** Arrived on site at 1002. Samples were pulled with a ladle at 1015  
Left site at 1021

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 1 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 & windy

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 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 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 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 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 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 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: \_\_\_\_\_

Notes: Arrived on site at 0820. Samples were collected at 0830.  
Ladel was used to collect sample. Left site at 0845.  
10/22/2012

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

Location: Slimes # 2 Sampling Personnel: Tanner Holliday, Garin Palmer, Deen Henderson

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): 35.50

Weather Conditions at Time of Sampling: Clear

**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/Energy
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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Other Non 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"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
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 type="checkbox"/> Yes	<input 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 65

Notes: Arrived on site at 1032. Samples were bailed and collected at 1047.  
Left site at 1100

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

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

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: Clear

**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/Energy
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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
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 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: N/A

Notes: Arrived on site at 1107. Samples pulled with a ladle at 1120.  
Left site at 1134

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

Location: Cell 4A Sampling Personnel: Tanner Holliday, Garrin Palmer, Deen Henders

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: Clear

**Field Parameter Measurements:**

-pH \_\_\_\_\_  
 -Temperature (°C) \_\_\_\_\_

**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 checked="" type="checkbox"/>	Energy/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 checked="" type="checkbox"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
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 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: \_\_\_\_\_

Notes: Arrived on site at 0742 Samples were pulled at 0750. Left site at 0801

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

**Location:** cell 4A LDS **Sampling Personnel:** Tanner Holliday, Garvin Palmer, Deen Henderson

**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:** clear

**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"/>	Energy/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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
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 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: n/a

**Notes:** Arrived on site at 0801 Samples pulled at 0810. Pumped solution into stainless steel bucket and used a ladle to collect samples Left site at 0822

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

Location: Cell 4b Sampling Personnel: Tanner Holliday, Garin Palmer, Deen Henderson

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: Clear

**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/Energy
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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non Radiologics	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
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 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: N/A

Notes: Arrived on site at 0849. Samples pulled with a ladle at 0905.  
Deen Henderson with the state of utah split samples with us.  
Left site at 0928

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

Location: Cell 4 b LDS Sampling Personnel: Tanner Holliday, Garrin Palmer, Deen Henderson

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: clear

**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"/>	Energy/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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
Other Non 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"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy
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 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:           N/A          

Notes: Arrived on site at 0822. Pumped solution into a stainless steel bucket. Samples collected out of the bucket with a ladle. Samples collected at 0835 left site at 0846.

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

Location: Cell 65 Sampling Personnel: Tanner Holliday, Garrin Palmer, Deen Henderson

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): 35.50

Weather Conditions at Time of Sampling: Clear

**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/ Energy
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"/>	Energy
Nutrients	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Other Non Radiologies	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
Gross Alpha	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Energy
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 type="checkbox"/> Yes	<input 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 65

Notes: Duplicate of Slimes # 2

Field Data Record-Tailings, LDS and Slimes Drain Sampling

Location: Cell 1 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 & windy

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 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 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 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 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 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 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

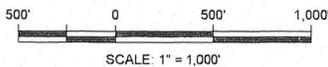
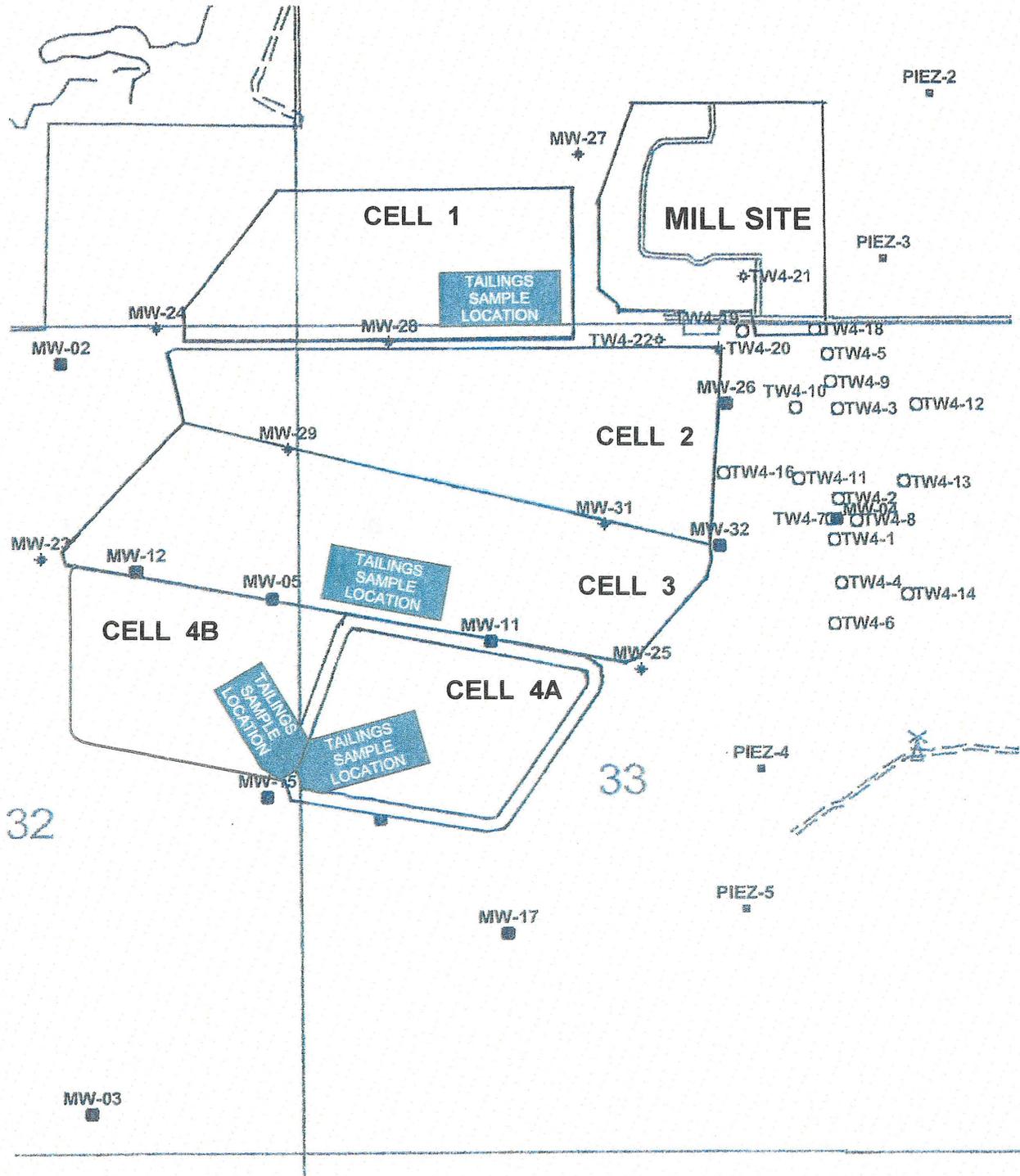
Duplicate Sample Name: ~~Cell 70~~ Cell 70

Notes: Duplicate of Cell 1.

10/22/2012

Tab B

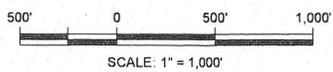
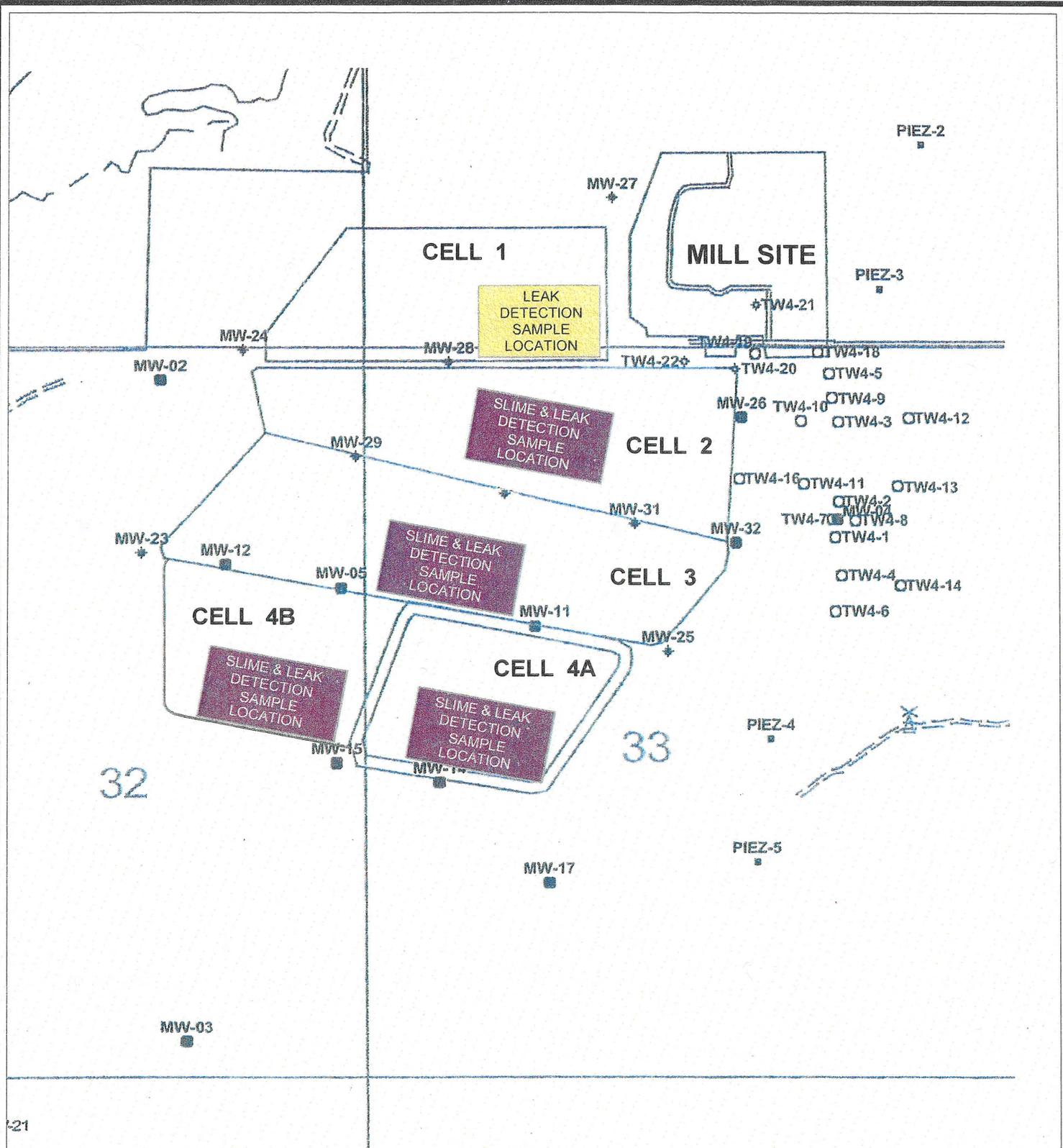
Sample Location Figures



**Energy Fuels Resources (USA) Inc.**



REVISIONS		Project: <b>White Mesa Mill</b>	
Date	By	County: San Juan	State: UT
11-08	GM	Location: T 37 S, R 22 E	
<b>ANNUAL TAILINGS SAMPLE LOCATIONS</b>			
Author: unknown		Date: Aug. 2008	Drafted By:



**Energy Fuels Resources (USA) Inc.**



REVISIONS		Project: <b>White Mesa Mill</b>	
Date	By	County: San Juan	State: UT
11-08	GM	Location: T 37 S, R 22 E	

**SLIMES AND LEAK DETECTION  
SAMPLE LOCATIONS**

Author: unknown	Date: Aug. 2008	Drafted By:
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Tab C

Laboratory Analytical Reports



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-001  
**Client Sample ID:** Cell 1

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:15  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	87200	mg/L	D	100		A2310 B	08/21/12 07:44 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/18/12 00:34 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/18/12 00:34 / jba
Calcium	426	mg/L	D	2		E200.7	09/04/12 16:37 / sf
Chloride	78000	mg/L	D	1000		E300.0	08/21/12 10:52 / wc
Fluoride	62.9	mg/L	D	1.1		A4500-F C	08/20/12 09:35 / jba
Magnesium	16000	mg/L	D	1		E200.7	09/04/12 16:37 / sf
Nitrogen, Ammonia as N	9750	mg/L	D	200		A4500-NH3 G	09/06/12 11:45 / ab
Nitrogen, Nitrate+Nitrite as N	556	mg/L	D	50		E353.2	08/27/12 15:08 / lr
Potassium	9750	mg/L	D	4		E200.7	09/04/12 16:37 / sf
Sodium	41700	mg/L	D	20		E200.7	09/04/12 16:37 / sf
Sulfate	158000	mg/L	D	4000		E300.0	08/21/12 10:52 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	136000	umhos/cm	E	1		A2510 B	08/22/12 09:31 / ab
pH	1.9	s.u.	H	0.010		A4500-H B	08/17/12 15:06 / ab
Solids, Total Dissolved TDS @ 180 C	342000	mg/L		10		A2540 C	08/21/12 15:23 / jz

#### METALS - DISSOLVED

Arsenic	25500	ug/L		5.4		E200.8	09/12/12 21:07 / cp
Beryllium	3180	ug/L	D	1.8		E200.8	09/12/12 21:07 / cp
Cadmium	30700	ug/L	D	3.1		E200.8	09/12/12 21:07 / cp
Chromium	12100	ug/L		25		E200.8	09/12/12 21:07 / cp
Cobalt	53100	ug/L		10		E200.8	09/12/12 21:07 / cp
Copper	885000	ug/L		10		E200.8	09/04/12 19:12 / cp
Iron	840000	ug/L	D	200		E200.7	09/04/12 16:37 / sf
Lead	17000	ug/L	D	920		E200.8	09/10/12 20:37 / cp
Manganese	1560000	ug/L		10		E200.8	09/04/12 19:12 / cp
Mercury	117	ug/L	D	9.1		E200.8	09/04/12 19:12 / cp
Molybdenum	434000	ug/L		10		E200.8	09/04/12 19:12 / cp
Nickel	15000	ug/L		20		E200.8	09/12/12 21:07 / cp
Selenium	8090	ug/L	D	7.5		E200.8	09/12/12 21:07 / cp
Silver	4310	ug/L		10		E200.8	09/28/12 21:56 / cp
Thallium	13	ug/L	D	13		E200.8	09/04/12 19:12 / cp
Tin	ND	ug/L		100		E200.8	09/12/12 21:07 / cp
Uranium	1450000	ug/L	D	1.7		E200.8	09/04/12 19:12 / cp
Vanadium	1940000	ug/L	D	820		E200.8	09/10/12 20:37 / cp
Zinc	811000	ug/L	D	44		E200.8	09/04/12 19:12 / cp

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	12600	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	73.2	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	1.8	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 D - RL increased due to sample matrix.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-001  
**Client Sample ID:** Cell 1

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:15  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	2.51	%				A1030 E	09/07/12 06:37 / kbh
Anions	5550	meq/L				A1030 E	09/07/12 06:37 / kbh
Cations	5840	meq/L				A1030 E	09/07/12 06:37 / kbh
Solids, Total Dissolved Calculated	310000	mg/L				A1030 E	09/07/12 06:37 / kbh
TDS Balance (0.80 - 1.20)	1.11					A1030 E	09/07/12 06:37 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	310	ug/L		20		SW8260B	08/23/12 03:31 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Chloroform	19	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Chloromethane	4	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Methyl ethyl ketone	200	ug/L		20		SW8260B	08/23/12 03:31 / jk
Methylene chloride	2	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Naphthalene	3	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 03:31 / jk
Surr: 1,2-Dichlorobenzene-d4	121	%REC	S	80-120		SW8260B	08/23/12 03:31 / jk
Surr: Dibromofluoromethane	204	%REC	S	70-130		SW8260B	08/23/12 03:31 / jk
Surr: p-Bromofluorobenzene	104	%REC		80-120		SW8260B	08/23/12 03:31 / jk
Surr: Toluene-d8	98.0	%REC		80-120		SW8260B	08/23/12 03:31 / jk

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 S - Spike recovery outside of advisory limits.

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



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-001A  
**Client Sample ID:** Cell 1  
**Collection Date:** 8/15/2012 1015h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 947h

**Units:** µg/L

**Dilution Factor:** 10

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Tetrahydrofuran	109-99-9	10.0	2.90	J

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	531	500.0	106	77-129	
Surr: Dibromofluoromethane	1868-53-7	525	500.0	105	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	528	500.0	106	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	554	500.0	111	72-151	

*J - Estimated value between the MDL of 1.00 µg/L and the reporting limit (PQL).*

*The pH of the sample was >2. Analysis was performed within the 7 day holding time.*

*The reporting limits were raised due to sample matrix interferences. Substance on top of sample.*

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-001B  
**Client Sample ID:** Cell 1  
**Collection Date:** 8/15/2012 1015h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1456h      **Extracted:** 8/20/2012 0912h  
**Units:** µg/L      **Dilution Factor:** 1

**Method:** SW8270D

Compound	CAS Number	MDL Limit	Reporting Limit	Analytical Result	Qual
1,2,4-Trichlorobenzene	120-82-1	6.67	33.3	< 33.3	U
1,2-Dichlorobenzene	95-50-1	23.3	33.3	< 33.3	U
1,3-Dichlorobenzene	541-73-1	20.0	33.3	< 33.3	U
1,4-Dichlorobenzene	106-46-7	23.3	33.3	< 33.3	U
1-Methylnaphthalene	90-12-0	6.67	33.3	< 33.3	U
2,4,5-Trichlorophenol	95-95-4	6.67	33.3	< 33.3	U
2,4,6-Trichlorophenol	88-06-2	2.67	33.3	< 33.3	U
2,4-Dichlorophenol	120-83-2	2.00	33.3	< 33.3	U
2,4-Dimethylphenol	105-67-9	2.67	33.3	< 33.3	U
2,4-Dinitrophenol	51-28-5	10.0	66.7	< 66.7	U
2,4-Dinitrotoluene	121-14-2	3.33	33.3	< 33.3	U
2,6-Dinitrotoluene	606-20-2	6.67	33.3	< 33.3	U
2-Chloronaphthalene	91-58-7	3.00	33.3	< 33.3	U
2-Chlorophenol	95-57-8	3.00	33.3	< 33.3	U
2-Methylnaphthalene	91-57-6	3.00	33.3	< 33.3	U
2-Methylphenol	95-48-7	2.33	33.3	< 33.3	U
2-Nitrophenol	88-75-5	2.00	33.3	< 33.3	U
3&4-Methylphenol		6.67	33.3	< 33.3	U
3,3'-Dichlorobenzidine	91-94-1	3.33	33.3	< 33.3	U
4,6-Dinitro-2-methylphenol	534-52-1	2.33	33.3	< 33.3	U
4-Bromophenyl phenyl ether	101-55-3	6.67	33.3	< 33.3	U
4-Chloro-3-methylphenol	59-50-7	2.67	33.3	< 33.3	U
4-Chlorophenyl phenyl ether	7005-72-3	6.67	33.3	< 33.3	U



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

**Lab Sample ID:** 1208302-001B

**Client Sample ID:** Cell 1

<b>Analyzed:</b> 8/29/2012 1456h	<b>Extracted:</b> 8/20/2012 0912h				
<b>Units:</b> µg/L	<b>Dilution Factor:</b> 1	<b>Method:</b>	SW8270D		
4-Nitrophenol	100-02-7	2.00	33.3	< 33.3	U
Acenaphthene	83-32-9	6.67	33.3	< 33.3	U
Acenaphthylene	208-96-8	3.33	33.3	< 33.3	U
Anthracene	120-12-7	6.67	33.3	< 33.3	U
Azobenzene	103-33-3	6.67	33.3	< 33.3	U
Benz(a)anthracene	56-55-3	3.33	33.3	< 33.3	U
Benzidine	92-87-5	6.67	33.3	< 33.3	U
Benzo(a)pyrene	50-32-8	6.67	33.3	< 33.3	U
Benzo(b)fluoranthene	205-99-2	6.67	33.3	< 33.3	U
Benzo(g,h,i)perylene	191-24-2	6.67	33.3	< 33.3	U
Benzo(k)fluoranthene	207-08-9	6.67	33.3	< 33.3	U
Bis(2-chloroethoxy)methane	111-91-1	3.33	33.3	< 33.3	U
Bis(2-chloroethyl) ether	111-44-4	6.67	33.3	< 33.3	U
Bis(2-chloroisopropyl) ether	108-60-1	3.00	33.3	< 33.3	U
Bis(2-ethylhexyl) phthalate	117-81-7	6.67	33.3	<b>37.7</b>	
Butyl benzyl phthalate	85-68-7	6.67	33.3	< 33.3	U
Chrysene	218-01-9	6.67	33.3	< 33.3	U
Di-n-butyl phthalate	84-74-2	6.67	33.3	< 33.3	U
Di-n-octyl phthalate	117-84-0	26.7	33.3	< 33.3	U
Dibenz(a,h)anthracene	53-70-3	3.33	33.3	< 33.3	U
Diethyl phthalate	84-66-2	6.67	33.3	< 33.3	U
Dimethyl phthalate	131-11-3	6.67	33.3	< 33.3	U
Fluoranthene	206-44-0	6.67	33.3	< 33.3	U
Fluorene	86-73-7	6.67	33.3	< 33.3	U
Hexachlorobenzene	118-74-1	6.67	33.3	< 33.3	U
Hexachlorobutadiene	87-68-3	10.0	33.3	< 33.3	U
Hexachlorocyclopentadiene	77-47-4	16.7	33.3	< 33.3	U
Hexachloroethane	67-72-1	20.0	33.3	< 33.3	U
Indeno(1,2,3-cd)pyrene	193-39-5	6.67	33.3	< 33.3	U
Isophorone	78-59-1	3.33	33.3	< 33.3	U



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

**Lab Sample ID:** 1208302-001B

**Client Sample ID:** Cell 1

<b>Analyzed:</b>	<b>Extracted:</b>	<b>Units:</b>	<b>Dilution Factor:</b>	<b>Method:</b>		
8/29/2012 1456h	8/20/2012 0912h	µg/L	1	SW8270D		
N-Nitrosodimethylamine	62-75-9	6.67	33.3	< 33.3	U	
N-Nitrosodiphenylamine	86-30-6	6.67	33.3	< 33.3	U	
N-Nitrosodi-n-propylamine	621-64-7	3.33	33.3	< 33.3	U	
Naphthalene	91-20-3	2.33	33.3	< 33.3	U	
Nitrobenzene	98-95-3	2.67	33.3	< 33.3	U	
Pentachlorophenol	87-86-5	6.67	33.3	< 33.3	U	
Phenanthrene	85-01-8	6.67	33.3	< 33.3	U	
Phenol	108-95-2	2.33	33.3	< 33.3	U	
Pyrene	129-00-0	6.67	33.3	< 33.3	U	
Pyridine	110-86-1	16.7	33.3	< 33.3	U	

<b>Surrogate</b>	<b>CAS</b>	<b>Result</b>	<b>Amount Spiked</b>	<b>% REC</b>	<b>Limits</b>	<b>Qual</b>
Surr: Terphenyl-d14	1718-51-0	25.9	44.44	58.4	10-199	
Surr: Phenol-d6	13127-88-3	0.333	88.89	0.375	10-122	S
Surr: Nitrobenzene-d5	4165-60-0	67.4	44.44	152	10-180	
Surr: 2-Fluorophenol	367-12-4	1.93	88.89	2.18	10-106	S
Surr: 2-Fluorobiphenyl	321-60-8	485	44.44	1,090	10-124	S
Surr: 2,4,6-Tribromophenol	118-79-6	213	88.89	239	14-159	S

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

*Reissue of a previously generated report. This sample has been evaluated down to the MDL. Information herein supersedes that of the previously issued reports.*

*U - This flag indicates the compound was analyzed for but not detected above the MDL.*

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

*Internal standard areas were outside of the QC limits. Reanalysis of sample yielded similar results indicating matrix interference.*

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

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



# ORGANIC ANALYTICAL REPORT

**Client:** Energy Fuels Resources, Inc.  
**Project:** Annual Tails 2012  
**Lab Sample ID:** 1210392-001A  
**Client Sample ID:** Cell1  
**Collection Date:** 10/22/2012 1230h  
**Received Date:** 10/24/2012 1010h

**Contact:** Garrin Palmer

## Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 10/26/2012 1758h    **Extracted:** 10/24/2012 1128  
**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: 1210392-001A

Client Sample ID: Cell1

Analyzed: 10/26/2012 1758h      Extracted: 10/24/2012 1128

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	1
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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	1
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	10.0	< 10.0	
Pentachlorophenol	87-86-5	10.0	< 10.0	1@
Phenanthrene	85-01-8	10.0	< 10.0	
Phenol	108-95-2	10.0	< 10.0	1
Pyrene	129-00-0	10.0	< 10.0	1
Pyridine	110-86-1	10.0	< 10.0	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	43.5	40.00	109	10-199	
Surr: Phenol-d6	13127-88-3	62.1	80.00	77.6	10-122	
Surr: Nitrobenzene-d5	4165-60-0	28.7	40.00	71.7	10-180	

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



Lab Sample ID: 1210392-001A

Client Sample ID: Cell1

Analyzed: 10/26/2012 1758h

Extracted: 10/24/2012 1128

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

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2-Fluorophenol	367-12-4	48.5	80.00	60.7	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	33.5	40.00	83.8	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	90.4	80.00	113	14-159	

*' - 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.*

*A library search was performed for 4-chlorophenol and the analyte was not detected*

*Internal standard areas were outside of the QC limits. MS samples 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



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-007  
**Client Sample ID:** Slimes #2

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:47  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	34000	mg/L	D	50		A2310 B	08/21/12 08:43 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/20/12 19:00 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/20/12 19:00 / jba
Calcium	462	mg/L	D	3		E200.7	09/10/12 13:09 / sf
Chloride	3730	mg/L	D	200		E300.0	09/10/12 21:27 / ljl
Fluoride	1.32	mg/L	D	0.53		A4500-F C	08/20/12 10:23 / jba
Magnesium	3760	mg/L	D	2		E200.7	09/10/12 13:09 / sf
Nitrogen, Ammonia as N	3540	mg/L	D	200		A4500-NH3 G	09/06/12 12:03 / ab
Nitrogen, Nitrate+Nitrite as N	27	mg/L	D	10		E353.2	09/04/12 15:47 / ljl
Potassium	611	mg/L	D	3		E200.7	09/10/12 13:09 / sf
Sodium	4380	mg/L	D	20		E200.7	09/10/12 13:09 / sf
Sulfate	58300	mg/L	D	800		E300.0	09/10/12 21:27 / ljl

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	52900	umhos/cm	E	1		A2510 B	08/22/12 09:52 / ab
pH	3.0	s.u.	H	0.010		A4500-H B	08/17/12 15:39 / ab
Solids, Total Dissolved TDS @ 180 C	83800	mg/L		10		A2540 C	08/21/12 15:24 / jz

#### METALS - DISSOLVED

Arsenic	19400	ug/L		5.0		E200.8	09/04/12 20:07 / cp
Beryllium	251	ug/L	D	1.8		E200.8	09/12/12 22:11 / cp
Cadmium	5290	ug/L		0.50		E200.8	09/04/12 20:07 / cp
Chromium	2350	ug/L		25		E200.8	09/12/12 22:11 / cp
Cobalt	48700	ug/L		10		E200.8	09/12/12 22:11 / cp
Copper	138000	ug/L		10		E200.8	09/10/12 20:52 / cp
Iron	2850000	ug/L	D	90		E200.7	09/04/12 17:17 / sf
Lead	619	ug/L		1.0		E200.8	09/04/12 20:07 / cp
Manganese	141000	ug/L		10		E200.8	09/12/12 22:11 / cp
Mercury	1.9	ug/L		0.50		E200.8	09/04/12 20:07 / cp
Molybdenum	3610	ug/L		10		E200.8	09/12/12 22:11 / cp
Nickel	125000	ug/L		20		E200.8	09/12/12 22:11 / cp
Selenium	711	ug/L		5.0		E200.8	09/04/12 20:07 / cp
Silver	ND	ug/L		10		E200.8	09/28/12 22:10 / cp
Thallium	338	ug/L	D	6.3		E200.8	09/12/12 22:11 / cp
Tin	ND	ug/L		100		E200.8	09/12/12 22:11 / cp
Uranium	33400	ug/L		0.30		E200.8	09/04/12 20:07 / cp
Vanadium	475000	ug/L		15		E200.8	09/12/12 22:11 / cp
Zinc	639000	ug/L	D	50		E200.7	09/04/12 17:17 / sf

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	1370	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	22.4	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	1.5	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 D - RL increased due to sample matrix.  
 H - Analysis performed past recommended holding time.



**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-007  
**Client Sample ID:** Slimes #2

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:47  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	5.42	%				A1030 E	09/14/12 10:51 / kbh
Anions	1320	meq/L				A1030 E	09/14/12 10:51 / kbh
Cations	1470	meq/L				A1030 E	09/14/12 10:51 / kbh
Solids, Total Dissolved Calculated	71000	mg/L				A1030 E	09/14/12 10:51 / kbh
TDS Balance (0.80 - 1.20)	1.18					A1030 E	09/14/12 10:51 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	600	ug/L		20		SW8260B	08/23/12 07:10 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Chloroform	16	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Chloromethane	3	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Methyl ethyl ketone	100	ug/L		20		SW8260B	08/23/12 07:10 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Naphthalene	12	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Toluene	2	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Xylenes, Total	2	ug/L		1.0		SW8260B	08/23/12 07:10 / jk
Surr: 1,2-Dichlorobenzene-d4	101	%REC		80-120		SW8260B	08/23/12 07:10 / jk
Surr: Dibromofluoromethane	117	%REC		70-130		SW8260B	08/23/12 07:10 / jk
Surr: p-Bromofluorobenzene	88.0	%REC		80-120		SW8260B	08/23/12 07:10 / jk
Surr: Toluene-d8	103	%REC		80-120		SW8260B	08/23/12 07:10 / jk

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

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



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-007  
**Client Sample ID:** Slimes #2

**Revised Date:** 11/27/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:47  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - DISSOLVED</b>							
Gross Alpha minus Rn & U	2400	pCi/L				E900.1	11/16/12 07:24 / lbb
Gross Alpha minus Rn & U Precision (±)	19.3	pCi/L				E900.1	11/16/12 07:24 / lbb
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	11/16/12 07:24 / lbb

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

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



## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-007A  
**Client Sample ID:** Slimes #2  
**Collection Date:** 8/15/2012 1047h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 1257h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Tetrahydrofuran	109-99-9	1.00	<b>3.20</b>	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	51.3	50.00	103	77-129	
Surr: Dibromofluoromethane	1868-53-7	50.5	50.00	101	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	51.6	50.00	103	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	54.0	50.00	108	72-151	

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Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-007B  
**Client Sample ID:** Slimes #2  
**Collection Date:** 8/15/2012 1047h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1832h      **Extracted:** 8/20/2012 912h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

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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	



**Lab Sample ID:** 1208302-007B

**Client Sample ID:** Slimes #2

**Analyzed:** 8/29/2012 1832h

**Extracted:** 8/20/2012 912h

**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
Benzidine	92-87-5	10.0	< 10.0	
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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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:** 1208302-007B

**Client Sample ID:** Slimes #2

**Analyzed:** 8/29/2012 1832h

**Extracted:** 8/20/2012 912h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	39.8	40.00	99.4	10-199	
Surr: Phenol-d6	13127-88-3	45.0	80.00	56.3	10-122	
Surr: Nitrobenzene-d5	4165-60-0	18.0	40.00	44.9	10-180	
Surr: 2-Fluorophenol	367-12-4	39.6	80.00	49.6	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	20.1	40.00	50.2	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	70.2	80.00	87.7	14-159	

*This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.  
Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Jose Rocha  
QA Officer



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-002  
**Client Sample ID:** Cell 3

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 11:20  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	29400	mg/L	D	100		A2310 B	08/21/12 07:52 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/18/12 00:38 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/18/12 00:38 / jba
Calcium	591	mg/L	D	1		E200.7	09/04/12 16:48 / sf
Chloride	8880	mg/L	D	1000		E300.0	08/21/12 12:47 / wc
Fluoride	2300	mg/L	D	50		A4500-F C	08/20/12 10:00 / jba
Magnesium	5680	mg/L	D	0.7		E200.7	09/04/12 16:48 / sf
Nitrogen, Ammonia as N	6840	mg/L	D	200		A4500-NH3 G	09/06/12 11:47 / ab
Nitrogen, Nitrate+Nitrite as N	64	mg/L	D	5		E353.2	08/27/12 15:13 / lr
Potassium	1190	mg/L	D	2		E200.7	09/04/12 16:48 / sf
Sodium	6660	mg/L	D	10		E200.7	09/04/12 16:48 / sf
Sulfate	80000	mg/L	D	4000		E300.0	08/21/12 12:47 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	80300	umhos/cm	E	1		A2510 B	08/22/12 09:35 / ab
pH	2.4	s.u.	H	0.010		A4500-H B	08/17/12 15:13 / ab
Solids, Total Dissolved TDS @ 180 C	120000	mg/L		10		A2540 C	08/21/12 15:23 / jz

#### METALS - DISSOLVED

Arsenic	4340	ug/L		5.0		E200.8	09/04/12 19:29 / cp
Beryllium	678	ug/L	D	1.8		E200.8	09/12/12 21:20 / cp
Cadmium	3460	ug/L		0.50		E200.8	09/04/12 19:29 / cp
Chromium	10900	ug/L		25		E200.8	09/12/12 21:20 / cp
Cobalt	76100	ug/L		10		E200.8	09/12/12 21:20 / cp
Copper	379000	ug/L		10		E200.8	09/10/12 20:39 / cp
Iron	3400000	ug/L	D	90		E200.7	09/04/12 16:48 / sf
Lead	1860	ug/L		1.0		E200.8	09/04/12 19:29 / cp
Manganese	3110000	ug/L	D	20		E200.7	09/21/12 14:57 / sf
Mercury	9.6	ug/L		0.50		E200.8	09/04/12 19:29 / cp
Molybdenum	790	ug/L		10		E200.8	09/04/12 19:29 / cp
Nickel	150000	ug/L		20		E200.8	09/12/12 21:20 / cp
Selenium	2460	ug/L		5.0		E200.8	09/04/12 19:29 / cp
Silver	1850	ug/L		10		E200.8	09/28/12 21:59 / cp
Thallium	1080	ug/L	D	6.3		E200.8	09/12/12 21:20 / cp
Tin	ND	ug/L		100		E200.8	09/12/12 21:20 / cp
Uranium	835000	ug/L	D	0.85		E200.8	09/12/12 21:20 / cp
Vanadium	836000	ug/L		15		E200.8	09/12/12 21:20 / cp
Zinc	652000	ug/L	D	50		E200.7	09/04/12 16:48 / sf

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	1530	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	14.4	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	0.6	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 D - RL increased due to sample matrix.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-002  
**Client Sample ID:** Cell 3

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 11:20  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	-3.75	%				A1030 E	09/07/12 06:37 / kbh
Anions	2040	meq/L				A1030 E	09/07/12 06:37 / kbh
Cations	1890	meq/L				A1030 E	09/07/12 06:37 / kbh
Solids, Total Dissolved Calculated	110000	mg/L				A1030 E	09/07/12 06:37 / kbh
TDS Balance (0.80 - 1.20)	1.13					A1030 E	09/07/12 06:37 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	64	ug/L		20		SW8260B	08/23/12 04:08 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Chloroform	2	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Chloromethane	1	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Methyl ethyl ketone	ND	ug/L		20		SW8260B	08/23/12 04:08 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Naphthalene	ND	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 04:08 / jk
Surr: 1,2-Dichlorobenzene-d4	100	%REC		80-120		SW8260B	08/23/12 04:08 / jk
Surr: Dibromofluoromethane	126	%REC		70-130		SW8260B	08/23/12 04:08 / jk
Surr: p-Bromofluorobenzene	86.0	%REC		80-120		SW8260B	08/23/12 04:08 / jk
Surr: Toluene-d8	104	%REC		80-120		SW8260B	08/23/12 04:08 / jk

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

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



## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-002A  
**Client Sample ID:** Cell 3  
**Collection Date:** 8/15/2012 1120h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 1006h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Tetrahydrofuran	109-99-9	1.00	< 1.00	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	50.0	50.00	100	77-129	
Surr: Dibromofluoromethane	1868-53-7	51.8	50.00	104	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	53.6	50.00	107	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	56.0	50.00	112	72-151	

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-002B  
**Client Sample ID:** Cell 3  
**Collection Date:** 8/15/2012 1120h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1523h      **Extracted:** 8/20/2012 912h  
**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	



**Lab Sample ID:** 1208302-002B

**Client Sample ID:** Cell 3

**Analyzed:** 8/29/2012 1523h

**Extracted:** 8/20/2012 912h

**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
Benzidine	92-87-5	10.0	< 10.0	
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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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:** 1208302-002B

**Client Sample ID:** Cell 3

**Analyzed:** 8/29/2012 1523h

**Extracted:** 8/20/2012 912h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	30.7	40.00	76.8	10-199	
Surr: Phenol-d6	13127-88-3	39.2	80.00	48.9	10-122	
Surr: Nitrobenzene-d5	4165-60-0	14.8	40.00	37.0	10-180	
Surr: 2-Fluorophenol	367-12-4	36.2	80.00	45.3	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	17.6	40.00	44.1	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	53.0	80.00	66.3	14-159	

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*This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.  
Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-003  
**Client Sample ID:** Cell 4A

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 07:50  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	35300	mg/L	D	50		A2310 B	08/21/12 08:02 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/20/12 18:42 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/20/12 18:42 / jba
Calcium	591	mg/L	D	1		E200.7	09/04/12 16:52 / sf
Chloride	4980	mg/L	D	1000		E300.0	08/21/12 13:04 / wc
Fluoride	43	mg/L	D	1.0		A4500-F C	08/20/12 10:03 / jba
Magnesium	2230	mg/L	D	0.7		E200.7	09/04/12 16:52 / sf
Nitrogen, Ammonia as N	1540	mg/L	D	50		A4500-NH3 G	09/06/12 11:49 / ab
Nitrogen, Nitrate+Nitrite as N	27	mg/L	D	10		E353.2	09/04/12 15:22 / ljl
Potassium	558	mg/L	D	2		E200.7	09/04/12 16:52 / sf
Sodium	7130	mg/L	D	10		E200.7	09/04/12 16:52 / sf
Sulfate	64900	mg/L	D	4000		E300.0	08/21/12 13:04 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	78100	umhos/cm	E	1		A2510 B	08/22/12 09:39 / ab
pH	1.2	s.u.	H	0.010		A4500-H B	08/17/12 15:18 / ab
Solids, Total Dissolved TDS @ 180 C	76000	mg/L		10		A2540 C	08/20/12 15:40 / jz

#### METALS - DISSOLVED

Arsenic	60500	ug/L		5.0		E200.8	09/04/12 19:33 / cp
Beryllium	167	ug/L	D	1.8		E200.8	09/12/12 21:25 / cp
Cadmium	844	ug/L		0.50		E200.8	09/04/12 19:33 / cp
Chromium	5990	ug/L		25		E200.8	09/12/12 21:25 / cp
Cobalt	22900	ug/L		10		E200.8	09/12/12 21:25 / cp
Copper	433000	ug/L		10		E200.8	09/10/12 20:42 / cp
Iron	3190000	ug/L	D	90		E200.7	09/04/12 16:52 / sf
Lead	5270	ug/L		1.0		E200.8	09/04/12 19:33 / cp
Manganese	112000	ug/L		10		E200.8	09/04/12 19:33 / cp
Mercury	2.4	ug/L		0.50		E200.8	09/04/12 19:33 / cp
Molybdenum	58200	ug/L		10		E200.8	09/04/12 19:33 / cp
Nickel	41300	ug/L		20		E200.8	09/12/12 21:25 / cp
Selenium	1310	ug/L		5.0		E200.8	09/04/12 19:33 / cp
Silver	127	ug/L		10		E200.8	09/28/12 22:01 / cp
Thallium	250	ug/L	D	6.3		E200.8	09/12/12 21:25 / cp
Tin	169	ug/L		100		E200.8	09/12/12 21:25 / cp
Uranium	91000	ug/L		0.30		E200.8	09/04/12 19:33 / cp
Vanadium	237000	ug/L		15		E200.8	09/12/12 21:25 / cp
Zinc	200000	ug/L	D	22		E200.8	09/12/12 21:25 / cp

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	16300	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	66.8	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	1.1	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
MDC - Minimum detectable concentration  
E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
D - RL increased due to sample matrix.  
H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-003  
**Client Sample ID:** Cell 4A

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 07:50  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	-4.97	%				A1030 E	09/07/12 06:37 / kbh
Anions	1490	meq/L				A1030 E	09/07/12 06:37 / kbh
Cations	1350	meq/L				A1030 E	09/07/12 06:37 / kbh
Solids, Total Dissolved Calculated	80000	mg/L				A1030 E	09/07/12 06:37 / kbh
TDS Balance (0.80 - 1.20)	0.940					A1030 E	09/07/12 06:37 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	25	ug/L		20		SW8260B	08/23/12 04:44 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Chloroform	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Chloromethane	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Methyl ethyl ketone	ND	ug/L		20		SW8260B	08/23/12 04:44 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Naphthalene	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 04:44 / jk
Surr: 1,2-Dichlorobenzene-d4	100	%REC		80-120		SW8260B	08/23/12 04:44 / jk
Surr: Dibromofluoromethane	108	%REC		70-130		SW8260B	08/23/12 04:44 / jk
Surr: p-Bromofluorobenzene	84.0	%REC		80-120		SW8260B	08/23/12 04:44 / jk
Surr: Toluene-d8	103	%REC		80-120		SW8260B	08/23/12 04:44 / jk

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

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



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-003A  
**Client Sample ID:** Cell 4A  
**Collection Date:** 8/15/2012 750h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 909h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

463 West 3600 South  
Salt Lake City, UT 84115

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Tetrahydrofuran	109-99-9	1.00	1.36	

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Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	50.5	50.00	101	77-129	
Surr: Dibromofluoromethane	1868-53-7	52.4	50.00	105	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	52.1	50.00	104	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	55.8	50.00	112	72-151	

web: www.awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-003B  
**Client Sample ID:** Cell 4A  
**Collection Date:** 8/15/2012 750h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

**Analytical Results**

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1550h      **Extracted:** 8/20/2012 912h  
**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	

All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any



**Lab Sample ID:** 1208302-003B

**Client Sample ID:** Cell 4A

**Analyzed:** 8/29/2012 1550h

**Extracted:** 8/20/2012 912h

**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
Benzidine	92-87-5	10.0	< 10.0	
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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	@
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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:** 1208302-003B

**Client Sample ID:** Cell 4A

**Analyzed:** 8/29/2012 1550h

**Extracted:** 8/20/2012 912h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	36.8	40.00	92.0	10-199	
Surr: Phenol-d6	13127-88-3	40.7	80.00	50.8	10-122	
Surr: Nitrobenzene-d5	4165-60-0	22.9	40.00	57.2	10-180	
Surr: 2-Fluorophenol	367-12-4	32.9	80.00	41.1	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	21.7	40.00	54.2	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	54.1	80.00	67.6	14-159	

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*^ - 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.*

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

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

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-004  
**Client Sample ID:** Cell 4A LDS

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 08:10  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	24100	mg/L	D	50		A2310 B	08/21/12 08:12 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/20/12 18:46 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/20/12 18:46 / jba
Calcium	453	mg/L	D	1		E200.7	09/04/12 16:55 / sf
Chloride	2710	mg/L	D	200		E300.0	08/21/12 13:22 / wc
Fluoride	27	mg/L	D	1.0		A4500-F C	08/20/12 10:07 / jba
Magnesium	2070	mg/L	D	0.7		E200.7	09/04/12 16:55 / sf
Nitrogen, Ammonia as N	1320	mg/L	D	50		A4500-NH3 G	09/06/12 11:51 / ab
Nitrogen, Nitrate+Nitrite as N	15	mg/L	D	10		E353.2	09/04/12 15:30 / ljl
Potassium	503	mg/L	D	2		E200.7	09/04/12 16:55 / sf
Sodium	3500	mg/L	D	10		E200.7	09/04/12 16:55 / sf
Sulfate	39600	mg/L	D	800		E300.0	08/21/12 13:22 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	39600	umhos/cm		1		A2510 B	08/22/12 09:42 / ab
pH	2.1	s.u.	H	0.010		A4500-H B	08/17/12 15:23 / ab
Solids, Total Dissolved TDS @ 180 C	55400	mg/L		10		A2540 C	08/21/12 15:23 / jz

#### METALS - DISSOLVED

Arsenic	44100	ug/L		5.0		E200.8	09/04/12 19:37 / cp
Beryllium	180	ug/L	D	1.8		E200.8	09/12/12 21:29 / cp
Cadmium	921	ug/L		0.50		E200.8	09/04/12 19:37 / cp
Chromium	3930	ug/L		25		E200.8	09/12/12 21:29 / cp
Cobalt	22300	ug/L		10		E200.8	09/12/12 21:29 / cp
Copper	481000	ug/L	D	200		E200.7	09/04/12 16:55 / sf
Iron	2460000	ug/L	D	90		E200.7	09/04/12 16:55 / sf
Lead	2300	ug/L		1.0		E200.8	09/04/12 19:37 / cp
Manganese	95200	ug/L		10		E200.8	09/04/12 19:37 / cp
Mercury	0.7	ug/L		0.50		E200.8	09/04/12 19:37 / cp
Molybdenum	10200	ug/L		10		E200.8	09/04/12 19:37 / cp
Nickel	35000	ug/L		20		E200.8	09/12/12 21:29 / cp
Selenium	1260	ug/L		5.0		E200.8	09/04/12 19:37 / cp
Silver	44	ug/L		10		E200.8	09/28/12 22:03 / cp
Thallium	332	ug/L	D	6.3		E200.8	09/12/12 21:29 / cp
Tin	ND	ug/L		100		E200.8	09/12/12 21:29 / cp
Uranium	90200	ug/L		0.30		E200.8	09/04/12 19:37 / cp
Vanadium	240000	ug/L		15		E200.8	09/12/12 21:29 / cp
Zinc	181000	ug/L	D	22		E200.8	09/12/12 21:29 / cp

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	4730	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	45.1	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	1.8	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 H - Analysis performed past recommended holding time.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 D - RL increased due to sample matrix.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-004  
**Client Sample ID:** Cell 4A LDS

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 08:10  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	1.63	%				A1030 E	09/07/12 06:37 / kbh
Anions	904	meq/L				A1030 E	09/07/12 06:37 / kbh
Cations	934	meq/L				A1030 E	09/07/12 06:37 / kbh
Solids, Total Dissolved Calculated	49000	mg/L				A1030 E	09/07/12 06:37 / kbh
TDS Balance (0.80 - 1.20)	1.13					A1030 E	09/07/12 06:37 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	55	ug/L		20		SW8260B	08/23/12 05:21 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Chloroform	42	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Chloromethane	6	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Methyl ethyl ketone	36	ug/L		20		SW8260B	08/23/12 05:21 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Naphthalene	1	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 05:21 / jk
Surr: 1,2-Dichlorobenzene-d4	95.0	%REC		80-120		SW8260B	08/23/12 05:21 / jk
Surr: Dibromofluoromethane	102	%REC		70-130		SW8260B	08/23/12 05:21 / jk
Surr: p-Bromofluorobenzene	82.0	%REC		80-120		SW8260B	08/23/12 05:21 / jk
Surr: Toluene-d8	104	%REC		80-120		SW8260B	08/23/12 05:21 / jk

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

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



## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-004A  
**Client Sample ID:** Cell 4A LDS  
**Collection Date:** 8/15/2012 810h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 1103h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual		
Tetrahydrofuran	109-99-9	1.00	117			
Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	52.1	50.00	104	77-129	
Surr: Dibromofluoromethane	1868-53-7	51.8	50.00	104	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	50.9	50.00	102	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	50.3	50.00	101	72-151	

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-004B  
**Client Sample ID:** Cell 4A LDS  
**Collection Date:** 8/15/2012 810h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1711h      **Extracted:** 8/20/2012 912h  
**Units:** µg/L      **Dilution Factor:** 1      **Method:** SW8270D

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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	



Lab Sample ID: 1208302-004B

Client Sample ID: Cell 4A LDS

Analyzed: 8/29/2012 1711h

Extracted: 8/20/2012 912h

Units: µg/L

Dilution Factor: 1

Method: SW8270D

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Benzidine	92-87-5	10.0	< 10.0	
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	<b>16.6</b>	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	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	
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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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:** 1208302-004B

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

**Analyzed:** 8/29/2012 1711h

**Extracted:** 8/20/2012 912h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	35.3	40.00	88.3	10-199	
Surr: Phenol-d6	13127-88-3	28.1	80.00	35.1	10-122	
Surr: Nitrobenzene-d5	4165-60-0	19.7	40.00	49.2	10-180	
Surr: 2-Fluorophenol	367-12-4	37.2	80.00	46.5	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	17.5	40.00	43.6	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	62.0	80.00	77.5	14-159	

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*This sample was analyzed for the TIC compound 4-Chlorophenol and was not detected.  
Gel-Permeation Chromatography (GPC) Cleanup, method 3640A, utilized for this sample.*

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-005  
**Client Sample ID:** Cell 4B

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 09:05  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	46500	mg/L	D	50		A2310 B	08/21/12 08:24 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/20/12 18:53 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/20/12 18:53 / jba
Calcium	580	mg/L	D	3		E200.7	09/10/12 12:50 / sf
Chloride	8170	mg/L	D	1000		E300.0	09/07/12 16:26 / wc
Fluoride	23.3	mg/L	D	1.1		A4500-F C	08/20/12 10:13 / jba
Magnesium	4500	mg/L	D	2		E200.7	09/10/12 12:50 / sf
Nitrogen, Ammonia as N	5580	mg/L	D	200		A4500-NH3 G	09/06/12 11:53 / ab
Nitrogen, Nitrate+Nitrite as N	42	mg/L	D	20		E353.2	09/04/12 15:02 / ljl
Potassium	1650	mg/L	D	100		E200.7	09/10/12 12:50 / sf
Sodium	11700	mg/L	D	20		E200.7	09/10/12 12:50 / sf
Sulfate	119000	mg/L	D	4000		E300.0	09/07/12 16:26 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	86900	umhos/cm	E	1		A2510 B	08/22/12 09:46 / ab
pH	1.5	s.u.	H	0.010		A4500-H B	08/17/12 15:29 / ab
Solids, Total Dissolved TDS @ 180 C	128000	mg/L		10		A2540 C	08/21/12 15:24 / jz

#### METALS - DISSOLVED

Arsenic	80000	ug/L		5.0		E200.8	09/04/12 19:41 / cp
Beryllium	356	ug/L	D	1.8		E200.8	09/12/12 22:03 / cp
Cadmium	2540	ug/L	D	3.1		E200.8	09/12/12 22:03 / cp
Chromium	8280	ug/L		25		E200.8	09/12/12 22:03 / cp
Cobalt	29300	ug/L		10		E200.8	09/12/12 22:03 / cp
Copper	340000	ug/L		10		E200.8	09/10/12 20:47 / cp
Iron	3580000	ug/L	D	90		E200.7	09/04/12 16:59 / sf
Lead	11600	ug/L		1.0		E200.8	09/04/12 19:41 / cp
Manganese	148000	ug/L		10		E200.8	09/04/12 19:41 / cp
Mercury	2.6	ug/L		0.50		E200.8	09/04/12 19:41 / cp
Molybdenum	27600	ug/L		10		E200.8	09/04/12 19:41 / cp
Nickel	50500	ug/L		20		E200.8	09/12/12 22:03 / cp
Selenium	4470	ug/L		5.0		E200.8	09/04/12 19:41 / cp
Silver	169	ug/L		10		E200.8	09/28/12 22:05 / cp
Thallium	368	ug/L	D	6.3		E200.8	09/12/12 22:03 / cp
Tin	215	ug/L		100		E200.8	09/12/12 22:03 / cp
Uranium	171000	ug/L		0.30		E200.8	09/04/12 19:41 / cp
Vanadium	783000	ug/L		15		E200.8	09/12/12 22:03 / cp
Zinc	270000	ug/L	D	22		E200.8	09/12/12 22:03 / cp

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	13600	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	73.8	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	1.7	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 D - RL increased due to sample matrix.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-005  
**Client Sample ID:** Cell 4B

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 09:05  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	-8.58	%				A1030 E	09/14/12 10:46 / kbh
Anions	2700	meq/L				A1030 E	09/14/12 10:46 / kbh
Cations	2280	meq/L				A1030 E	09/14/12 10:46 / kbh
Solids, Total Dissolved Calculated	140000	mg/L				A1030 E	09/14/12 10:46 / kbh
TDS Balance (0.80 - 1.20)	0.880					A1030 E	09/14/12 10:46 / kbh
- The Anion / Cation balance was confirmed by re-analysis.							
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	94	ug/L		20		SW8260B	08/23/12 05:57 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Chloroform	4	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Chloromethane	8	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Methyl ethyl ketone	ND	ug/L		20		SW8260B	08/23/12 05:57 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Naphthalene	ND	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 05:57 / jk
Surr: 1,2-Dichlorobenzene-d4	103	%REC		80-120		SW8260B	08/23/12 05:57 / jk
Surr: Dibromofluoromethane	120	%REC		70-130		SW8260B	08/23/12 05:57 / jk
Surr: p-Bromofluorobenzene	85.0	%REC		80-120		SW8260B	08/23/12 05:57 / jk
Surr: Toluene-d8	100	%REC		80-120		SW8260B	08/23/12 05:57 / jk

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

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



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-005A  
**Client Sample ID:** Cell 4B  
**Collection Date:** 8/15/2012 905h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

## VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 928h

**Units:** µg/L

**Dilution Factor:** 10

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual		
Tetrahydrofuran	109-99-9	10.0	11.1			
Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	501	500.0	100	77-129	
Surr: Dibromofluoromethane	1868-53-7	500	500.0	100	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	502	500.0	100	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	517	500.0	103	72-151	

*The reporting limits were raised due to sample matrix interferences. Oil on top of sample.*

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-005B  
**Client Sample ID:** Cell 4B  
**Collection Date:** 8/15/2012 905h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

**Analytical Results**

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1738h      **Extracted:** 8/20/2012 912h  
**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	



Lab Sample ID: 1208302-005B

Client Sample ID: Cell 4B

Analyzed: 8/29/2012 1738h

Extracted: 8/20/2012 912h

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
Benzidine	92-87-5	10.0	< 10.0	
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	<b>19.0</b>	
Butyl benzyl phthalate	85-68-7	10.0	< 10.0	
Chrysene	218-01-9	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	
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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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:** 1208302-005B

**Client Sample ID:** Cell 4B

**Analyzed:** 8/29/2012 1738h

**Extracted:** 8/20/2012 912h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	58.0	40.00	145	10-199	
Surr: Phenol-d6	13127-88-3	92.7	80.00	116	10-122	
Surr: Nitrobenzene-d5	4165-60-0	24.4	40.00	60.9	10-180	
Surr: 2-Fluorophenol	367-12-4	7.01	80.00	8.76	10-106	S
Surr: 2-Fluorobiphenyl	321-60-8	20.0	40.00	50.1	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	41.6	80.00	52.0	14-159	

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

*Internal standard areas were outside of the QC limits. Previous samples from client yielded similar results indicating matrix interference.*

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

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

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QA Officer

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-006  
**Client Sample ID:** Cell 4B LDS

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 08:35  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO <sub>3</sub>	27400	mg/L	D	50		A2310 B	08/21/12 08:33 / jba
Carbonate as CO <sub>3</sub>	ND	mg/L		1		A2320 B	08/20/12 18:56 / jba
Bicarbonate as HCO <sub>3</sub>	ND	mg/L		1		A2320 B	08/20/12 18:56 / jba
Calcium	456	mg/L	D	3		E200.7	09/10/12 13:05 / sf
Chloride	6850	mg/L	D	1000		E300.0	09/07/12 16:43 / wc
Fluoride	22	mg/L	D	1.0		A4500-F C	08/20/12 10:18 / jba
Magnesium	3360	mg/L	D	2		E200.7	09/10/12 13:05 / sf
Nitrogen, Ammonia as N	4090	mg/L	D	200		A4500-NH <sub>3</sub> G	09/06/12 11:55 / ab
Nitrogen, Nitrate+Nitrite as N	31	mg/L	D	10		E353.2	09/04/12 15:42 / ljl
Potassium	1060	mg/L	D	3		E200.7	09/10/12 13:05 / sf
Sodium	8080	mg/L	D	20		E200.7	09/10/12 13:05 / sf
Sulfate	99100	mg/L	D	4000		E300.0	09/07/12 16:43 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	62400	umhos/cm	E	1		A2510 B	08/22/12 09:49 / ab
pH	2.4	s.u.	H	0.010		A4500-H B	08/17/12 15:34 / ab
Solids, Total Dissolved TDS @ 180 C	90200	mg/L		10		A2540 C	08/21/12 15:24 / jz

#### METALS - DISSOLVED

Arsenic	41200	ug/L		5.0		E200.8	09/04/12 20:03 / cp
Beryllium	271	ug/L	D	1.8		E200.8	09/12/12 22:07 / cp
Cadmium	1740	ug/L		0.50		E200.8	09/04/12 20:03 / cp
Chromium	5930	ug/L		25		E200.8	09/12/12 22:07 / cp
Cobalt	19000	ug/L		10		E200.8	09/12/12 22:07 / cp
Copper	181000	ug/L		10		E200.8	09/10/12 20:49 / cp
Iron	2120000	ug/L	D	90		E200.7	09/04/12 17:13 / sf
Lead	4420	ug/L		1.0		E200.8	09/04/12 20:03 / cp
Manganese	162000	ug/L		10		E200.8	09/12/12 22:07 / cp
Mercury	3.0	ug/L		0.50		E200.8	09/04/12 20:03 / cp
Molybdenum	15000	ug/L		10		E200.8	09/12/12 22:07 / cp
Nickel	33700	ug/L		20		E200.8	09/12/12 22:07 / cp
Selenium	2880	ug/L		5.0		E200.8	09/04/12 20:03 / cp
Silver	117	ug/L		10		E200.8	09/28/12 22:07 / cp
Thallium	175	ug/L	D	6.3		E200.8	09/12/12 22:07 / cp
Tin	ND	ug/L		100		E200.8	09/12/12 22:07 / cp
Uranium	132000	ug/L		0.30		E200.8	09/04/12 20:03 / cp
Vanadium	428000	ug/L		15		E200.8	09/12/12 22:07 / cp
Zinc	182000	ug/L	D	22		E200.8	09/12/12 22:07 / cp

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	7500	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U Precision (±)	55.5	pCi/L				E900.1	08/29/12 06:27 / lbb
Gross Alpha minus Rn & U MDC	1.7	pCi/L				E900.1	08/29/12 06:27 / lbb

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration  
 E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 D - RL increased due to sample matrix.  
 H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-006  
**Client Sample ID:** Cell 4B LDS

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 08:35  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	-19.6	%				A1030 E	09/14/12 10:47 / kbh
Anions	2260	meq/L				A1030 E	09/14/12 10:47 / kbh
Cations	1520	meq/L				A1030 E	09/14/12 10:47 / kbh
Solids, Total Dissolved Calculated	120000	mg/L				A1030 E	09/14/12 10:47 / kbh
TDS Balance (0.80 - 1.20)	0.760					A1030 E	09/14/12 10:47 / kbh
- The Anion / Cation balance was confirmed by re-analysis.							
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	370	ug/L		20		SW8260B	08/23/12 06:34 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Chloroform	19	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Chloromethane	11	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Methyl ethyl ketone	180	ug/L		20		SW8260B	08/23/12 06:34 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Naphthalene	ND	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 06:34 / jk
Surr: 1,2-Dichlorobenzene-d4	97.0	%REC		80-120		SW8260B	08/23/12 06:34 / jk
Surr: Dibromofluoromethane	116	%REC		70-130		SW8260B	08/23/12 06:34 / jk
Surr: p-Bromofluorobenzene	86.0	%REC		80-120		SW8260B	08/23/12 06:34 / jk
Surr: Toluene-d8	101	%REC		80-120		SW8260B	08/23/12 06:34 / jk

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

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



## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-006A  
**Client Sample ID:** Cell 4B LDS  
**Collection Date:** 8/15/2012 835h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

### VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 1219h

**Units:** µg/L

**Dilution Factor:** 10

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual		
Tetrahydrofuran	109-99-9	10.0	322			
Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	520	500.0	104	77-129	
Surr: Dibromofluoromethane	1868-53-7	490	500.0	98.0	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	507	500.0	101	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	477	500.0	95.4	72-151	

*The reporting limits were raised due to high analyte concentrations.*

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-006B  
**Client Sample ID:** Cell 4B LDS  
**Collection Date:** 8/15/2012 835h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

**Analytical Results**

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1805h      **Extracted:** 8/20/2012 912h  
**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	



**Lab Sample ID:** 1208302-006B

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

**Analyzed:** 8/29/2012 1805h

**Extracted:** 8/20/2012 912h

**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
Benzidine	92-87-5	10.0	< 10.0	
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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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: 1208302-006B

Client Sample ID: Cell 4B LDS

Analyzed: 8/29/2012 1805h

Extracted: 8/20/2012 912h

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

Dilution Factor: 1

Method: SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	37.5	40.00	93.8	10-199	
Surr: Phenol-d6	13127-88-3	57.3	80.00	71.7	10-122	
Surr: Nitrobenzene-d5	4165-60-0	23.4	40.00	58.4	10-180	
Surr: 2-Fluorophenol	367-12-4	2.85	80.00	3.56	10-106	S
Surr: 2-Fluorobiphenyl	321-60-8	17.8	40.00	44.4	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	15.6	80.00	19.5	14-159	

*S - Surrogate recoveries outside the control limits. Previous samples from client yielded similar results indicating matrix interference.*

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

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

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-008  
**Client Sample ID:** Cell 65

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:47  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Acidity, Total as CaCO3	33500	mg/L	D	50		A2310 B	08/21/12 08:53 / jba
Carbonate as CO3	ND	mg/L		1		A2320 B	08/20/12 19:04 / jba
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/20/12 19:04 / jba
Calcium	503	mg/L	D	1		E200.7	09/04/12 17:21 / sf
Chloride	3990	mg/L	D	1000		E300.0	08/21/12 15:06 / wc
Fluoride	1.22	mg/L	D	0.51		A4500-F C	08/20/12 10:27 / jba
Magnesium	3840	mg/L	D	0.7		E200.7	09/04/12 17:21 / sf
Nitrogen, Ammonia as N	3610	mg/L	D	200		A4500-NH3 G	09/06/12 12:09 / ab
Nitrogen, Nitrate+Nitrite as N	28	mg/L	D	10		E353.2	09/04/12 15:52 / ljl
Potassium	585	mg/L	D	2		E200.7	09/04/12 17:21 / sf
Sodium	4380	mg/L	D	10		E200.7	09/04/12 17:21 / sf
Sulfate	62300	mg/L	D	4000		E300.0	08/21/12 15:06 / wc

- Acidity reported for informational purposes due to a sample pH of less than 4.

#### PHYSICAL PROPERTIES

Conductivity @ 25 C	52600	umhos/cm	E	1		A2510 B	08/22/12 09:56 / ab
pH	3.0	s.u.	H	0.010		A4500-H B	08/17/12 15:45 / ab
Solids, Total Dissolved TDS @ 180 C	88400	mg/L		10		A2540 C	08/21/12 15:24 / jz

#### METALS - DISSOLVED

Arsenic	19100	ug/L		5.0		E200.8	09/04/12 20:11 / cp
Beryllium	249	ug/L	D	1.8		E200.8	09/12/12 22:15 / cp
Cadmium	5320	ug/L		0.50		E200.8	09/04/12 20:11 / cp
Chromium	2450	ug/L		25		E200.8	09/10/12 21:05 / cp
Cobalt	50800	ug/L		10		E200.8	09/10/12 21:05 / cp
Copper	138000	ug/L		10		E200.8	09/10/12 21:05 / cp
Iron	3150000	ug/L	D	90		E200.7	09/04/12 17:21 / sf
Lead	643	ug/L		1.0		E200.8	09/04/12 20:11 / cp
Manganese	144000	ug/L		10		E200.8	09/10/12 21:05 / cp
Mercury	1.5	ug/L		0.50		E200.8	09/04/12 20:11 / cp
Molybdenum	3520	ug/L		10		E200.8	09/10/12 21:05 / cp
Nickel	120000	ug/L		20		E200.8	09/10/12 21:05 / cp
Selenium	655	ug/L		5.0		E200.8	09/04/12 20:11 / cp
Silver	ND	ug/L		10		E200.8	09/10/12 21:05 / cp
Thallium	290	ug/L	D	1.1		E200.8	09/10/12 21:05 / cp
Tin	ND	ug/L		100		E200.8	09/12/12 22:15 / cp
Uranium	33600	ug/L		0.30		E200.8	09/04/12 20:11 / cp
Vanadium	506000	ug/L		15		E200.8	09/10/12 21:05 / cp
Zinc	706000	ug/L	D	50		E200.7	09/04/12 17:21 / sf

#### RADIONUCLIDES - DISSOLVED

Gross Alpha minus Rn & U	1550	pCi/L				E900.1	08/29/12 08:22 / lbb
Gross Alpha minus Rn & U Precision (±)	24.9	pCi/L				E900.1	08/29/12 08:22 / lbb
Gross Alpha minus Rn & U MDC	1.7	pCi/L				E900.1	08/29/12 08:22 / lbb

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.  
MDC - Minimum detectable concentration  
E - Estimated value. Result exceeds the instrument upper quantitation limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
D - RL increased due to sample matrix.  
H - Analysis performed past recommended holding time.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-008  
**Client Sample ID:** Cell 65

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:47  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>DATA QUALITY</b>							
A/C Balance (± 5)	2.18	%				A1030 E	09/07/12 06:38 / kbh
Anions	1410	meq/L				A1030 E	09/07/12 06:38 / kbh
Cations	1470	meq/L				A1030 E	09/07/12 06:38 / kbh
Solids, Total Dissolved Calculated	76000	mg/L				A1030 E	09/07/12 06:38 / kbh
TDS Balance (0.80 - 1.20)	1.17					A1030 E	09/07/12 06:38 / kbh
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	500	ug/L		20		SW8260B	08/23/12 07:47 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Chloroform	15	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Chloromethane	3	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Methyl ethyl ketone	96	ug/L		20		SW8260B	08/23/12 07:47 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Naphthalene	10	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Toluene	2	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Xylenes, Total	2	ug/L		1.0		SW8260B	08/23/12 07:47 / jk
Surr: 1,2-Dichlorobenzene-d4	99.0	%REC		80-120		SW8260B	08/23/12 07:47 / jk
Surr: Dibromofluoromethane	114	%REC		70-130		SW8260B	08/23/12 07:47 / jk
Surr: p-Bromofluorobenzene	84.0	%REC		80-120		SW8260B	08/23/12 07:47 / jk
Surr: Toluene-d8	98.0	%REC		80-120		SW8260B	08/23/12 07:47 / jk

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

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



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-008  
**Client Sample ID:** Cell 65

**Revised Date:** 11/27/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12 10:47  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>RADIONUCLIDES - DISSOLVED</b>							
Gross Alpha minus Rn & U	2190	pCi/L				E900.1	11/16/12 07:24 / lbb
Gross Alpha minus Rn & U Precision (±)	18.1	pCi/L				E900.1	11/16/12 07:24 / lbb
Gross Alpha minus Rn & U MDC	0.8	pCi/L				E900.1	11/16/12 07:24 / lbb

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
MDC - Minimum detectable concentration

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



## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-008A  
**Client Sample ID:** Cell 65  
**Collection Date:** 8/15/2012 1047h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 1200h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Tetrahydrofuran	109-99-9	1.00	3.77	

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Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	53.8	50.00	108	77-129	
Surr: Dibromofluoromethane	1868-53-7	51.5	50.00	103	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	52.8	50.00	106	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	51.4	50.00	103	72-151	

web: www.awal-labs.com

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



# ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-008B  
**Client Sample ID:** Cell 65  
**Collection Date:** 8/15/2012 1047h  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

## Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 8/29/2012 1859h      **Extracted:** 8/20/2012 912h  
**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	



Lab Sample ID: 1208302-008B

Client Sample ID: Cell 65

Analyzed: 8/29/2012 1859h

Extracted: 8/20/2012 912h

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
Benzidine	92-87-5	10.0	< 10.0	
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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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:** 1208302-008B

**Client Sample ID:** Cell 65

**Analyzed:** 8/29/2012 1859h

**Extracted:** 8/20/2012 912h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	41.1	40.00	103	10-199	
Surr: Phenol-d6	13127-88-3	51.4	80.00	64.3	10-122	
Surr: Nitrobenzene-d5	4165-60-0	20.7	40.00	51.8	10-180	
Surr: 2-Fluorophenol	367-12-4	44.7	80.00	55.9	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	19.9	40.00	49.9	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	63.0	80.00	78.8	14-159	

463 West 3600 South

Salt Lake City, UT 84115

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

*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.  
**Project:** Annual Tails 2012  
**Lab Sample ID:** 1210392-002A  
**Client Sample ID:** Cell70  
**Collection Date:** 10/22/2012 1230h  
**Received Date:** 10/24/2012 1010h

**Contact:** Garrin Palmer

## Analytical Results

SVOA List by GC/MS Method 8270D/3510C

**Analyzed:** 10/26/2012 1916h    **Extracted:** 10/24/2012 1128  
**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: 1210392-002A

Client Sample ID: Cell70

Analyzed: 10/26/2012 1916h      Extracted: 10/24/2012 1128

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	
Di-n-butyl phthalate	84-74-2	10.0	< 10.0	
Di-n-octyl phthalate	117-84-0	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	
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	
N-Nitrosodimethylamine	62-75-9	10.0	< 10.0	
N-Nitrosodiphenylamine	86-30-6	10.0	< 10.0	
N-Nitrosodi-n-propylamine	621-64-7	10.0	< 10.0	
Naphthalene	91-20-3	10.0	< 10.0	
Nitrobenzene	98-95-3	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	

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Terphenyl-d14	1718-51-0	48.8	40.00	122	10-199	
Surr: Phenol-d6	13127-88-3	80.9	80.00	101	10-122	
Surr: Nitrobenzene-d5	4165-60-0	29.4	40.00	73.4	10-180	



**Lab Sample ID:** 1210392-002A

**Client Sample ID:** Cell70

**Analyzed:** 10/26/2012 1916h

**Extracted:** 10/24/2012 1128

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8270D

Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: 2-Fluorophenol	367-12-4	50.4	80.00	63.0	10-106	
Surr: 2-Fluorobiphenyl	321-60-8	33.6	40.00	84.0	10-124	
Surr: 2,4,6-Tribromophenol	118-79-6	104	80.00	130	14-159	

*A library search was performed for 4-chlorophenol and the analyte was not detected.*

*Internal standard areas were outside of the QC limits. 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



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-009  
**Client Sample ID:** Trip Blank 6746

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/15/12  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Acetone	ND	ug/L		20		SW8260B	08/23/12 01:06 / jk
Benzene	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Carbon tetrachloride	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Chloroform	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Chloromethane	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Methyl ethyl ketone	ND	ug/L		20		SW8260B	08/23/12 01:06 / jk
Methylene chloride	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Naphthalene	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Toluene	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Xylenes, Total	ND	ug/L		1.0		SW8260B	08/23/12 01:06 / jk
Surr: 1,2-Dichlorobenzene-d4	89.0	%REC		80-120		SW8260B	08/23/12 01:06 / jk
Surr: Dibromofluoromethane	91.0	%REC		70-130		SW8260B	08/23/12 01:06 / jk
Surr: p-Bromofluorobenzene	84.0	%REC		80-120		SW8260B	08/23/12 01:06 / jk
Surr: Toluene-d8	97.0	%REC		80-120		SW8260B	08/23/12 01:06 / jk

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

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



## ORGANIC ANALYTICAL REPORT

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Sample ID:** 1208302-009A  
**Client Sample ID:** Trip Blank  
**Collection Date:** 8/15/2012  
**Received Date:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

### Analytical Results

VOAs Full List by GC/MS Method 8260C/5030C

**Analyzed:** 8/22/2012 850h

**Units:** µg/L

**Dilution Factor:** 1

**Method:** SW8260C

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Salt Lake City, UT 84115

Compound	CAS Number	Reporting Limit	Analytical Result	Qual
Tetrahydrofuran	109-99-9	1.00	< 1.00	

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Surrogate	CAS	Result	Amount Spiked	% REC	Limits	Qual
Surr: Toluene-d8	2037-26-5	51.0	50.00	102	77-129	
Surr: Dibromofluoromethane	1868-53-7	52.3	50.00	105	80-124	
Surr: 4-Bromofluorobenzene	460-00-4	54.1	50.00	108	80-128	
Surr: 1,2-Dichloroethane-d4	17060-07-0	54.0	50.00	108	72-151	

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Lab ID:** C12080790-010  
**Client Sample ID:** Temp Blank

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Collection Date:** 08/16/12  
**Date Received:** 08/17/12  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifier	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Temperature	2.8	°C				E170.1	08/17/12 09:40 / kbh

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

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

# ANALYTICAL SUMMARY REPORT

October 17, 2012

Energy Fuels Resources (USA) Inc  
6425 S Hwy 191  
Blanding, UT 84511

Workorder No.: C12080790      Quote ID: C1640 - POC Wells

Project Name: Annual Tails 2012

Energy Laboratories, Inc. Casper WY received the following 10 samples for Energy Fuels Resources (USA) Inc on 8/17/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12080790-001	Cell 1	08/15/12 10:15	08/17/12	Aqueous	Acidity, Total as CaCO3 Alkalinity QA Calculations Conductivity Sample Filtering Fluoride E300.0 Anions Metals by ICP, Dissolved Metals by ICP-MS, Dissolved Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Gross Alpha minus Rn222 and Uranium Solids, Total Dissolved Solids, Total Dissolved - Calculated SW8260B VOCs, Standard List
C12080790-002	Cell 3	08/15/12 11:20	08/17/12	Aqueous	Same As Above
C12080790-003	Cell 4A	08/15/12 7:50	08/17/12	Aqueous	Same As Above
C12080790-004	Cell 4A LDS	08/15/12 8:10	08/17/12	Aqueous	Same As Above
C12080790-005	Cell 4B	08/15/12 9:05	08/17/12	Aqueous	Same As Above
C12080790-006	Cell 4B LDS	08/15/12 8:35	08/17/12	Aqueous	Same As Above
C12080790-007	Slimes #2	08/15/12 10:47	08/17/12	Aqueous	Same As Above
C12080790-008	Cell 65	08/15/12 10:47	08/17/12	Aqueous	Same As Above
C12080790-009	Trip Blank 6746	08/15/12 0:00	08/17/12	Aqueous	SW8260B VOCs, Standard List
C12080790-010	Temp Blank	08/16/12 0:00	08/17/12	Aqueous	Temperature

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2012.10.17 11:15:58 -06:00



**CLIENT:** Energy Fuels Resources (USA) Inc

**Project:** Annual Tails 2012

**Sample Delivery Group:** C12080790

**Revised Date:** 10/17/12

**Report Date:** 10/12/12

## CASE NARRATIVE

### REVISED/SUPPLEMENTAL REPORT

The attached analytical report has been revised from a previously submitted report due to the request by the client on October 16, 2012 for the addition of dissolved tin on sample -001 through -008. The data presented here is from that additional analysis.

### ORIGINAL SAMPLE SUBMITTAL(S)

All original sample submittals have been returned with the data package.

### SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

### GROSS ALPHA ANALYSIS

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

### RADON IN AIR ANALYSIS

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

### SOIL/SOLID SAMPLES

All samples reported on an as received basis unless otherwise indicated.

### ATRAZINE, SIMAZINE AND PCB ANALYSIS

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

### SUBCONTRACTING ANALYSIS

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

### BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT  
eli-g - Energy Laboratories, Inc. - Gillette, WY  
eli-h - Energy Laboratories, Inc. - Helena, MT  
eli-r - Energy Laboratories, Inc. - Rapid City, SD  
eli-cs - Energy Laboratories, Inc. - College Station, TX

### CERTIFICATIONS:

USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Washington: C836

### ISO 17025 DISCLAIMER:

The results of this Analytical Report relate only to the items submitted for analysis.

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

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page [www.energylab.com](http://www.energylab.com).



# QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2310 B</b>										Batch: R163512
<b>Sample ID: MBLK</b>		Method Blank								Run: MANTECH_120821A 08/21/12 07:16
Acidity, Total as CaCO3		ND	mg/L	100						
<b>Sample ID: LCS-6790</b>		Laboratory Control Sample								Run: MANTECH_120821A 08/21/12 07:32
Acidity, Total as CaCO3		461	mg/L	5.0	105	80	120			
<b>Sample ID: C12080790-008ADUP</b>		Sample Duplicate								Run: MANTECH_120821A 08/21/12 09:02
Acidity, Total as CaCO3		32900	mg/L	50				1.9	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Work Order: C12080790

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2320 B</b>										
Batch: R163416										
<b>Sample ID: MBLK</b>	3	Method Blank								
Run: MANTECH_120818A										
08/17/12 13:12										
Alkalinity, Total as CaCO3		ND	mg/L	5.0						
Carbonate as CO3		ND	mg/L	1.0						
Bicarbonate as HCO3		1.76	mg/L	1.0						
<b>Sample ID: LCS_120817</b>										
Laboratory Control Sample										
Run: MANTECH_120818A										
08/17/12 13:25										
Alkalinity, Total as CaCO3		213	mg/L	5.0	107	90	110			
<b>Sample ID: C12080794-001ADUP</b>										
3 Sample Duplicate										
Run: MANTECH_120818A										
08/18/12 01:44										
Alkalinity, Total as CaCO3		216	mg/L	5.0				1.7	10	
Carbonate as CO3		ND	mg/L	5.0					10	
Bicarbonate as HCO3		264	mg/L	5.0				1.7	10	
<b>Sample ID: C12080794-001AMS</b>										
Sample Matrix Spike										
Run: MANTECH_120818A										
08/18/12 01:52										
Alkalinity, Total as CaCO3		350	mg/L	5.0	110	80	120			
<b>Method: A2320 B</b>										
Batch: R163493										
<b>Sample ID: MBLK</b>	3	Method Blank								
Run: MANTECH_120820B										
08/20/12 13:14										
Alkalinity, Total as CaCO3		ND	mg/L	5.0						
Carbonate as CO3		ND	mg/L	1.0						
Bicarbonate as HCO3		1.83	mg/L	1.0						
<b>Sample ID: LCS_120818</b>										
Laboratory Control Sample										
Run: MANTECH_120820B										
08/20/12 13:29										
Alkalinity, Total as CaCO3		209	mg/L	5.0	105	90	110			
<b>Sample ID: C12080850-005AMS</b>										
Sample Matrix Spike										
Run: MANTECH_120820B										
08/20/12 17:56										
Alkalinity, Total as CaCO3		364	mg/L	5.0	104	80	120			
<b>Sample ID: C12080790-004ADUP</b>										
3 Sample Duplicate										
Run: MANTECH_120820B										
08/20/12 18:49										
Alkalinity, Total as CaCO3		ND	mg/L	5.0					10	
Carbonate as CO3		ND	mg/L	5.0					10	
Bicarbonate as HCO3		ND	mg/L	5.0					10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2510 B</b>										Batch: R163588
<b>Sample ID: SC 2ND 1413</b>		Laboratory Control Sample								Run: PHSC_101-C_120822A 08/22/12 09:23
Conductivity @ 25 C		1410	umhos/cm	1.0	100	90	110			
<b>Sample ID: MBLK</b>		Method Blank								Run: PHSC_101-C_120822A 08/22/12 09:29
Conductivity @ 25 C		1.90	umhos/cm	1.0						
<b>Sample ID: C12080903-001ADUP</b>		Sample Duplicate								Run: PHSC_101-C_120822A 08/22/12 10:10
Conductivity @ 25 C		739	umhos/cm	1.0				0.2	10	

**Qualifiers:**

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Work Order: C12080790

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS120820A		
<b>Sample ID: MB-1_120820A</b>		Method Blank					Run: BAL-1_120820A		08/20/12 15:35	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_120820A</b>		Laboratory Control Sample					Run: BAL-1_120820A		08/20/12 15:35	
Solids, Total Dissolved TDS @ 180 C		1100	mg/L	10	99	90	110			
<b>Sample ID: C12080790-006A DUP</b>		Sample Duplicate					Run: BAL-1_120820A		08/20/12 15:42	
Solids, Total Dissolved TDS @ 180 C		91200	mg/L	10				1.3	5	
<b>Sample ID: C12080790-007A MS</b>		Sample Matrix Spike					Run: BAL-1_120820A		08/20/12 15:42	
Solids, Total Dissolved TDS @ 180 C		131000	mg/L	10	87	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Method: A2540 C</b>								Batch: TDS120821A		
<b>Sample ID: MB-1_120821A</b>		Method Blank					Run: BAL-1_120821A		08/21/12 15:22	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Sample ID: LCS-2_120821A</b>		Laboratory Control Sample					Run: BAL-1_120821A		08/21/12 15:23	
Solids, Total Dissolved TDS @ 180 C		1090	mg/L	10	98	90	110			
<b>Sample ID: C12080790-001A DUP</b>		Sample Duplicate					Run: BAL-1_120821A		08/21/12 15:23	
Solids, Total Dissolved TDS @ 180 C		355000	mg/L	10				3.7	5	
<b>Sample ID: C12080790-007A MS</b>		Sample Matrix Spike					Run: BAL-1_120821A		08/21/12 15:24	
Solids, Total Dissolved TDS @ 180 C		130000	mg/L	10	93	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-F C</b>										Batch: R163477
<b>Sample ID: MBLK</b>		Method Blank								Run: MANTECH_120820A
Fluoride		ND	mg/L	0.50						08/20/12 09:26
<b>Sample ID: LCS-6892</b>		Laboratory Control Sample								Run: MANTECH_120820A
Fluoride		1.96	mg/L	0.10	98	90	110			08/20/12 09:29
<b>Sample ID: C12080785-008AMS</b>		Sample Matrix Spike								Run: MANTECH_120820A
Fluoride		1.93	mg/L	0.10	88	80	120			08/20/12 12:01
<b>Sample ID: C12080785-008AMSD</b>		Sample Matrix Spike Duplicate								Run: MANTECH_120820A
Fluoride		1.96	mg/L	0.10	90	80	120	1.5	10	08/20/12 12:05

**Qualifiers:**

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MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: A4500-H B</b>								Analytical Run: PHSC_101-C_120817A			
<b>Sample ID: pH 6.86</b>		Initial Calibration Verification Standard						08/17/12 08:57			
pH		6.83	s.u.	0.010	100	98	102				
<b>Method: A4500-H B</b>								Batch: R163365			
<b>Sample ID: C12080720-001ADUP</b>		Sample Duplicate				Run: PHSC_101-C_120817A		08/17/12 09:45			
pH		6.52	s.u.	0.010				0.0	3		

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NH3 G</b>										Batch: R164209
<b>Sample ID: MBLK-1</b>		Method Blank								Run: TECHNICON_120906A 09/06/12 10:59
Nitrogen, Ammonia as N		ND	mg/L	200						
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								Run: TECHNICON_120906A 09/06/12 11:01
Nitrogen, Ammonia as N		1.97	mg/L	0.050	99	90	110			
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								Run: TECHNICON_120906A 09/06/12 11:03
Nitrogen, Ammonia as N		2.03	mg/L	0.050	104	80	120			
<b>Sample ID: C12090082-001AMS</b>		Sample Matrix Spike								Run: TECHNICON_120906A 09/06/12 11:35
Nitrogen, Ammonia as N		1.90	mg/L	0.050	97	90	110			
<b>Sample ID: C12090082-001AMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_120906A 09/06/12 11:37
Nitrogen, Ammonia as N		1.96	mg/L	0.050	100	90	110	3.1	10	
<b>Sample ID: C12080790-007DMS</b>		Sample Matrix Spike								Run: TECHNICON_120906A 09/06/12 12:05
Nitrogen, Ammonia as N		13200	mg/L	250	99	90	110			
<b>Sample ID: C12080790-007DMSD</b>		Sample Matrix Spike Duplicate								Run: TECHNICON_120906A 09/06/12 12:07
Nitrogen, Ammonia as N		13200	mg/L	250	99	90	110	0.0	10	

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP2-C_120910A								
<b>Sample ID: ICV</b>	4	Initial Calibration Verification Standard								09/10/12 11:29
Calcium		49.8	mg/L	0.50	100	95	105			
Magnesium		50.8	mg/L	0.50	102	95	105			
Potassium		50.9	mg/L	2.7	102	95	105			
Sodium		51.8	mg/L	0.50	104	95	105			
<b>Sample ID: ICSA</b>	4	Interference Check Sample A								09/10/12 12:09
Calcium		481	mg/L	0.50	96	80	120			
Magnesium		511	mg/L	0.50	102	80	120			
Potassium		0.00100	mg/L	0.50						
Sodium		0.152	mg/L	0.50						
<b>Sample ID: ICSAB</b>	4	Interference Check Sample AB								09/10/12 12:13
Calcium		472	mg/L	0.50	94	80	120			
Magnesium		512	mg/L	0.50	102	80	120			
Potassium		0.000300	mg/L	0.50						
Sodium		0.0115	mg/L	0.50						
<b>Method: E200.7</b>		Batch: R164367								
<b>Sample ID: MB-120910A</b>	4	Method Blank		Run: ICP2-C_120910A				09/10/12 12:34		
Calcium		ND	mg/L	1.0						
Magnesium		ND	mg/L	0.70						
Potassium		ND	mg/L	100						
Sodium		ND	mg/L	10						
<b>Sample ID: LFB-120910A</b>	4	Laboratory Fortified Blank		Run: ICP2-C_120910A				09/10/12 12:55		
Calcium		44.4	mg/L	0.50	89	85	115			
Magnesium		46.1	mg/L	0.50	92	85	115			
Potassium		45.5	mg/L	0.50	91	85	115			
Sodium		44.7	mg/L	0.50	89	85	115			
<b>Sample ID: C12081138-001BMS2</b>	4	Sample Matrix Spike		Run: ICP2-C_120910A				09/10/12 13:25		
Calcium		146	mg/L	1.0	73	70	130			
Magnesium		65.6	mg/L	1.0	89	70	130			
Potassium		49.5	mg/L	1.0	81	70	130			
Sodium		306	mg/L	1.0		70	130			A
<b>Sample ID: C12081138-001BMSD</b>	4	Sample Matrix Spike Duplicate		Run: ICP2-C_120910A				09/10/12 13:29		
Calcium		151	mg/L	1.0	83	70	130	3.3	20	
Magnesium		65.4	mg/L	1.0	88	70	130	0.3	20	
Potassium		49.5	mg/L	1.0	81	70	130	0.0	20	
Sodium		309	mg/L	1.0		70	130	0.9	20	A

**Qualifiers:**

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A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>								Analytical Run: ICP2-C_120921A		
<b>Sample ID: ICV</b>	Initial Calibration Verification Standard									
Manganese		5.00	mg/L	0.010	100	95	105			09/21/12 12:18
<b>Sample ID: ICSA</b>	Interference Check Sample A									
Manganese		0.000100	mg/L	0.010						09/21/12 13:15
<b>Sample ID: ICSAB</b>	Interference Check Sample AB									
Manganese		0.512	mg/L	0.010	102	80	120			09/21/12 13:19
<b>Method: E200.7</b>								Batch: R164884		
<b>Sample ID: MB-120921A</b>	Method Blank									
Manganese		ND	mg/L	0.010						Run: ICP2-C_120921A 09/21/12 14:37
<b>Sample ID: LFB-120921A</b>	Laboratory Fortified Blank									
Manganese		0.963	mg/L	0.010	96	85	115			Run: ICP2-C_120921A 09/21/12 14:41
<b>Sample ID: C12090001-002BMS2</b>	Sample Matrix Spike									
Manganese		1.08	mg/L	0.0010	95	70	130			Run: ICP2-C_120921A 09/21/12 18:46
<b>Sample ID: C12090001-002BMSD</b>	Sample Matrix Spike Duplicate									
Manganese		1.10	mg/L	0.0010	97	70	130	1.5	20	Run: ICP2-C_120921A 09/21/12 18:50

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Work Order: C12080790

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>										Analytical Run: ICP4-C_120904A	
<b>Sample ID: ICV</b>	7	Initial Calibration Verification Standard									09/04/12 16:04
Calcium		50.4	mg/L	0.50	101	95	105				
Copper		0.974	mg/L	0.010	97	95	105				
Iron		5.05	mg/L	0.030	101	95	105				
Magnesium		50.2	mg/L	0.50	100	95	105				
Potassium		50.3	mg/L	0.50	101	95	105				
Sodium		51.2	mg/L	0.50	102	95	105				
Zinc		0.960	mg/L	0.010	96	95	105				
<b>Sample ID: ICSA</b>	7	Interference Check Sample A									09/04/12 16:19
Calcium		444	mg/L	0.50	89	80	120				
Copper		0.000610	mg/L	0.010							
Iron		172	mg/L	0.030	86	80	120				
Magnesium		509	mg/L	0.50	102	80	120				
Potassium		-0.00717	mg/L	0.50							
Sodium		0.382	mg/L	0.50							
Zinc		0.00385	mg/L	0.010							
<b>Sample ID: ICSAB</b>	7	Interference Check Sample AB									09/04/12 16:23
Calcium		446	mg/L	0.50	89	80	120				
Copper		0.462	mg/L	0.010	92	80	120				
Iron		174	mg/L	0.030	87	80	120				
Magnesium		509	mg/L	0.50	102	80	120				
Potassium		-0.0198	mg/L	0.50							
Sodium		0.392	mg/L	0.50							
Zinc		0.836	mg/L	0.010	84	80	120				
<b>Method: E200.7</b>										Batch: R164109	
<b>Sample ID: MB-120904A</b>	7	Method Blank							Run: ICP4-C_120904A		09/04/12 16:27
Calcium		ND	mg/L	1.0							
Copper		ND	mg/L	0.010							
Iron		ND	mg/L	0.090							
Magnesium		ND	mg/L	0.70							
Potassium		ND	mg/L	100							
Sodium		ND	mg/L	10							
Zinc		ND	mg/L	0.020							
<b>Sample ID: LFB-120904A</b>	7	Laboratory Fortified Blank							Run: ICP4-C_120904A		09/04/12 16:30
Calcium		47.8	mg/L	0.50	96	85	115				
Copper		0.922	mg/L	0.010	92	85	115				
Iron		0.970	mg/L	0.030	95	85	115				
Magnesium		47.6	mg/L	0.50	95	85	115				
Potassium		47.3	mg/L	0.50	95	85	115				
Sodium		47.6	mg/L	0.50	95	85	115				
Zinc		0.926	mg/L	0.010	92	85	115				

**Qualifiers:**

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Work Order: C12080790

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R164109										
<b>Sample ID: C12080790-001BMS2</b>	7	Sample Matrix Spike								
Run: ICP4-C_120904A										
09/04/12 16:41										
Calcium		5120	mg/L	2.3	92	70	130			
Copper		886	mg/L	0.42		70	130			A
Iron		940	mg/L	0.19		70	130			A
Magnesium		21400	mg/L	1.5	106	70	130			
Potassium		14000	mg/L	4.0	84	70	130			
Sodium		46900	mg/L	21		70	130			A
Zinc		798	mg/L	0.11		70	130			A
<b>Sample ID: C12080790-001BMSD</b>	7	Sample Matrix Spike Duplicate								
Run: ICP4-C_120904A										
09/04/12 16:44										
Calcium		5130	mg/L	2.3	92	70	130	0.0	20	
Copper		884	mg/L	0.42		70	130	0.3	20	A
Iron		934	mg/L	0.19		70	130	0.7	20	A
Magnesium		21200	mg/L	1.5	102	70	130	0.9	20	
Potassium		14300	mg/L	4.0	89	70	130	1.7	20	
Sodium		47100	mg/L	21		70	130	0.5	20	A
Zinc		788	mg/L	0.11		70	130	1.3	20	A

**Qualifiers:**

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ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Work Order: C12080790

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>								Analytical Run: ICPMS2-C_120910A			
<b>Sample ID: ICV</b>	10	Initial Calibration Verification Standard						09/10/12 13:07			
Chromium		0.0514	mg/L	0.0010	103	90	110				
Cobalt		0.0513	mg/L	0.0010	103	90	110				
Copper		0.0481	mg/L	0.0010	96	90	110				
Lead		0.0499	mg/L	0.0010	100	90	110				
Manganese		0.0509	mg/L	0.0010	102	90	110				
Molybdenum		0.0507	mg/L	0.0010	101	90	110				
Nickel		0.0489	mg/L	0.0010	98	90	110				
Silver		0.0211	mg/L	0.0010	106	90	110				
Thallium		0.0508	mg/L	0.0010	101	90	110				
Vanadium		0.0525	mg/L	0.0010	105	90	110				
<b>Method: E200.8</b>								Batch: R164364			
<b>Sample ID: LRB</b>	10	Method Blank						Run: ICPMS2-C_120910A 09/10/12 13:29			
Chromium		ND	mg/L	0.020							
Cobalt		ND	mg/L	0.010							
Copper		ND	mg/L	0.010							
Lead		ND	mg/L	0.0010							
Manganese		ND	mg/L	0.010							
Molybdenum		ND	mg/L	0.010							
Nickel		ND	mg/L	0.020							
Silver		ND	mg/L	0.010							
Thallium		ND	mg/L	0.0010							
Vanadium		ND	mg/L	0.010							
<b>Sample ID: LFB</b>	10	Laboratory Fortified Blank						Run: ICPMS2-C_120910A 09/10/12 13:32			
Chromium		0.0526	mg/L	0.0010	104	85	115				
Cobalt		0.0518	mg/L	0.0010	104	85	115				
Copper		0.0502	mg/L	0.0010	100	85	115				
Lead		0.0512	mg/L	0.0010	102	85	115				
Manganese		0.0530	mg/L	0.0010	106	85	115				
Molybdenum		0.0509	mg/L	0.0010	102	85	115				
Nickel		0.0504	mg/L	0.0010	101	85	115				
Silver		0.0208	mg/L	0.0010	104	85	115				
Thallium		0.0513	mg/L	0.0010	103	85	115				
Vanadium		0.0524	mg/L	0.0010	105	85	115				
<b>Sample ID: C12080556-003MMS</b>	10	Sample Matrix Spike						Run: ICPMS2-C_120910A 09/10/12 14:41			
Chromium		0.0521	mg/L	0.0010	104	70	130				
Cobalt		0.0504	mg/L	0.0010	101	70	130				
Copper		0.0574	mg/L	0.0010	115	70	130				
Lead		0.0519	mg/L	0.0010	104	70	130				
Manganese		0.0603	mg/L	0.0010	121	70	130				
Molybdenum		0.0499	mg/L	0.0010	100	70	130				
Nickel		0.0490	mg/L	0.0010	98	70	130				
Silver		0.0189	mg/L	0.0010	95	70	130				

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Work Order: C12080790

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b> <span style="float: right;">Batch: R164364</span>										
<b>Sample ID: C12080556-003MMS</b>	10	Sample Matrix Spike								Run: ICPMS2-C_120910A <span style="float: right;">09/10/12 14:41</span>
Thallium		0.0515	mg/L	0.0010	103	70	130			
Vanadium		0.0519	mg/L	0.0010	104	70	130			
<b>Sample ID: C12080556-003MMSD</b> 10 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICPMS2-C_120910A <span style="float: right;">09/10/12 14:43</span></span>										
Chromium		0.0524	mg/L	0.0010	105	70	130	0.5	20	
Cobalt		0.0505	mg/L	0.0010	101	70	130	0.4	20	
Copper		0.0586	mg/L	0.0010	117	70	130	2.2	20	
Lead		0.0519	mg/L	0.0010	104	70	130	0.0	20	
Manganese		0.0601	mg/L	0.0010	120	70	130	0.3	20	
Molybdenum		0.0517	mg/L	0.0010	103	70	130	3.6	20	
Nickel		0.0484	mg/L	0.0010	97	70	130	1.2	20	
Silver		0.0199	mg/L	0.0010	100	70	130	4.9	20	
Thallium		0.0520	mg/L	0.0010	104	70	130	1.0	20	
Vanadium		0.0523	mg/L	0.0010	105	70	130	0.7	20	
<b>Method: E200.8</b> <span style="float: right;">Analytical Run: ICPMS2-C_120928A</span>										
<b>Sample ID: ICV</b>		Initial Calibration Verification Standard								09/28/12 11:01
Silver		0.0210	mg/L	0.0010	105	90	110			
<b>Method: E200.8</b> <span style="float: right;">Batch: R165201</span>										
<b>Sample ID: LRB</b>		Method Blank								Run: ICPMS2-C_120928A <span style="float: right;">09/28/12 11:22</span>
Silver		ND	mg/L	0.010						
<b>Sample ID: LFB</b>		Laboratory Fortified Blank								Run: ICPMS2-C_120928A <span style="float: right;">09/28/12 11:25</span>
Silver		0.0190	mg/L	0.0010	95	85	115			
<b>Sample ID: C12090414-001BMS4</b>		Sample Matrix Spike								Run: ICPMS2-C_120928A <span style="float: right;">09/28/12 13:06</span>
Silver		0.0907	mg/L	0.0010	91	70	130			
<b>Sample ID: C12090414-001BMSD</b>		Sample Matrix Spike Duplicate								Run: ICPMS2-C_120928A <span style="float: right;">09/28/12 13:09</span>
Silver		0.0899	mg/L	0.0010	90	70	130	0.9	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Work Order: C12080790

Project: Annual Tails 2012

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS4-C_120904A									
<b>Sample ID: ICV</b>	11	Initial Calibration Verification Standard									09/04/12 11:43
Arsenic		0.0494	mg/L	0.0010	99	90	110				
Cadmium		0.0481	mg/L	0.0010	96	90	110				
Copper		0.0478	mg/L	0.0010	96	90	110				
Lead		0.0495	mg/L	0.0010	99	90	110				
Manganese		0.0511	mg/L	0.0010	102	90	110				
Mercury		0.00509	mg/L	0.0010	102	90	110				
Molybdenum		0.0470	mg/L	0.0010	94	90	110				
Selenium		0.0500	mg/L	0.0010	100	90	110				
Thallium		0.0513	mg/L	0.0010	103	90	110				
Uranium		0.0509	mg/L	0.00030	102	90	110				
Zinc		0.0505	mg/L	0.0010	101	90	110				
<b>Method: E200.8</b>		Batch: R164136									
<b>Sample ID: LRB</b>	11	Method Blank									09/04/12 12:19
Run: ICPMS4-C_120904A											
Arsenic		ND	mg/L	0.0050							
Cadmium		ND	mg/L	0.00050							
Copper		ND	mg/L	0.010							
Lead		ND	mg/L	0.0010							
Manganese		ND	mg/L	0.010							
Mercury		ND	mg/L	0.00050							
Molybdenum		ND	mg/L	0.010							
Selenium		ND	mg/L	0.0050							
Thallium		ND	mg/L	0.0010							
Uranium		ND	mg/L	0.00030							
Zinc		ND	mg/L	0.020							
<b>Sample ID: LFB</b>	11	Laboratory Fortified Blank									09/04/12 12:23
Run: ICPMS4-C_120904A											
Arsenic		0.0518	mg/L	0.0010	104	85	115				
Cadmium		0.0494	mg/L	0.0010	99	85	115				
Copper		0.0496	mg/L	0.0010	99	85	115				
Lead		0.0505	mg/L	0.0010	101	85	115				
Manganese		0.0529	mg/L	0.0010	106	85	115				
Mercury		0.00484	mg/L	0.0010	97	85	115				
Molybdenum		0.0476	mg/L	0.0010	95	85	115				
Selenium		0.0517	mg/L	0.0010	103	85	115				
Thallium		0.0516	mg/L	0.0010	103	85	115				
Uranium		0.0516	mg/L	0.00030	103	85	115				
Zinc		0.0536	mg/L	0.0010	106	85	115				
<b>Sample ID: C12080790-001BMS</b>	11	Sample Matrix Spike									09/04/12 19:16
Run: ICPMS4-C_120904A											
Arsenic		36.3	mg/L	0.011	100	70	130				
Cadmium		42.0	mg/L	0.0061	93	70	130				
Copper		896	mg/L	0.0063		70	130			A	
Lead		26.6	mg/L	0.0035	98	70	130				
Manganese		1590	mg/L	0.0062		70	130			A	

**Qualifiers:**

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ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R164136										
<b>Sample ID: C12080790-001BMS</b> 11 Sample Matrix Spike										
Run: ICPMS4-C_120904A 09/04/12 19:16										
Mercury		1.05	mg/L	0.0091	93	70	130			
Molybdenum		454	mg/L	0.0066		70	130			A
Selenium		16.8	mg/L	0.015	90	70	130			
Thallium		9.80	mg/L	0.013	98	70	130			
Uranium		1460	mg/L	0.0017		70	130			A
Zinc		814	mg/L	0.044		70	130			A
<b>Sample ID: C12080790-001BMSD</b> 11 Sample Matrix Spike Duplicate										
Run: ICPMS4-C_120904A 09/04/12 19:20										
Arsenic		37.1	mg/L	0.011	108	70	130	2.2	20	
Cadmium		41.6	mg/L	0.0061	89	70	130	1.0	20	
Copper		903	mg/L	0.0063		70	130	0.7	20	A
Lead		26.6	mg/L	0.0035	98	70	130	0.2	20	
Manganese		1610	mg/L	0.0062		70	130	1.1	20	A
Mercury		1.09	mg/L	0.0091	97	70	130	3.8	20	
Molybdenum		451	mg/L	0.0066		70	130	0.8	20	A
Selenium		17.1	mg/L	0.015	93	70	130	1.7	20	
Thallium		9.92	mg/L	0.013	99	70	130	1.2	20	
Uranium		1460	mg/L	0.0017		70	130	0.0	20	A
Zinc		826	mg/L	0.044		70	130	1.6	20	A

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MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>										Analytical Run: ICPMS4-C_120912A	
<b>Sample ID: ICV</b>	14	Initial Calibration Verification Standard							09/12/12 13:36		
Arsenic		0.0511	mg/L	0.0010	102	90	110				
Beryllium		0.0508	mg/L	0.0010	102	90	110				
Cadmium		0.0486	mg/L	0.0010	97	90	110				
Chromium		0.0511	mg/L	0.0010	102	90	110				
Cobalt		0.0518	mg/L	0.0010	103	90	110				
Manganese		0.0507	mg/L	0.0010	101	90	110				
Molybdenum		0.0485	mg/L	0.0010	97	90	110				
Nickel		0.0513	mg/L	0.0010	103	90	110				
Selenium		0.0505	mg/L	0.0010	101	90	110				
Thallium		0.0512	mg/L	0.0010	102	90	110				
Tin		0.0495	mg/L	0.0010	99	90	110				
Uranium		0.0505	mg/L	0.00030	101	90	110				
Vanadium		0.0511	mg/L	0.0010	102	90	110				
Zinc		0.0525	mg/L	0.0010	105	90	110				

<b>Method: E200.8</b>										Batch: R164502	
<b>Sample ID: LRB</b>	14	Method Blank							Run: ICPMS4-C_120912A		09/12/12 14:11
Arsenic		ND	mg/L	0.0050							
Beryllium		ND	mg/L	0.0020							
Cadmium		ND	mg/L	0.00050							
Chromium		ND	mg/L	0.020							
Cobalt		ND	mg/L	0.010							
Manganese		ND	mg/L	0.010							
Molybdenum		ND	mg/L	0.010							
Nickel		ND	mg/L	0.020							
Selenium		ND	mg/L	0.0050							
Thallium		ND	mg/L	0.0010							
Tin		ND	mg/L	0.10							
Uranium		ND	mg/L	0.00030							
Vanadium		ND	mg/L	0.010							
Zinc		ND	mg/L	0.020							

<b>Sample ID: LFB</b>	14	Laboratory Fortified Blank							Run: ICPMS4-C_120912A		09/12/12 14:15
Arsenic		0.0510	mg/L	0.0010	102	85	115				
Beryllium		0.0516	mg/L	0.0010	103	85	115				
Cadmium		0.0492	mg/L	0.0010	98	85	115				
Chromium		0.0510	mg/L	0.0010	102	85	115				
Cobalt		0.0526	mg/L	0.0010	105	85	115				
Manganese		0.0524	mg/L	0.0010	105	85	115				
Molybdenum		0.0495	mg/L	0.0010	99	85	115				
Nickel		0.0506	mg/L	0.0010	101	85	115				
Selenium		0.0498	mg/L	0.0010	100	85	115				
Thallium		0.0519	mg/L	0.0010	104	85	115				
Tin		0.0514	mg/L	0.0010	102	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012

**Revised Date:** 10/17/12  
**Report Date:** 10/12/12  
**Work Order:** C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R164502										
<b>Sample ID: LFB</b>	14	Laboratory Fortified Blank					Run: ICPMS4-C_120912A		09/12/12 14:15	
Uranium		0.0509	mg/L	0.00030	102	85	115			
Vanadium		0.0508	mg/L	0.0010	102	85	115			
Zinc		0.0534	mg/L	0.0010	107	85	115			
<b>Sample ID: C12080790-004BMS</b>	14	Sample Matrix Spike					Run: ICPMS4-C_120912A		09/12/12 21:33	
Arsenic		50.8	mg/L	0.0054		70	130			A
Beryllium		4.60	mg/L	0.0018	88	70	130			
Cadmium		6.13	mg/L	0.0031	102	70	130			
Chromium		8.72	mg/L	0.0035	96	70	130			
Cobalt		25.6	mg/L	0.0026		70	130			A
Manganese		118	mg/L	0.0031		70	130			A
Molybdenum		15.5	mg/L	0.0033	81	70	130			
Nickel		37.1	mg/L	0.0095		70	130			A
Selenium		6.32	mg/L	0.0075	100	70	130			
Thallium		5.54	mg/L	0.0063	104	70	130			
Tin		5.11	mg/L	0.011	102	70	130			
Uranium		87.9	mg/L	0.00085		70	130			A
Vanadium		226	mg/L	0.0040		70	130			A
Zinc		169	mg/L	0.022		70	130			A
<b>Sample ID: C12080790-004BMSD</b>	14	Sample Matrix Spike Duplicate					Run: ICPMS4-C_120912A		09/12/12 21:37	
Arsenic		52.6	mg/L	0.0054		70	130	3.4	20	A
Beryllium		4.63	mg/L	0.0018	89	70	130	0.8	20	
Cadmium		6.18	mg/L	0.0031	103	70	130	0.8	20	
Chromium		8.88	mg/L	0.0035	99	70	130	1.9	20	
Cobalt		25.6	mg/L	0.0026		70	130	0.2	20	A
Manganese		117	mg/L	0.0031		70	130	0.9	20	A
Molybdenum		15.3	mg/L	0.0033	78	70	130	0.9	20	
Nickel		37.3	mg/L	0.0095		70	130	0.7	20	A
Selenium		6.34	mg/L	0.0075	100	70	130	0.3	20	
Thallium		5.56	mg/L	0.0063	105	70	130	0.3	20	
Tin		5.20	mg/L	0.011	104	70	130	1.9	20	
Uranium		88.5	mg/L	0.00085		70	130	0.6	20	A
Vanadium		230	mg/L	0.0040		70	130	1.6	20	A
Zinc		170	mg/L	0.022		70	130	0.7	20	A

**Qualifiers:**

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MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC1-C_120906A		
<b>Sample ID: ICV-090612-10</b>	2	Initial Calibration Verification Standard								09/06/12 16:04
Chloride		9.64	mg/L	1.0	96	90	110			
Sulfate		39.2	mg/L	1.0	98	90	110			
<b>Method: E300.0</b>								Batch: R164323		
<b>Sample ID: ICB-090612-111</b>	2	Method Blank								09/06/12 16:21
Chloride		ND	mg/L	0.04						
Sulfate		0.1	mg/L	0.1						
<b>Sample ID: LFB-090612-12</b>	2	Laboratory Fortified Blank								09/06/12 16:38
Chloride		9.90	mg/L	1.0	99	90	110			
Sulfate		40.2	mg/L	1.0	100	90	110			
<b>Sample ID: C12090191-001AMS</b>	2	Sample Matrix Spike								09/07/12 18:10
Chloride		13.2	mg/L	1.0	102	90	110			
Sulfate		69.7	mg/L	1.0	103	90	110			
<b>Sample ID: C12090191-001AMSD</b>	2	Sample Matrix Spike Duplicate								09/07/12 18:28
Chloride		13.4	mg/L	1.0	104	90	110	1.2	10	
Sulfate		70.3	mg/L	1.0	104	90	110	0.9	10	
<b>Method: E300.0</b>								Analytical Run: IC1-C_120910A		
<b>Sample ID: ICV-091012-10</b>	2	Initial Calibration Verification Standard								09/10/12 19:43
Chloride		9.61	mg/L	1.0	96	90	110			
Sulfate		39.0	mg/L	1.0	97	90	110			
<b>Method: E300.0</b>								Batch: R164376		
<b>Sample ID: ICB-091012-11</b>	2	Method Blank								09/10/12 20:00
Chloride		ND	mg/L	0.04						
Sulfate		ND	mg/L	0.1						
<b>Sample ID: LFB-091012-12</b>	2	Laboratory Fortified Blank								09/10/12 20:18
Chloride		9.81	mg/L	1.0	98	90	110			
Sulfate		39.7	mg/L	1.0	99	90	110			
<b>Sample ID: C12090211-001AMS</b>	2	Sample Matrix Spike								09/10/12 20:52
Chloride		57.4	mg/L	1.0	97	90	110			
Sulfate		165	mg/L	1.7	101	90	110			
<b>Sample ID: C12090211-001AMSD</b>	2	Sample Matrix Spike Duplicate								09/10/12 21:10
Chloride		56.9	mg/L	1.0	95	90	110	0.8	10	
Sulfate		168	mg/L	1.7	105	90	110	1.7	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC2-C_120820A		
<b>Sample ID: ICV-082012-10</b>	2	Initial Calibration Verification Standard								08/20/12 14:57
Chloride		9.81	mg/L	1.0	98	90	110			
Sulfate		39.8	mg/L	1.0	99	90	110			
<b>Method: E300.0</b>								Batch: R163566		
<b>Sample ID: ICB-082012-11</b>	2	Method Blank					Run: IC2-C_120820A			08/20/12 15:14
Chloride		ND	mg/L	0.03						
Sulfate		0.2	mg/L	0.10						
<b>Sample ID: LFB-082012-12</b>	2	Laboratory Fortified Blank					Run: IC2-C_120820A			08/20/12 15:32
Chloride		9.52	mg/L	1.0	95	90	110			
Sulfate		38.1	mg/L	1.0	95	90	110			
<b>Sample ID: C12080785-008AMS</b>	2	Sample Matrix Spike					Run: IC2-C_120820A			08/21/12 12:12
Chloride		26.1	mg/L	1.0	97	90	110			
Sulfate		280	mg/L	1.7	102	90	110			
<b>Sample ID: C12080785-008AMSD</b>	2	Sample Matrix Spike Duplicate					Run: IC2-C_120820A			08/21/12 12:30
Chloride		26.0	mg/L	1.0	97	90	110	0.6	10	
Sulfate		277	mg/L	1.7	99	90	110	1.1	10	
<b>Sample ID: C12080869-001AMS</b>	2	Sample Matrix Spike					Run: IC2-C_120820A			08/21/12 15:41
Chloride		56.6	mg/L	1.0	93	90	110			
Sulfate		160	mg/L	1.7	95	90	110			
<b>Sample ID: C12080869-001AMSD</b>	2	Sample Matrix Spike Duplicate					Run: IC2-C_120820A			08/21/12 15:59
Chloride		54.8	mg/L	1.0	84	90	110	3.2	10	S
Sulfate		156	mg/L	1.7	90	90	110	2.6	10	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										
Batch: R163804										
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	10						
										Run: TECHNICON_120827A 08/27/12 11:00
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Nitrate+Nitrite as N		2.53	mg/L	0.10	101	90	110			08/27/12 11:03
										Run: TECHNICON_120827A
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Nitrate+Nitrite as N		2.07	mg/L	0.10	106	90	110			08/27/12 11:05
										Run: TECHNICON_120827A
<b>Sample ID: C12081076-010DMS</b>		Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N		2.09	mg/L	0.10	103	90	110			08/27/12 11:45
										Run: TECHNICON_120827A
<b>Sample ID: C12081076-010DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N		2.19	mg/L	0.10	108	90	110	4.7	10	08/27/12 11:48
										Run: TECHNICON_120827A
<b>Method: E353.2</b>										
Batch: R164101										
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	10						
										Run: TECHNICON_120904A 09/04/12 11:25
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Nitrate+Nitrite as N		2.55	mg/L	0.10	102	90	110			09/04/12 11:27
										Run: TECHNICON_120904A
<b>Sample ID: LFB-3</b>		Laboratory Fortified Blank								
Nitrogen, Nitrate+Nitrite as N		2.06	mg/L	0.10	105	90	110			09/04/12 11:30
										Run: TECHNICON_120904A
<b>Sample ID: C12080790-004DMS</b>		Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N		176	mg/L	10	82	90	110			09/04/12 15:32
										S
										- Matrix spike recoveries outside the acceptance range are considered matrix-related.
<b>Sample ID: C12080790-004DMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N		174	mg/L	10	81	90	110	1.1	10	09/04/12 15:35
										S
										- Matrix spike recoveries outside the acceptance range are considered matrix-related.

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b>										
Batch: GA-0575										
<b>Sample ID: LCS-GA-0571</b>	Laboratory Control Sample									
Gross Alpha minus Rn & U		22.0	pCi/L	107		80	120			
Run: BERTHOLD 770-1_120822A 08/29/12 06:27										
<b>Sample ID: MB-GA-0571</b>	3	Method Blank								
Gross Alpha minus Rn & U		0.243	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.380	pCi/L							
Gross Alpha minus Rn & U MDC		0.583	pCi/L							
Run: BERTHOLD 770-1_120822A 08/29/12 06:27										
<b>Sample ID: TAP WATER-MS</b>	Sample Matrix Spike									
Gross Alpha minus Rn & U		50.9	pCi/L	120		70	130			
Run: BERTHOLD 770-1_120822A 08/29/12 08:22										
<b>Sample ID: TAP WATER-MSD</b>	Sample Matrix Spike Duplicate									
Gross Alpha minus Rn & U		50.7	pCi/L	125		70	130	0.4		25.1
Run: BERTHOLD 770-1_120822A 08/29/12 08:22										

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: SW8260B</b>										
Batch: R163670										
<b>Sample ID: C12080808-001KMS</b>	15	Sample Matrix Spike					Run: SATURNCA_120822A	08/22/12 22:04		
Benzene		210	ug/L	10	101	70	130			
Carbon tetrachloride		180	ug/L	10	92	70	130			
Chloroform		190	ug/L	10	88	70	130			
Chloromethane		370	ug/L	10	85	70	130			
m+p-Xylenes		360	ug/L	10	88	70	130			
Methyl ethyl ketone		2100	ug/L	200	107	70	130			
Methylene chloride		190	ug/L	10	89	70	130			
Naphthalene		170	ug/L	10	83	70	130			
o-Xylene		200	ug/L	10	100	70	130			
Toluene		220	ug/L	10	104	70	130			
Xylenes, Total		560	ug/L	10	92	70	130			
Surr: 1,2-Dichlorobenzene-d4				1.0	91	80	120			
Surr: Dibromofluoromethane				1.0	91	70	130			
Surr: p-Bromofluorobenzene				1.0	90	80	120			
Surr: Toluene-d8				1.0	102	80	120			
<b>Sample ID: C12080808-001KMSD</b>	15	Sample Matrix Spike Duplicate					Run: SATURNCA_120822A	08/22/12 22:40		
Benzene		230	ug/L	10	112	70	130	9.8	20	
Carbon tetrachloride		200	ug/L	10	101	70	130	8.7	20	
Chloroform		210	ug/L	10	96	70	130	7.7	20	
Chloromethane		370	ug/L	10	84	70	130	0.4	20	
m+p-Xylenes		420	ug/L	10	102	70	130	15	20	
Methyl ethyl ketone		2200	ug/L	200	109	70	130	1.5	20	
Methylene chloride		210	ug/L	10	98	70	130	9.4	20	
Naphthalene		210	ug/L	10	103	70	130	21	20	R
o-Xylene		240	ug/L	10	122	70	130	19	20	
Toluene		230	ug/L	10	109	70	130	3.9	20	
Xylenes, Total		660	ug/L	10	109	70	130	17	20	
Surr: 1,2-Dichlorobenzene-d4				1.0	93	80	120	0.0	10	
Surr: Dibromofluoromethane				1.0	92	70	130	0.0	10	
Surr: p-Bromofluorobenzene				1.0	91	80	120	0.0	10	
Surr: Toluene-d8				1.0	98	80	120	0.0	10	
<b>Sample ID: 082212_LCS_6</b>	15	Laboratory Control Sample					Run: SATURNCA_120822A	08/22/12 14:18		
Benzene		11	ug/L	1.0	110	70	130			
Carbon tetrachloride		9.8	ug/L	1.0	98	70	130			
Chloroform		10	ug/L	1.0	101	70	130			
Chloromethane		10	ug/L	1.0	101	70	130			
m+p-Xylenes		20	ug/L	1.0	101	70	130			
Methyl ethyl ketone		120	ug/L	20	116	70	130			
Methylene chloride		9.4	ug/L	1.0	94	70	130			
Naphthalene		10	ug/L	1.0	100	70	130			
o-Xylene		11	ug/L	1.0	112	70	130			
Toluene		11	ug/L	1.0	106	70	130			
Xylenes, Total		31	ug/L	1.0	104	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

R - RPD exceeds advisory limit.



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 10/17/12

Client: Energy Fuels Resources (USA) Inc

Report Date: 10/12/12

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: SW8260B</b>										
Batch: R163670										
<b>Sample ID: 082212_LCS_6</b>	15	Laboratory Control Sample								
Run: SATURNCA_120822A 08/22/12 14:18										
Surr: 1,2-Dichlorobenzene-d4				1.0	87	80	120			
Surr: Dibromofluoromethane				1.0	89	70	130			
Surr: p-Bromofluorobenzene				1.0	86	80	130			
Surr: Toluene-d8				1.0	98	80	120			
<b>Sample ID: 082212_MBLK_8</b>	15	Method Blank								
Run: SATURNCA_120822A 08/22/12 15:31										
Benzene		ND	ug/L	1.0						
Carbon tetrachloride		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Chloromethane		ND	ug/L	1.0						
m+p-Xylenes		ND	ug/L	1.0						
Methyl ethyl ketone		ND	ug/L	20						
Methylene chloride		ND	ug/L	1.0						
Naphthalene		ND	ug/L	1.0						
o-Xylene		ND	ug/L	1.0						
Toluene		ND	ug/L	1.0						
Xylenes, Total		ND	ug/L	1.0						
Surr: 1,2-Dichlorobenzene-d4				1.0	91	80	120			
Surr: Dibromofluoromethane				1.0	90	70	130			
Surr: p-Bromofluorobenzene				1.0	87	80	120			
Surr: Toluene-d8				1.0	92	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration

# Standard Reporting Procedures

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

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

## Workorder Receipt Checklist

Energy Fuels Resources (USA) Inc

C12080790

Login completed by: Timothy I.. Houghteling

Date Received: 8/17/2012

Reviewed by: BL2000\cwagner

Received by: ks

Reviewed Date: 8/22/2012

Carrier Ground  
name:

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	2.8°C On Ice		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Contact and Corrective Action Comments:



# Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: <b>Energy Fuels</b>	Project Name, PWS, Permit, Etc. <b>Annual Tails 2012</b>	Sample Origin State: <b>UT</b>	EPA/State Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Report Mail Address: <b>PO BOX 809 Blanding UT 84511</b>	Contact Name: <b>Garrin Palmer</b>	Phone/Fax: <b>435 678 2221</b>	Email: _____ Sampler: (Please Print) <b>Tanner Holliday</b>
Invoice Address: <b>Same</b>	Invoice Contact & Phone: <b>Same</b>	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:			Number of Containers Sample Type: A W S V B O DW Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water	ANALYSIS REQUESTED										SEE ATTACHED Standard Turnaround (TAT)	RUSH Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page Comments: Please Filter & Preserve Gross Alpha & Heavy Metals Thanks!	Shipped by: <b>Fed-Ex EXP</b> Cooler ID(s): <b>WUR-NS</b> Client Receipt Temp: <b>FR2</b> <b>3420 CTB</b> On Ice: <input checked="" type="checkbox"/> N Custody Seal On Bottle: Y N On Cooler: Y N Intact: Y N Signature Match: Y N
<input type="checkbox"/> DW <input type="checkbox"/> POTW/WWTP <input type="checkbox"/> State: _____ <input type="checkbox"/> Other: _____	<input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____ <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC															
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)		Collection Date	Collection Time	MATRIX	Quote #	P.H.	Specific Cond.									
1 cell 1		8/15/12	1015	6-W	X	X	X									
2 cell 3		8/15/12	1120	6-W	X	X	X									
3 cell 4A		8/15/12	0750	6-W	X	X	X									
4 cell 4A LDS		8/15/12	0810	6-W	X	X	X									
5 cell 4B		8/15/12	0905	6-W	X	X	X									
6 cell 4B LDS		8/15/12	0835	6-W	X	X	X									
7 Slimes #2		8/15/12	1047	6-W	X	X	X									
8 cell 65		8/15/12	1047	6-W	X	X	X									
9 Trip Blank 6746		8/15/12														
10 Temp Blank																

<b>Custody Record MUST be Signed</b>	Relinquished by (print): <b>Tanner Holliday</b>	Date/Time: <b>8/16/2012 1100</b>	Signature: <i>Tanner Holliday</i>	Received by (print):	Date/Time:	Signature:
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Sample Disposal: Return to Client:	Lab Disposal:	Received by Laboratory: <i>M. Schneider</i>	Date/Time: <b>8/17/12 09:40</b>	Signature:	

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

LABORATORY USE ONLY

Page 45 of 45



# ANALYTICAL SUMMARY REPORT

November 27, 2012

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

Workorder No.: C12080790      Quote ID: C1640 - POC Wells

Project Name: Annual Tails 2012

Energy Laboratories, Inc. Casper WY received the following 10 samples for Energy Fuels Resources (USA) Inc on 8/17/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C12080790-001	Cell 1	08/15/12 10:15	08/17/12	Aqueous	Acidity, Total as CaCO3 Alkalinity QA Calculations Conductivity Sample Filtering Fluoride E300.0 Anions Metals by ICP, Dissolved Metals by ICP-MS, Dissolved Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite pH Gross Alpha minus Rn222 and Uranium Solids, Total Dissolved Solids, Total Dissolved - Calculated SW8260B VOCs, Standard List
C12080790-002	Cell 3	08/15/12 11:20	08/17/12	Aqueous	Same As Above
C12080790-003	Cell 4A	08/15/12 7:50	08/17/12	Aqueous	Same As Above
C12080790-004	Cell 4A LDS	08/15/12 8:10	08/17/12	Aqueous	Same As Above
C12080790-005	Cell 4B	08/15/12 9:05	08/17/12	Aqueous	Same As Above
C12080790-006	Cell 4B LDS	08/15/12 8:35	08/17/12	Aqueous	Same As Above
C12080790-007	Slimes #2	08/15/12 10:47	08/17/12	Aqueous	Same As Above
C12080790-008	Cell 65	08/15/12 10:47	08/17/12	Aqueous	Same As Above
C12080790-009	Trip Blank 6746	08/15/12 0:00	08/17/12	Aqueous	SW8260B VOCs, Standard List
C12080790-010	Temp Blank	08/16/12 0:00	08/17/12	Aqueous	Temperature

The results as reported relate only to the item(s) submitted for testing. The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Radiochemistry analyses were performed at Energy Laboratories, Inc., 2325 Kerzell Lane, Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

If you have any questions regarding these test results, please call.

Report Approved By:

*Stephanie D Waldrop*  
Reporting Supervisor

Digitally signed by  
Stephanie Waldrop  
Date: 2012.11.28 10:42:40 -07:00



**CLIENT:** Energy Fuels Resources (USA) Inc  
**Project:** Annual Tails 2012  
**Sample Delivery Group:** C12080790

**Revised Date:** 11/27/12

**Report Date:** 10/12/12

## CASE NARRATIVE

### REVISED/SUPPLEMENTAL REPORT (R2)

The attached analytical report has been revised from a previously submitted report due to the request by Kathy Weinel on November 13, 2012 for the reanalysis of Gross Alpha on samples -007 and -008. The data presented here is from that recheck analysis.

### ORIGINAL SAMPLE SUBMITTAL(S)

All original sample submittals have been returned with the data package.

### SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)

Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

### GROSS ALPHA ANALYSIS

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

### RADON IN AIR ANALYSIS

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

### SOIL/SOLID SAMPLES

All samples reported on an as received basis unless otherwise indicated.

### ATRAZINE, SIMAZINE AND PCB ANALYSIS

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

### SUBCONTRACTING ANALYSIS

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

### BRANCH LABORATORY LOCATIONS

eli-b - Energy Laboratories, Inc. - Billings, MT  
eli-g - Energy Laboratories, Inc. - Gillette, WY  
eli-h - Energy Laboratories, Inc. - Helena, MT  
eli-r - Energy Laboratories, Inc. - Rapid City, SD  
eli-cs - Energy Laboratories, Inc. - College Station, TX

### CERTIFICATIONS:

USEPA: WY00002, Radiochemical WY00937; FL-DOH NELAC: E87641, Radiochemical E871017; California: 02118CA; Oregon: WY200001, Radiochemical WY200002; Utah: WY00002; Washington: C836

### ISO 17025 DISCLAIMER:

The results of this Analytical Report relate only to the items submitted for analysis.

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

ELI appreciates the opportunity to provide you with this analytical service. For additional information and services visit our web page [www.energylab.com](http://www.energylab.com).



## QA/QC Summary Report

Prepared by Casper, WY Branch

Revised Date: 11/27/12

Report Date: 10/12/12

Client: Energy Fuels Resources (USA) Inc

Project: Annual Tails 2012

Work Order: C12080790

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.1</b>										Batch: GA-0620
<b>Sample ID: LCS-GA-0620</b>		Laboratory Control Sample								Run: BERTHOLD 770-1_121114A 11/16/12 07:24
Gross Alpha minus Rn & U		23.9	pCi/L	119		80	120			
<b>Sample ID: MB-GA-0620</b>	3	Method Blank								Run: BERTHOLD 770-1_121114A 11/16/12 07:24
Gross Alpha minus Rn & U		-0.1	pCi/L							U
Gross Alpha minus Rn & U Precision (±)		0.2	pCi/L							
Gross Alpha minus Rn & U MDC		0.4	pCi/L							
<b>Sample ID: TAP WATER MS</b>		Sample Matrix Spike								Run: BERTHOLD 770-1_121114A 11/16/12 07:24
Gross Alpha minus Rn & U		46.2	pCi/L	113		70	130			
<b>Sample ID: TAP WATER MSD</b>		Sample Matrix Spike Duplicate								Run: BERTHOLD 770-1_121114A 11/16/12 07:24
Gross Alpha minus Rn & U		46.3	pCi/L	110		70	130	0.2	21.8	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



# Standard Reporting Procedures

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

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

## Workorder Receipt Checklist

Energy Fuels Resources (USA) Inc

C12080790

Login completed by: Timothy I. Houghteling

Date Received: 8/17/2012

Reviewed by: BL2000\cwagner

Received by: ks

Reviewed Date: 8/22/2012

Carrier Ground name:

- |  |   |                             |   |
|--|---|-----------------------------|---|
| Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| Chain of custody signed when relinquished and received?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| Sufficient sample volume for indicated test?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| Temp Blank received?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Applicable <input type="checkbox"/>         |
| Container/Temp Blank temperature:  | 2.8°C On Ice                            |                             |   |
| Water - VOA vials have zero headspace?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Applicable <input type="checkbox"/>         |

Contact and Corrective Action Comments:





Jo Ann Tischler  
Denison Mines  
1050 17th Street, # 950  
Denver, CO 80265  
TEL: (303) 389-4132

RE: Annual Tailings

Dear Jo Ann Tischler:

Lab Set ID: 1208302

463 West 3600 South  
Salt Lake City, UT 84115

American West Analytical Laboratories received 9 sample(s) on 8/17/2012 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](mailto:awal@awal-labs.com)  
web: [www.awal-labs.com](http://www.awal-labs.com)

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Association Conference (NELAC) Institute in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, and Missouri. In addition, AWAL is also accredited by the American Analytical Laboratory Association (A2LA) on ISO IEC 17025:2005, Department of Defense (DOD), UST for the State of Wyoming, and the National Lead Laboratory Accreditation Program (NLLAP). All analyses were performed in accordance to The NELAC Institute and/or A2LA protocols unless noted otherwise. Accreditation 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.

This is a revision to a report originally issued 8/31/2012. Pages 1, 14-16, and 39-41 have been revised to evaluate down to the MDL.

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: 2012.09.04 14:53:13 -06'00'

Approved by:

Laboratory Director or designee



## SAMPLE SUMMARY

**Client:** Denison Mines  
**Project:** Annual Tailings  
**Lab Set ID:** 1208302  
**Date Received:** 8/17/2012 1020h

**Contact:** Jo Ann Tischler

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
1208302-001A	Cell 1	8/15/2012 1015h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-001B	Cell 1	8/15/2012 1015h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-002A	Cell 3	8/15/2012 1120h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-002B	Cell 3	8/15/2012 1120h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-003A	Cell 4A	8/15/2012 750h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-003B	Cell 4A	8/15/2012 750h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-004A	Cell 4A LDS	8/15/2012 810h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-004B	Cell 4A LDS	8/15/2012 810h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-005A	Cell 4B	8/15/2012 905h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-005B	Cell 4B	8/15/2012 905h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-006A	Cell 4B LDS	8/15/2012 835h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-006B	Cell 4B LDS	8/15/2012 835h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-007A	Slimes #2	8/15/2012 1047h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-007B	Slimes #2	8/15/2012 1047h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-008A	Cell 65	8/15/2012 1047h	Aqueous	VOA by GC/MS Method 8260C/5030C
1208302-008B	Cell 65	8/15/2012 1047h	Aqueous	SVOAs by GC/MS Method 8270D
1208302-009A	Trip Blank	8/15/2012	Aqueous	VOA by GC/MS Method 8260C/5030C



## Semivolatile Case Narrative

**Client:** Denison Mines  
**Contact:** Jo Ann Tischler  
**Project:** Annual Tailings  
**Lab Set ID:** 1208302

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

### Sample Receipt Information:

**Date of Receipt:** 8/17/2012  
**Date of Collection:** 8/15/2012  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None  
**Method:** SW-846 8270D/3510C  
**Analysis:** Semivolatile Organics

**General Set Comments:** Multiple 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: On sample 1208302-003B, multiple RPDs were outside of their control limits due to suspected sample non-homogeneity or matrix interference and phenol was outside of its control limits on the MSD sample due to sample matrix interference.

**Surrogates:** All surrogate recoveries were within established limits, with the following exceptions: Samples 1208302-001B, -005B & -006B had surrogates outside of their control limits due to matrix interference.

**Corrective Action:** None required.



## Volatile Case Narrative

**Client:** Denison Mines  
**Contact:** Jo Ann Tischler  
**Project:** Annual Tailings  
**Lab Set ID:** 1208302

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

### Sample Receipt Information:

**Date of Receipt:** 8/17/2012  
**Date(s) of Collection:** 8/15/2012  
**Sample Condition:** Intact  
**C-O-C Discrepancies:** None  
**Method:** SW-846 8260C/5030C  
**Analysis:** Tetrahydrofuran

**General Set Comments:** Tetrahydrofuran was observed on multiple samples above reporting limits. The pH of sample 1208302-001A was > 2. Analysis was performed within 7 day holding time.

**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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Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSSV  
**QC Type:** LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
LCS-20552	1,2,4-Trichlorobenzene	µg/L	SW8270D	49.6	80.00	0	62.0	10-104				8/28/2012 2034h
LCS-20552	1,4-Dichlorobenzene	µg/L	SW8270D	38.4	80.00	0	48.0	10-118				8/28/2012 2034h
LCS-20552	2,4,6-Trichlorophenol	µg/L	SW8270D	76.2	80.00	0	95.2	17-119				8/28/2012 2034h
LCS-20552	2,4-Dimethylphenol	µg/L	SW8270D	67.3	80.00	0	84.2	10-131				8/28/2012 2034h
LCS-20552	2,4-Dinitrotoluene	µg/L	SW8270D	80.4	80.00	0	101	42-219				8/28/2012 2034h
LCS-20552	2-Chloronaphthalene	µg/L	SW8270D	69.4	80.00	0	86.7	23-126				8/28/2012 2034h
LCS-20552	2-Chlorophenol	µg/L	SW8270D	58.5	80.00	0	73.1	15-128				8/28/2012 2034h
LCS-20552	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	78.5	80.00	0	98.1	30-198				8/28/2012 2034h
LCS-20552	4-Chloro-3-methylphenol	µg/L	SW8270D	70.8	80.00	0	88.5	29-148				8/28/2012 2034h
LCS-20552	4-Nitrophenol	µg/L	SW8270D	22.3	80.00	0	27.9	10-157				8/28/2012 2034h
LCS-20552	Acenaphthene	µg/L	SW8270D	72.4	80.00	0	90.5	20-116				8/28/2012 2034h
LCS-20552	Benzo(a)pyrene	µg/L	SW8270D	77.3	80.00	0	96.6	10-221				8/28/2012 2034h
LCS-20552	N-Nitrosodi-n-propylamine	µg/L	SW8270D	66.9	80.00	0	83.7	20-148				8/28/2012 2034h
LCS-20552	Pentachlorophenol	µg/L	SW8270D	70.4	80.00	0	88.0	21-153				8/28/2012 2034h
LCS-20552	Phenol	µg/L	SW8270D	30.0	80.00	0	37.5	10-131				8/28/2012 2034h
LCS-20552	Pyrene	µg/L	SW8270D	65.3	80.00	0	81.6	37-150				8/28/2012 2034h
LCS-20552	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	56.1	80.00		70.1	10-165				8/28/2012 2034h
LCS-20552	Surr: 2-Fluorobiphenyl	%REC	SW8270D	33.7	40.00		84.2	10-118				8/28/2012 2034h
LCS-20552	Surr: 2-Fluorophenol	%REC	SW8270D	34.6	80.00		43.2	10-121				8/28/2012 2034h
LCS-20552	Surr: Nitrobenzene-d5	%REC	SW8270D	25.5	40.00		63.8	10-127				8/28/2012 2034h
LCS-20552	Surr: Phenol-d6	%REC	SW8270D	26.6	80.00		33.3	10-124				8/28/2012 2034h
LCS-20552	Surr: Terphenyl-d14	%REC	SW8270D	29.7	40.00		74.2	51-221				8/28/2012 2034h



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSSV  
**QC Type:** MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-20552	1,2,4-Trichlorobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	1,2-Dichlorobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	1,3-Dichlorobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	1,4-Dichlorobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	1-Methylnaphthalene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,4,5-Trichlorophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,4,6-Trichlorophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,4-Dichlorophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,4-Dimethylphenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,4-Dinitrophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,4-Dinitrotoluene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2,6-Dinitrotoluene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2-Chloronaphthalene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2-Chlorophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2-Methylnaphthalene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2-Methylphenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	2-Nitrophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	3&4-Methylphenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	3,3'-Dichlorobenzidine	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	4-Bromophenyl phenyl ether	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	4-Chloro-3-methylphenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	4-Chlorophenyl phenyl ether	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	4-Nitrophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h

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## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSSV  
**QC Type:** MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-20552	Acenaphthene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Acenaphthylene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Anthracene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Azobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Benz(a)anthracene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Benzidine	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Benzo(a)pyrene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Benzo(b)fluoranthene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Benzo(g,h,i)perylene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Benzo(k)fluoranthene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Bis(2-chloroethoxy)methane	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Bis(2-chloroethyl) ether	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Bis(2-chloroisopropyl) ether	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Bis(2-ethylhexyl) phthalate	µg/L	SW8270D	3.03				-			J	8/28/2012 2007h
MB-20552	Butyl benzyl phthalate	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Chrysene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Dibenz(a,h)anthracene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Diethyl phthalate	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Dimethyl phthalate	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Di-n-butyl phthalate	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Di-n-octyl phthalate	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Fluoranthene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Fluorene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Hexachlorobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h

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## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSSV  
**QC Type:** MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-20552	Hexachlorobutadiene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Hexachlorocyclopentadiene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Hexachloroethane	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Indeno(1,2,3-cd)pyrene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Isophorone	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Naphthalene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Nitrobenzene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	N-Nitrosodimethylamine	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	N-Nitrosodiphenylamine	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	N-Nitrosodi-n-propylamine	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Pentachlorophenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Phenanthrene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Phenol	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Pyrene	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Pyridine	µg/L	SW8270D	< 10.0				-			U	8/28/2012 2007h
MB-20552	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	47.8	80.00		59.8	10-165				8/28/2012 2007h
MB-20552	Surr: 2-Fluorobiphenyl	%REC	SW8270D	32.0	40.00		80.0	10-118				8/28/2012 2007h
MB-20552	Surr: 2-Fluorophenol	%REC	SW8270D	34.7	80.00		43.4	10-121				8/28/2012 2007h
MB-20552	Surr: Nitrobenzene-d5	%REC	SW8270D	29.1	40.00		72.7	10-127				8/28/2012 2007h
MB-20552	Surr: Phenol-d6	%REC	SW8270D	27.2	80.00		34.1	10-124				8/28/2012 2007h
MB-20552	Surr: Terphenyl-d14	%REC	SW8270D	29.4	40.00		73.6	51-221				8/28/2012 2007h

J - Estimated value between the MDL and the reporting limit (PQL).

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

U - This flag indicates the compound was analyzed for but not detected above the MDL.

Reissue of a previously generated report. This sample has been evaluated down to the MDL. Information herein supersedes that of the previously issued reports.

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## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSSV  
**QC Type:** MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1208302-003BMS	1,2,4-Trichlorobenzene	µg/L	SW8270D	30.3	80.00	0	37.9	20-107				8/29/2012 1617h
1208302-003BMS	1,4-Dichlorobenzene	µg/L	SW8270D	18.6	80.00	0	23.2	11-90				8/29/2012 1617h
1208302-003BMS	2,4,6-Trichlorophenol	µg/L	SW8270D	49.5	80.00	0	61.9	10-223				8/29/2012 1617h
1208302-003BMS	2,4-Dimethylphenol	µg/L	SW8270D	39.3	80.00	0	49.2	10-176				8/29/2012 1617h
1208302-003BMS	2,4-Dinitrotoluene	µg/L	SW8270D	59.8	80.00	0	74.7	21-191				8/29/2012 1617h
1208302-003BMS	2-Chloronaphthalene	µg/L	SW8270D	40.8	80.00	0	51.0	12-132				8/29/2012 1617h
1208302-003BMS	2-Chlorophenol	µg/L	SW8270D	32.3	80.00	0	40.3	20-107				8/29/2012 1617h
1208302-003BMS	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	45.8	80.00	0	57.3	20-250				8/29/2012 1617h
1208302-003BMS	4-Chloro-3-methylphenol	µg/L	SW8270D	42.4	80.00	0	53.0	10-136				8/29/2012 1617h
1208302-003BMS	4-Nitrophenol	µg/L	SW8270D	18.1	80.00	0	22.7	10-135				8/29/2012 1617h
1208302-003BMS	Acenaphthene	µg/L	SW8270D	44.8	80.00	0	56.0	21-113				8/29/2012 1617h
1208302-003BMS	Benzo(a)pyrene	µg/L	SW8270D	53.2	80.00	0	66.5	15-169				8/29/2012 1617h
1208302-003BMS	N-Nitrosodi-n-propylamine	µg/L	SW8270D	45.9	80.00	0	57.4	10-133				8/29/2012 1617h
1208302-003BMS	Pentachlorophenol	µg/L	SW8270D	48.6	80.00	0	60.8	10-131				8/29/2012 1617h
1208302-003BMS	Phenol	µg/L	SW8270D	31.7	80.00	0	39.6	10-71				8/29/2012 1617h
1208302-003BMS	Pyrene	µg/L	SW8270D	90.2	80.00	0	113	23-150				8/29/2012 1617h
1208302-003BMS	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	38.4	80.00		47.9	14-159				8/29/2012 1617h
1208302-003BMS	Surr: 2-Fluorobiphenyl	%REC	SW8270D	18.3	40.00		45.8	10-124				8/29/2012 1617h
1208302-003BMS	Surr: 2-Fluorophenol	%REC	SW8270D	20.0	80.00		25.0	10-106				8/29/2012 1617h
1208302-003BMS	Surr: Nitrobenzene-d5	%REC	SW8270D	15.2	40.00		37.9	10-180				8/29/2012 1617h
1208302-003BMS	Surr: Phenol-d6	%REC	SW8270D	24.9	80.00		31.2	10-122				8/29/2012 1617h
1208302-003BMS	Surr: Terphenyl-d14	%REC	SW8270D	40.4	40.00		101	10-199				8/29/2012 1617h



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSSV  
**QC Type:** MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1208302-003BMSD	1,2,4-Trichlorobenzene	µg/L	SW8270D	43.4	80.00	0	54.3	20-107	35.5	25	@	8/29/2012 1644h
1208302-003BMSD	1,4-Dichlorobenzene	µg/L	SW8270D	32.0	80.00	0	40.0	11-90	53.2	25	@	8/29/2012 1644h
1208302-003BMSD	2,4,6-Trichlorophenol	µg/L	SW8270D	72.0	80.00	0	90.0	10-223	37	25	@	8/29/2012 1644h
1208302-003BMSD	2,4-Dimethylphenol	µg/L	SW8270D	56.5	80.00	0	70.6	10-176	35.7	25	@	8/29/2012 1644h
1208302-003BMSD	2,4-Dinitrotoluene	µg/L	SW8270D	76.2	80.00	0	95.2	21-191	24.1	25		8/29/2012 1644h
1208302-003BMSD	2-Chloronaphthalene	µg/L	SW8270D	57.8	80.00	0	72.2	12-132	34.4	25	@	8/29/2012 1644h
1208302-003BMSD	2-Chlorophenol	µg/L	SW8270D	75.7	80.00	0	94.6	20-107	80.5	25	@	8/29/2012 1644h
1208302-003BMSD	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	59.3	80.00	0	74.1	20-250	25.6	25	@	8/29/2012 1644h
1208302-003BMSD	4-Chloro-3-methylphenol	µg/L	SW8270D	61.5	80.00	0	76.8	10-136	36.8	25	@	8/29/2012 1644h
1208302-003BMSD	4-Nitrophenol	µg/L	SW8270D	21.8	80.00	0	27.2	10-135	18.2	25		8/29/2012 1644h
1208302-003BMSD	Acenaphthene	µg/L	SW8270D	63.3	80.00	0	79.2	21-113	34.2	25	@	8/29/2012 1644h
1208302-003BMSD	Benzo(a)pyrene	µg/L	SW8270D	61.5	80.00	0	76.9	15-169	14.5	25		8/29/2012 1644h
1208302-003BMSD	N-Nitrosodi-n-propylamine	µg/L	SW8270D	104	80.00	0	130	10-133	77.6	25	@	8/29/2012 1644h
1208302-003BMSD	Pentachlorophenol	µg/L	SW8270D	61.4	80.00	0	76.7	10-131	23.2	25		8/29/2012 1644h
1208302-003BMSD	Phenol	µg/L	SW8270D	72.7	80.00	0	90.9	10-71	78.6	25	<sup>1</sup> @	8/29/2012 1644h
1208302-003BMSD	Pyrene	µg/L	SW8270D	84.6	80.00	0	106	23-150	6.42	25		8/29/2012 1644h
1208302-003BMSD	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	66.1	80.00		82.6	14-159				8/29/2012 1644h
1208302-003BMSD	Surr: 2-Fluorobiphenyl	%REC	SW8270D	25.5	40.00		63.8	10-124				8/29/2012 1644h
1208302-003BMSD	Surr: 2-Fluorophenol	%REC	SW8270D	58.0	80.00		72.5	10-106				8/29/2012 1644h
1208302-003BMSD	Surr: Nitrobenzene-d5	%REC	SW8270D	24.6	40.00		61.6	10-180				8/29/2012 1644h
1208302-003BMSD	Surr: Phenol-d6	%REC	SW8270D	57.9	80.00		72.4	10-122				8/29/2012 1644h
1208302-003BMSD	Surr: Terphenyl-d14	%REC	SW8270D	35.4	40.00		88.4	10-199				8/29/2012 1644h

<sup>1</sup> - 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.



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSVOA  
**QC Type:** LCS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
LCS VOC 082212A	Tetrahydrofuran	µg/L	SW8260C	15.1	20.00	0	75.6	43-146				8/22/2012 715h
LCS VOC 082212A	Surr: 1,2-Dichloroethane-d4	%REC	SW8260C	52.2	50.00		104	76-138				8/22/2012 715h
LCS VOC 082212A	Surr: 4-Bromofluorobenzene	%REC	SW8260C	49.1	50.00		98.2	77-121				8/22/2012 715h
LCS VOC 082212A	Surr: Dibromofluoromethane	%REC	SW8260C	52.0	50.00		104	67-128				8/22/2012 715h
LCS VOC 082212A	Surr: Toluene-d8	%REC	SW8260C	49.7	50.00		99.4	81-135				8/22/2012 715h



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## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSVOA  
**QC Type:** MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB VOC 082212A	Tetrahydrofuran	µg/L	SW8260C	< 1.00				-				8/22/2012 753h
MB VOC 082212A	Surr: 1,2-Dichloroethane-d4	%REC	SW8260C	52.9	50.00		106	76-138				8/22/2012 753h
MB VOC 082212A	Surr: 4-Bromofluorobenzene	%REC	SW8260C	51.9	50.00		104	77-121				8/22/2012 753h
MB VOC 082212A	Surr: Dibromofluoromethane	%REC	SW8260C	51.8	50.00		104	67-128				8/22/2012 753h
MB VOC 082212A	Surr: Toluene-d8	%REC	SW8260C	51.4	50.00		103	81-135				8/22/2012 753h



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## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

**Contact:** Jo Ann Tischler  
**Dept:** MSVOA  
**QC Type:** MS

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1208302-003AMS	Tetrahydrofuran	µg/L	SW8260C	27.8	20.00	1.360	132	43-146				8/22/2012 1025h
1208302-003AMS	Surr: 1,2-Dichloroethane-d4	%REC	SW8260C	53.8	50.00		108	72-151				8/22/2012 1025h
1208302-003AMS	Surr: 4-Bromofluorobenzene	%REC	SW8260C	46.6	50.00		93.2	80-128				8/22/2012 1025h
1208302-003AMS	Surr: Dibromofluoromethane	%REC	SW8260C	51.2	50.00		102	80-124				8/22/2012 1025h
1208302-003AMS	Surr: Toluene-d8	%REC	SW8260C	47.4	50.00		94.8	77-129				8/22/2012 1025h



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## QC SUMMARY REPORT

**Client:** Denison Mines  
**Lab Set ID:** 1208302  
**Project:** Annual Tailings

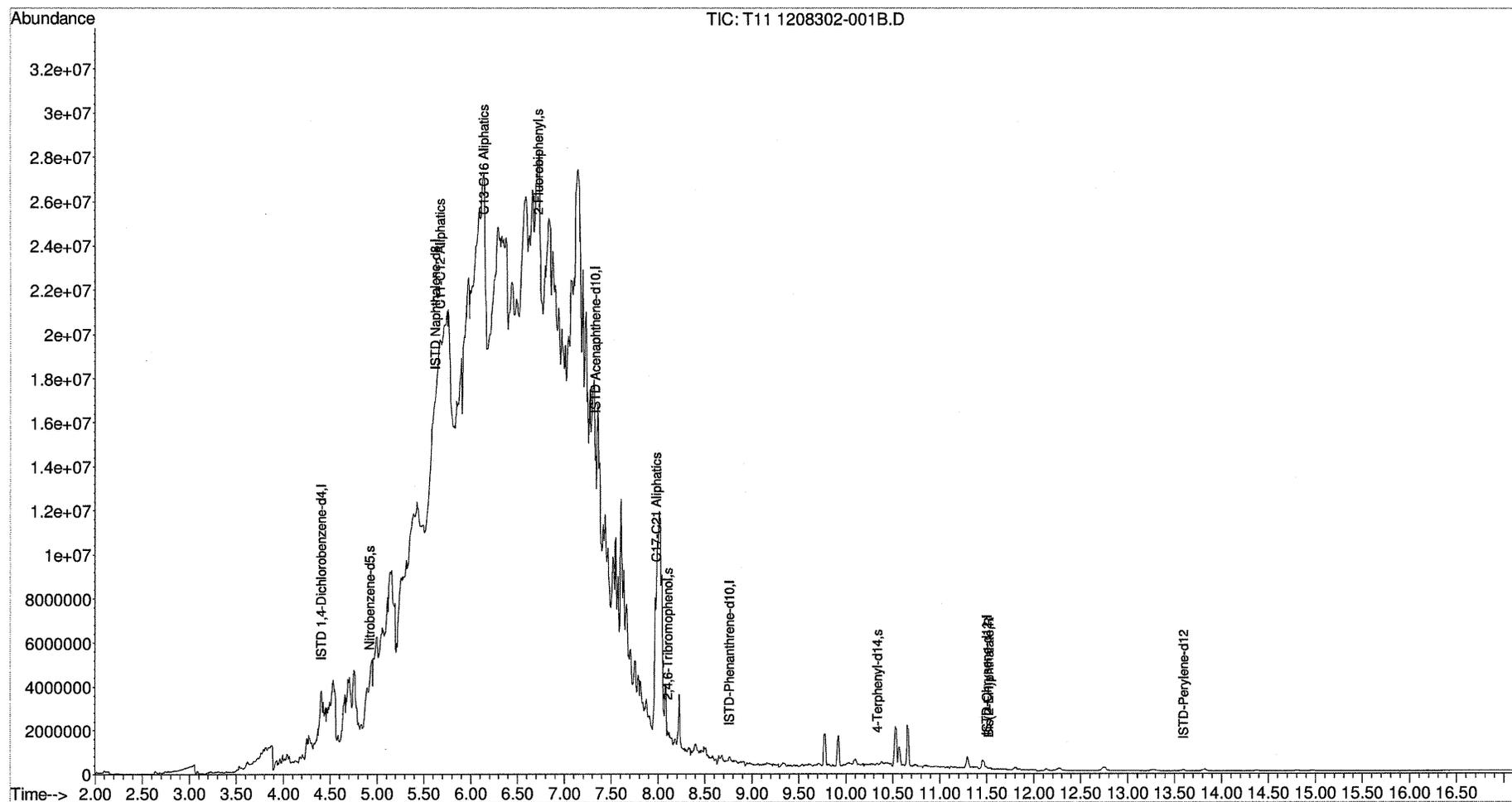
**Contact:** Jo Ann Tischler  
**Dept:** MSVOA  
**QC Type:** MSD

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1208302-003AMSD	Tetrahydrofuran	µg/L	SW8260C	26.5	20.00	1.360	126	43-146	4.94	25		8/22/2012 1044h
1208302-003AMSD	Surr: 1,2-Dichloroethane-d4	%REC	SW8260C	48.5	50.00		96.9	72-151				8/22/2012 1044h
1208302-003AMSD	Surr: 4-Bromofluorobenzene	%REC	SW8260C	46.3	50.00		92.6	80-128				8/22/2012 1044h
1208302-003AMSD	Surr: Dibromofluoromethane	%REC	SW8260C	47.4	50.00		94.9	80-124				8/22/2012 1044h
1208302-003AMSD	Surr: Toluene-d8	%REC	SW8260C	47.2	50.00		94.3	77-129				8/22/2012 1044h

Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T11 1208302-001B.D  
Acq On : 29 Aug 2012 2:56 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-001B  
Misc : SAMP  
ALS Vial : 9 Sample Multiplier: 1

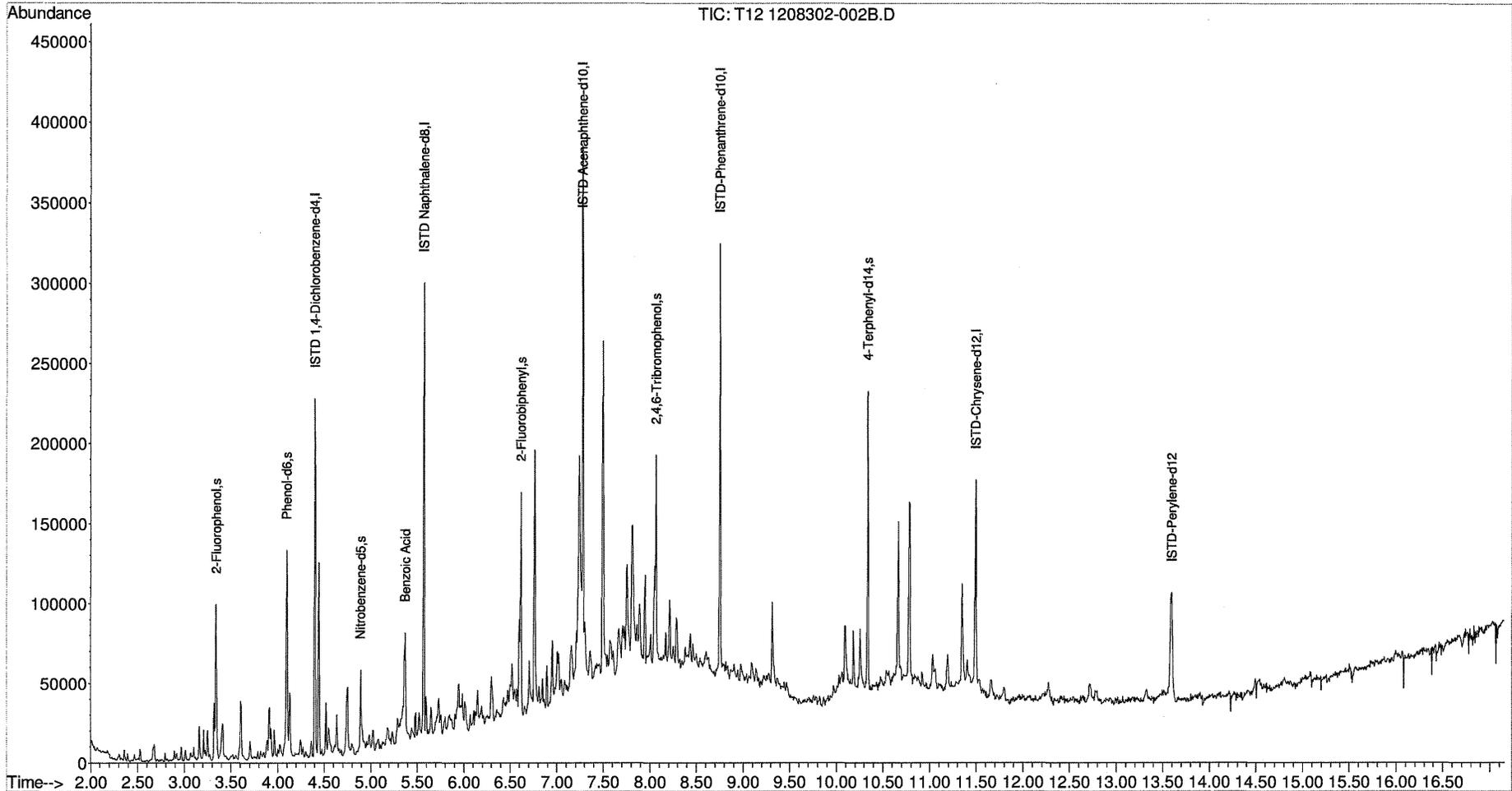
Quant Time: Aug 30 14:55:05 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
QLast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T12 1208302-002B.D  
Acq On : 29 Aug 2012 3:23 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-002B  
Misc : SAMP  
ALS Vial : 10 Sample Multiplier: 1

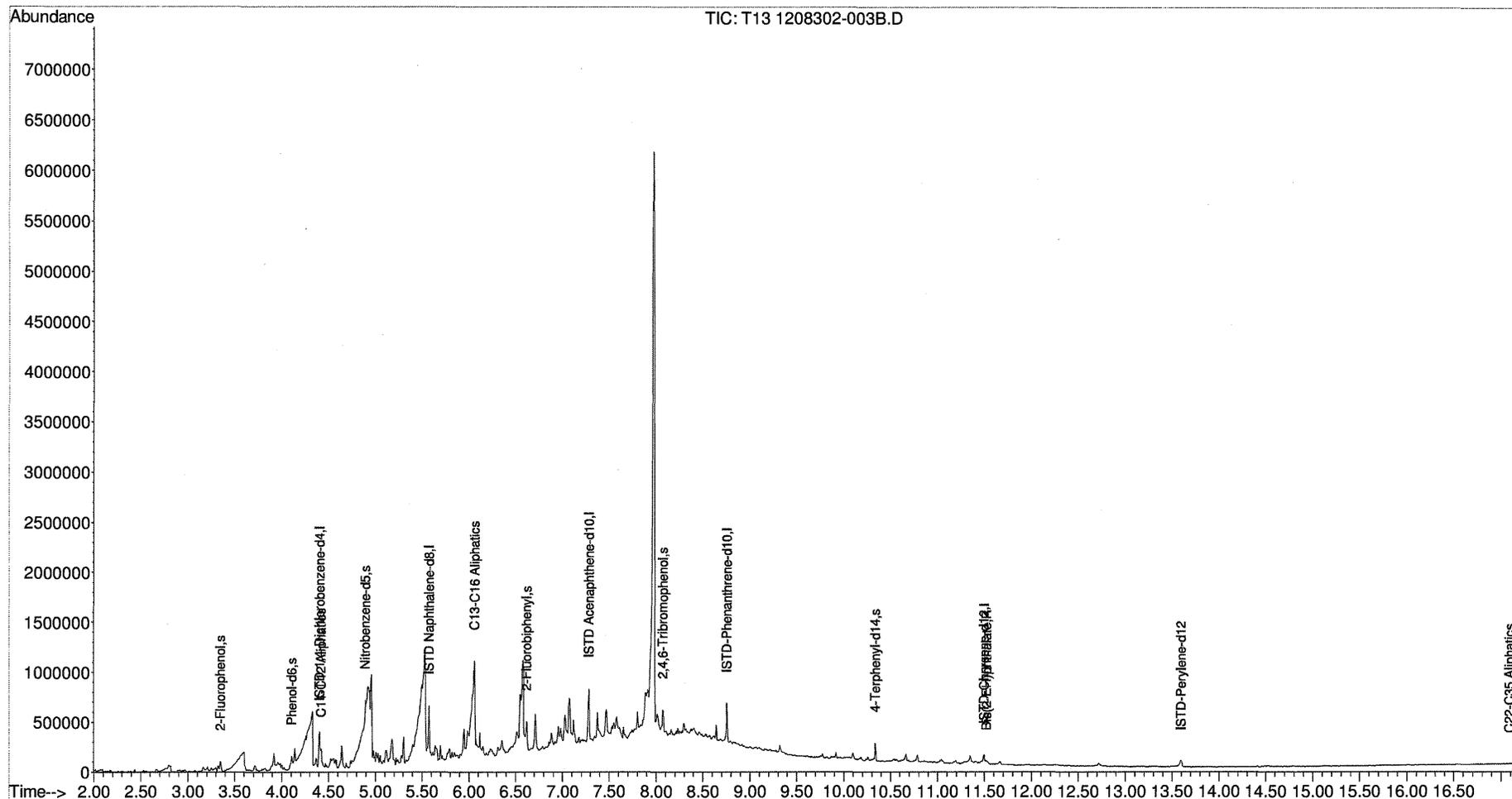
Quant Time: Aug 30 14:56:07 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
QLast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T13 1208302-003B.D  
Acq On : 29 Aug 2012 3:50 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-003B  
Misc : SAMP  
ALS Vial : 11 Sample Multiplier: 1

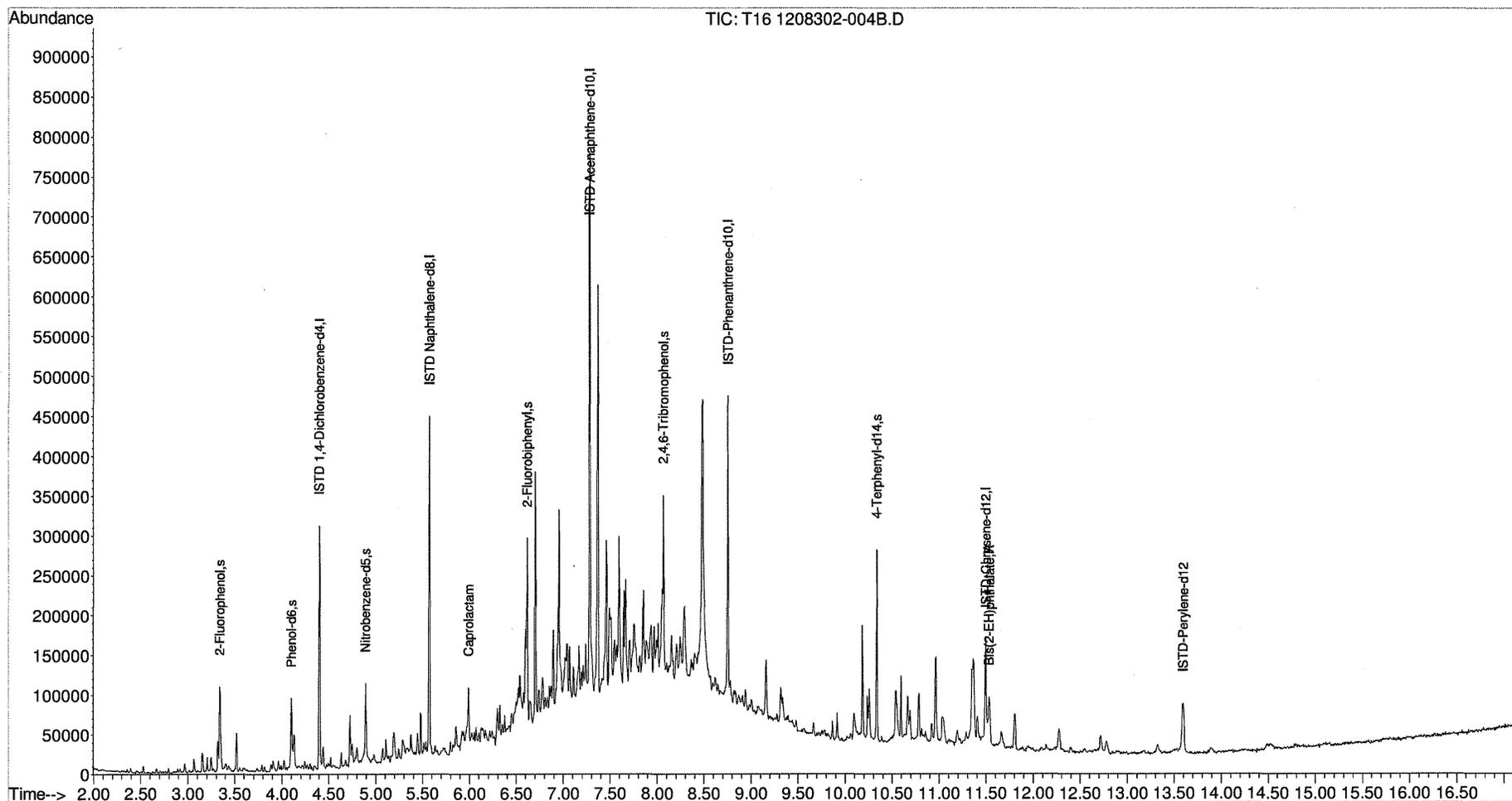
Quant Time: Aug 30 14:57:12 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
Qlast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T16 1208302-004B.D  
Acq On : 29 Aug 2012 5:11 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-004B  
Misc : SAMP  
ALS Vial : 14 Sample Multiplier: 1

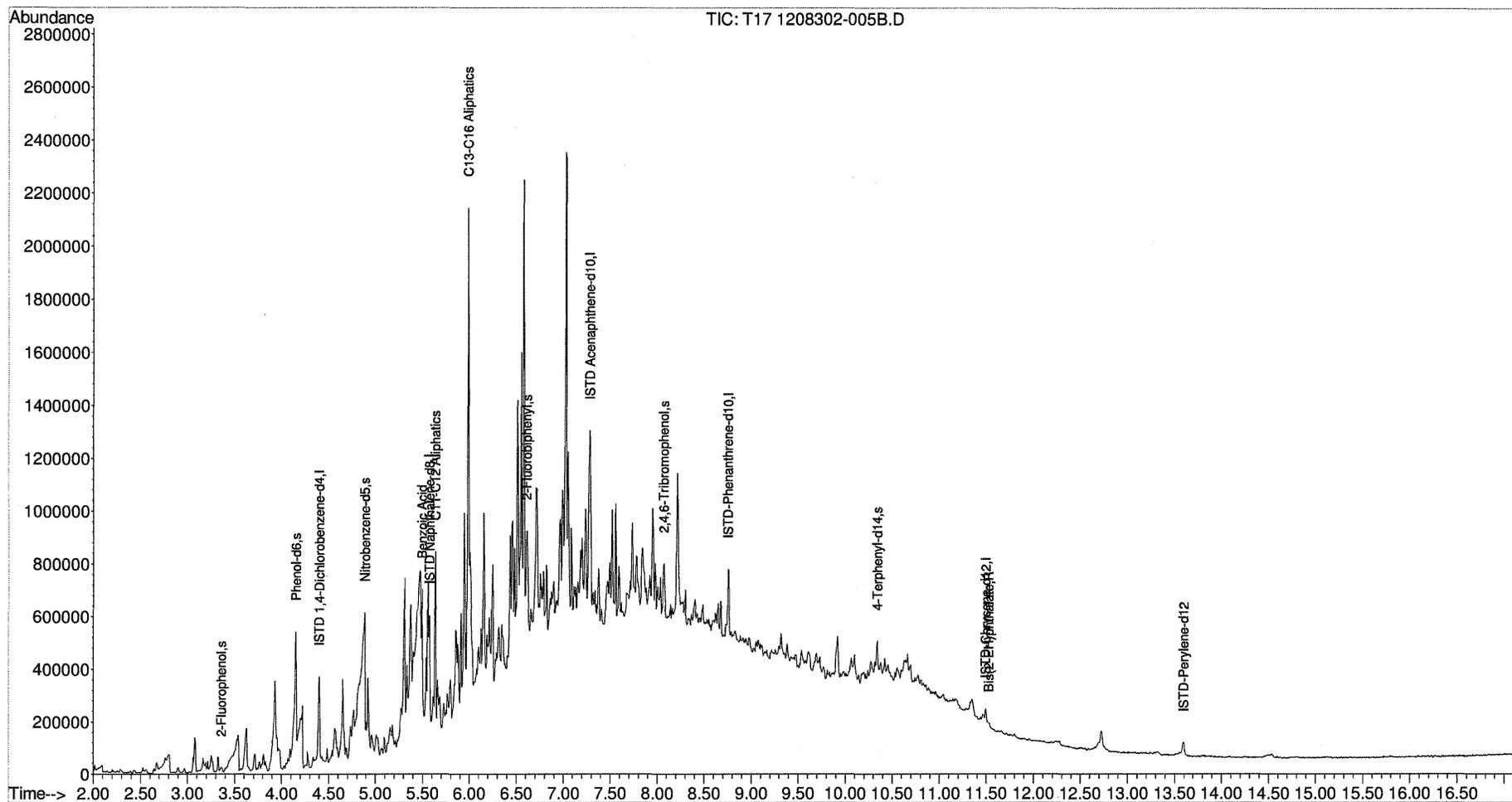
Quant Time: Aug 30 15:00:57 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
QLast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T17 1208302-005B.D  
Acq On : 29 Aug 2012 5:38 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-005B  
Misc : SAMP  
ALS Vial : 15 Sample Multiplier: 1

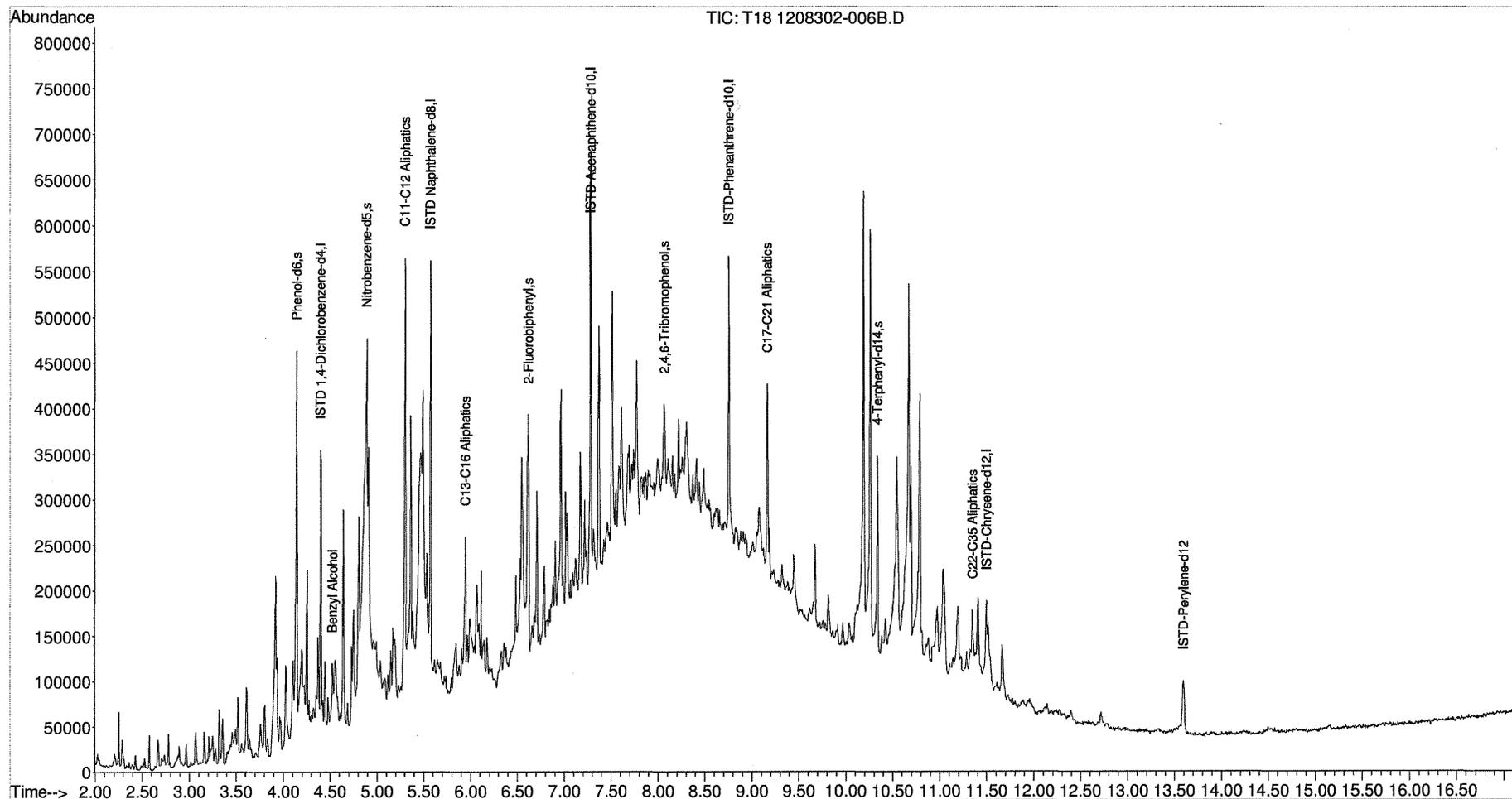
Quant Time: Aug 30 15:03:35 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
QLast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
 Data File : T18 1208302-006B.D  
 Acq On : 29 Aug 2012 6:05 pm  
 Operator : ALICIA HABERLE  
 Sample : 1208302-006B  
 Misc : SAMP  
 ALS Vial : 16 Sample Multiplier: 1

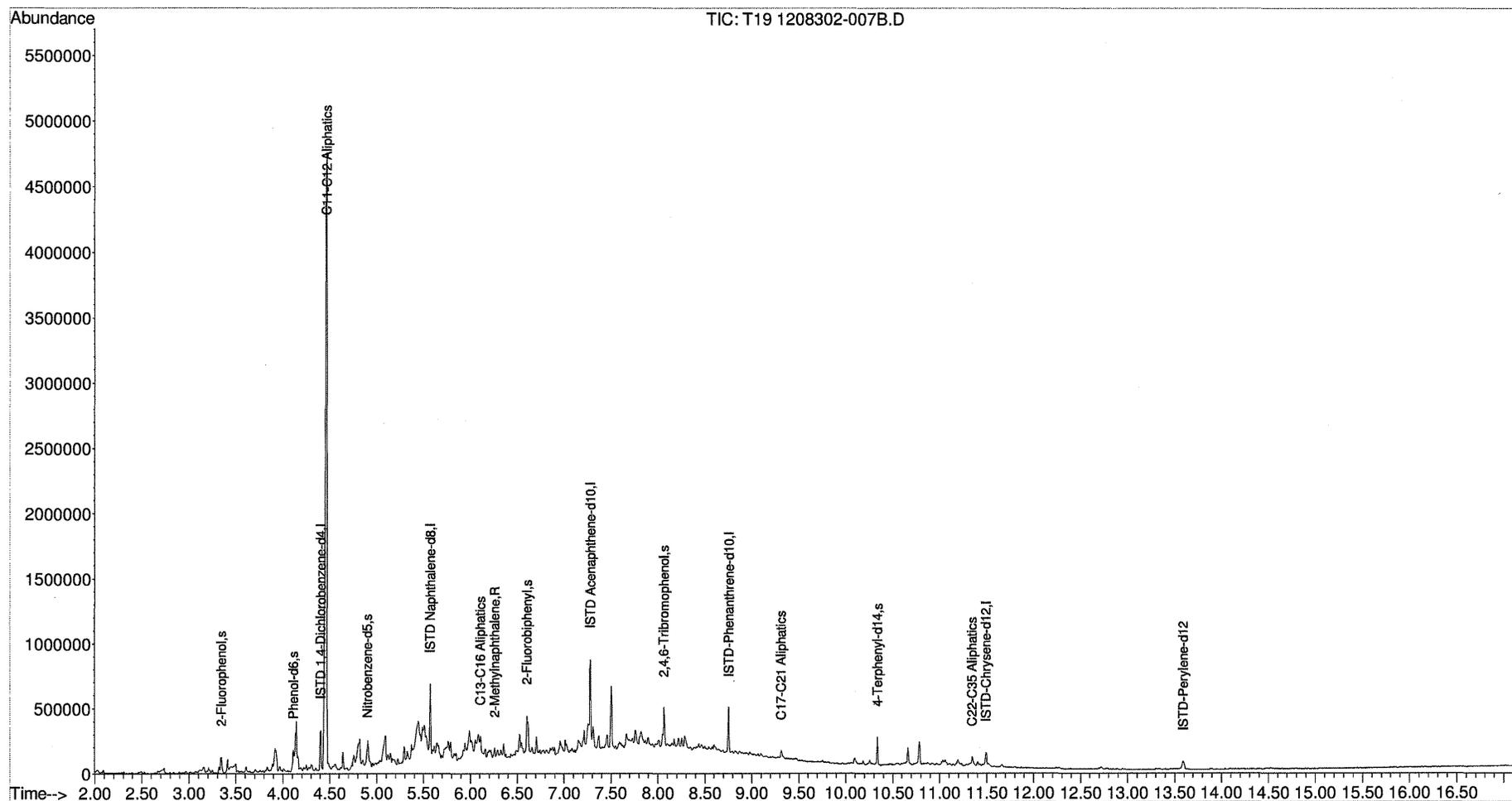
Quant Time: Aug 30 15:06:00 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
 Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
 Qlast Update : Wed Aug 29 21:12:28 2012  
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T19 1208302-007B.D  
Acq On : 29 Aug 2012 6:32 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-007B  
Misc : SAMP  
ALS Vial : 17 Sample Multiplier: 1

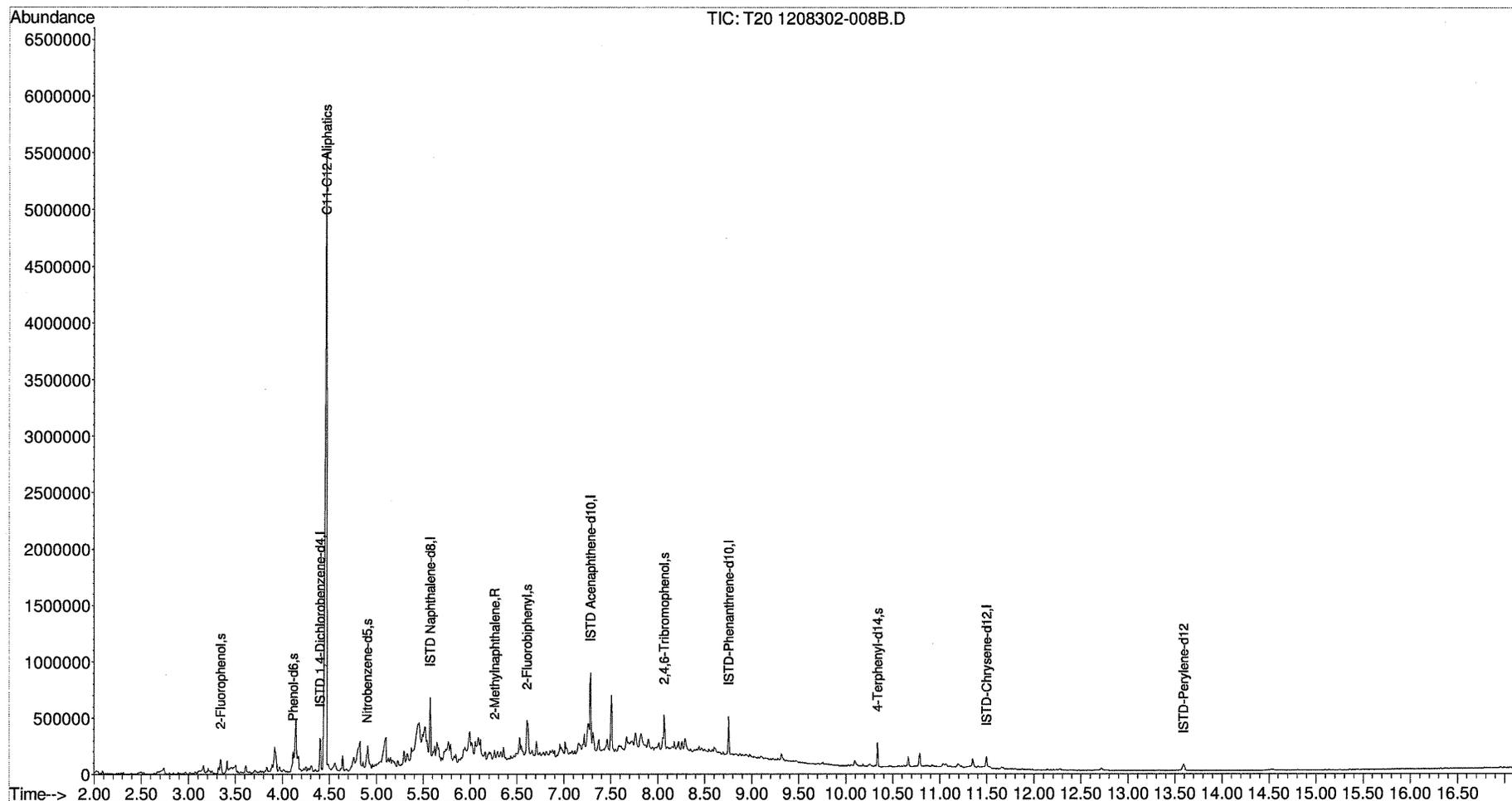
Quant Time: Aug 30 15:23:57 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
QLast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
Data File : T20 1208302-008B.D  
Acq On : 29 Aug 2012 6:59 pm  
Operator : ALICIA HABERLE  
Sample : 1208302-008B  
Misc : SAMP  
ALS Vial : 18 Sample Multiplier: 1

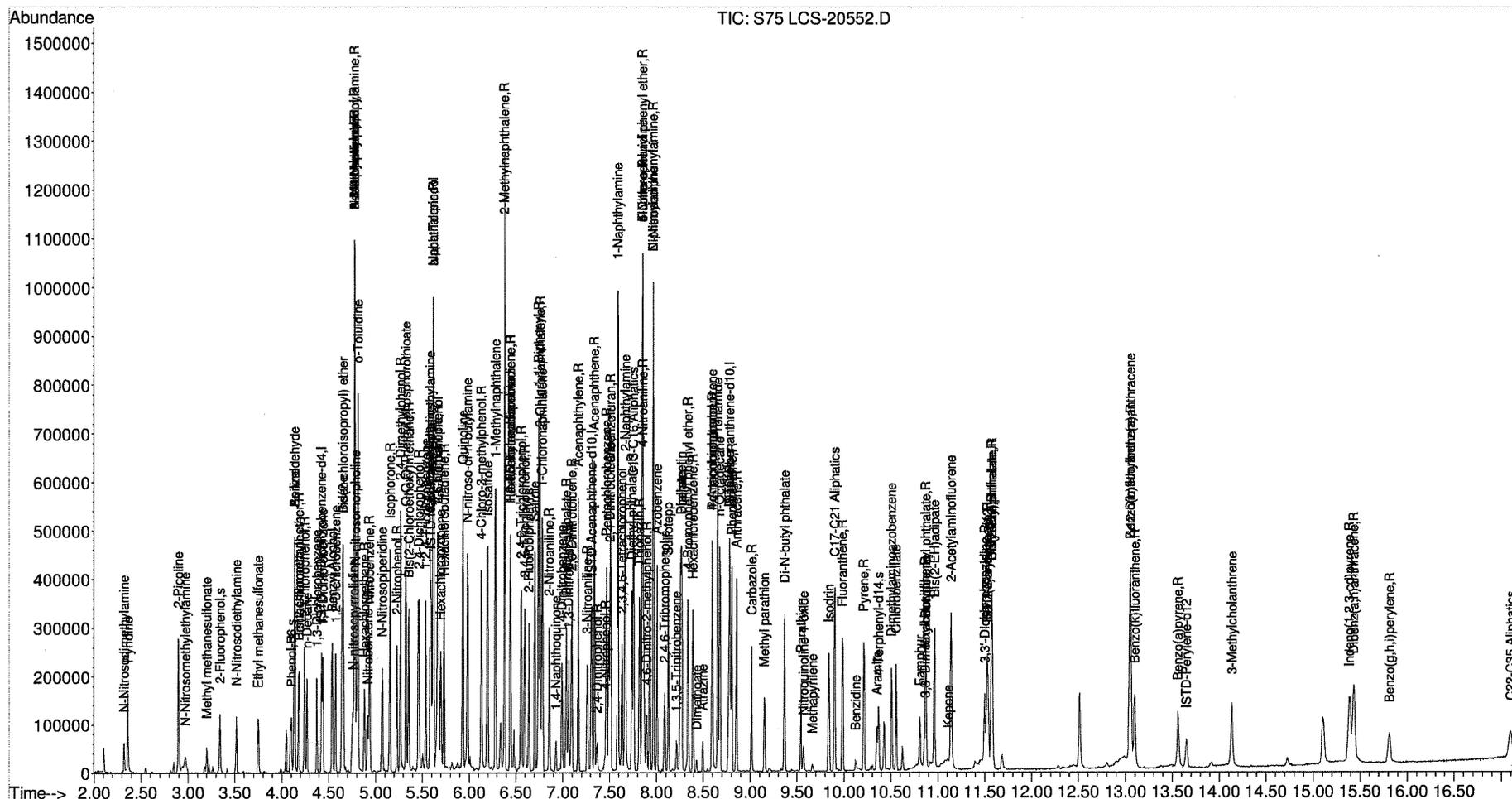
Quant Time: Aug 30 15:24:54 2012  
Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
Qlast Update : Wed Aug 29 21:12:28 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\28 AUG 12-A\  
 Data File : S75 LCS-20552.D  
 Acq On : 28 Aug 2012 8:34 pm  
 Operator : ALICIA HABERLE  
 Sample : LCS-20552  
 Misc : LCS  
 ALS Vial : 13 Sample Multiplier: 1

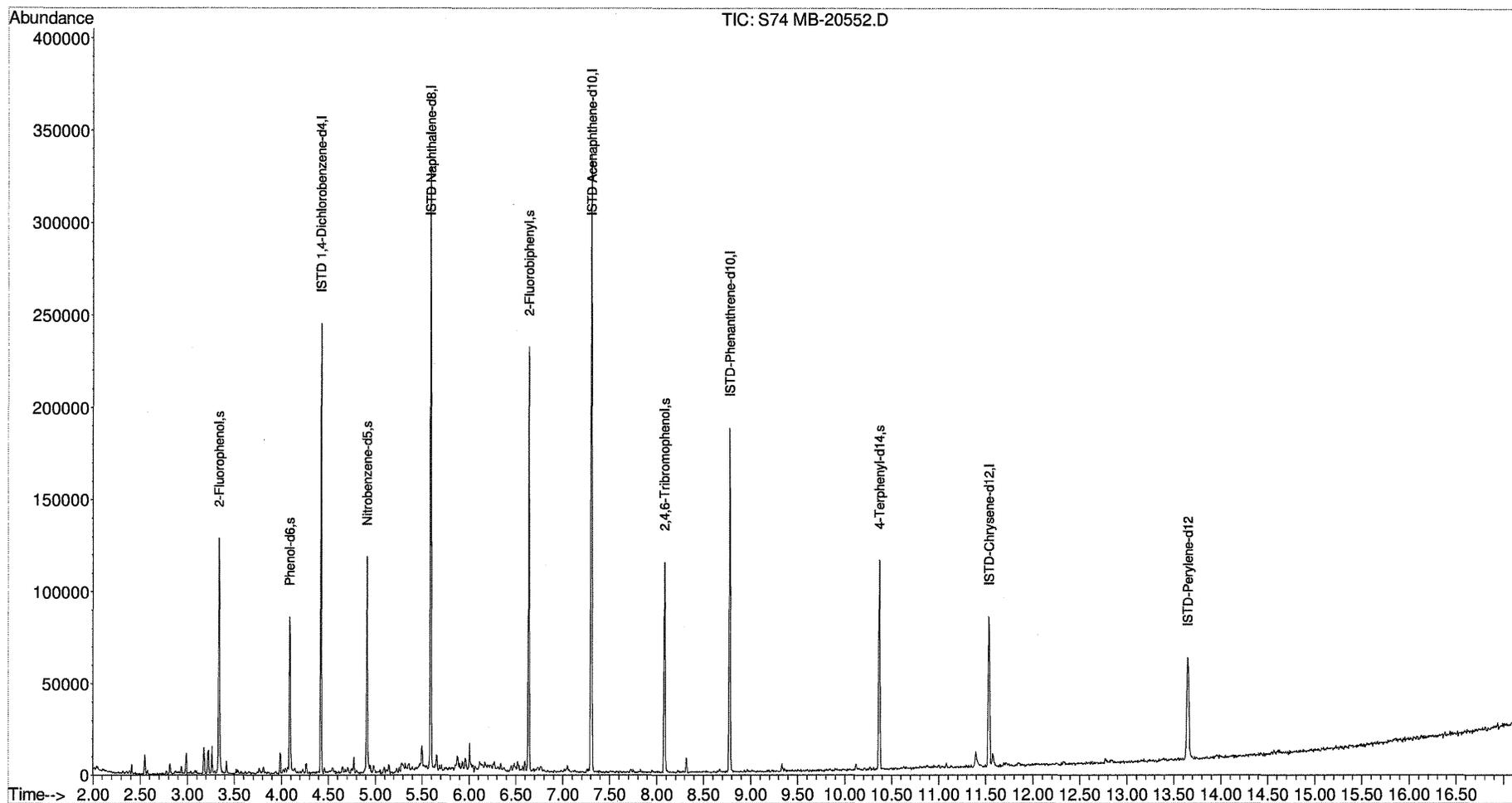
Quant Time: Aug 30 14:48:36 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
 Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
 Qlast Update : Tue Aug 28 15:14:33 2012  
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\28 AUG 12-A\  
 Data File : S74 MB-20552.D  
 Acq On : 28 Aug 2012 8:07 pm  
 Operator : ALICIA HABERLE  
 Sample : MB-20552  
 Misc : MBLK  
 ALS Vial : 12 Sample Multiplier: 1

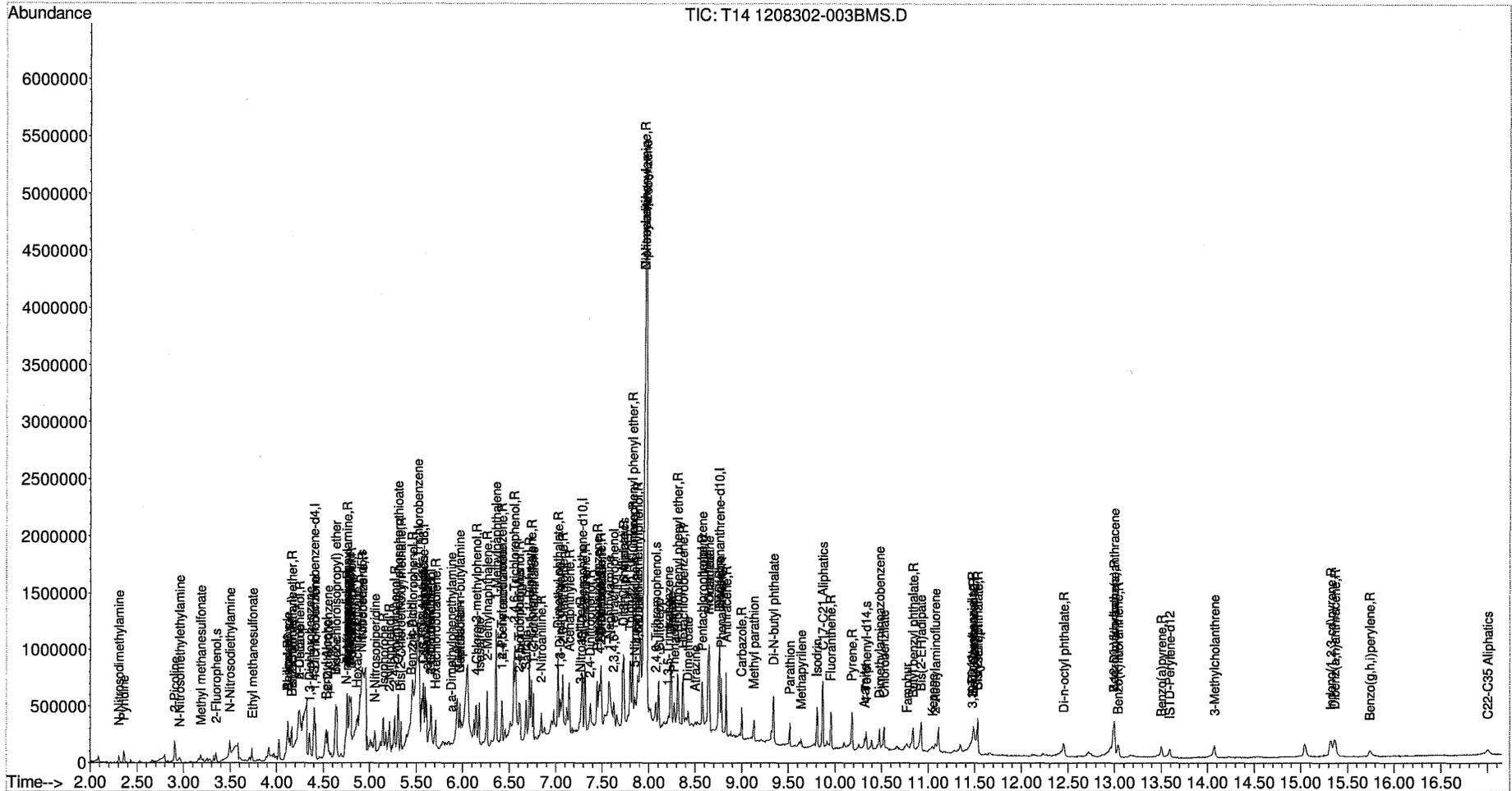
Quant Time: Aug 30 14:46:53 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
 Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
 QLast Update : Tue Aug 28 15:14:33 2012  
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : Z:\MSDCHEM\1\DATA\AUG 12\29 AUG 12-A\  
 Data File : T14 1208302-003BMS.D  
 Acq On : 29 Aug 2012 4:17 pm  
 Operator : ALICIA HABERLE  
 Sample : 1208302-003BMS  
 Misc : MS  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 30 14:59:01 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\QUANTFULLSV 08-27-2012.M  
 Quant Title : Semi-Volatile Compounds HP-GCMS 5973-B  
 QLast Update : Wed Aug 29 21:12:28 2012  
 Response via : Initial Calibration

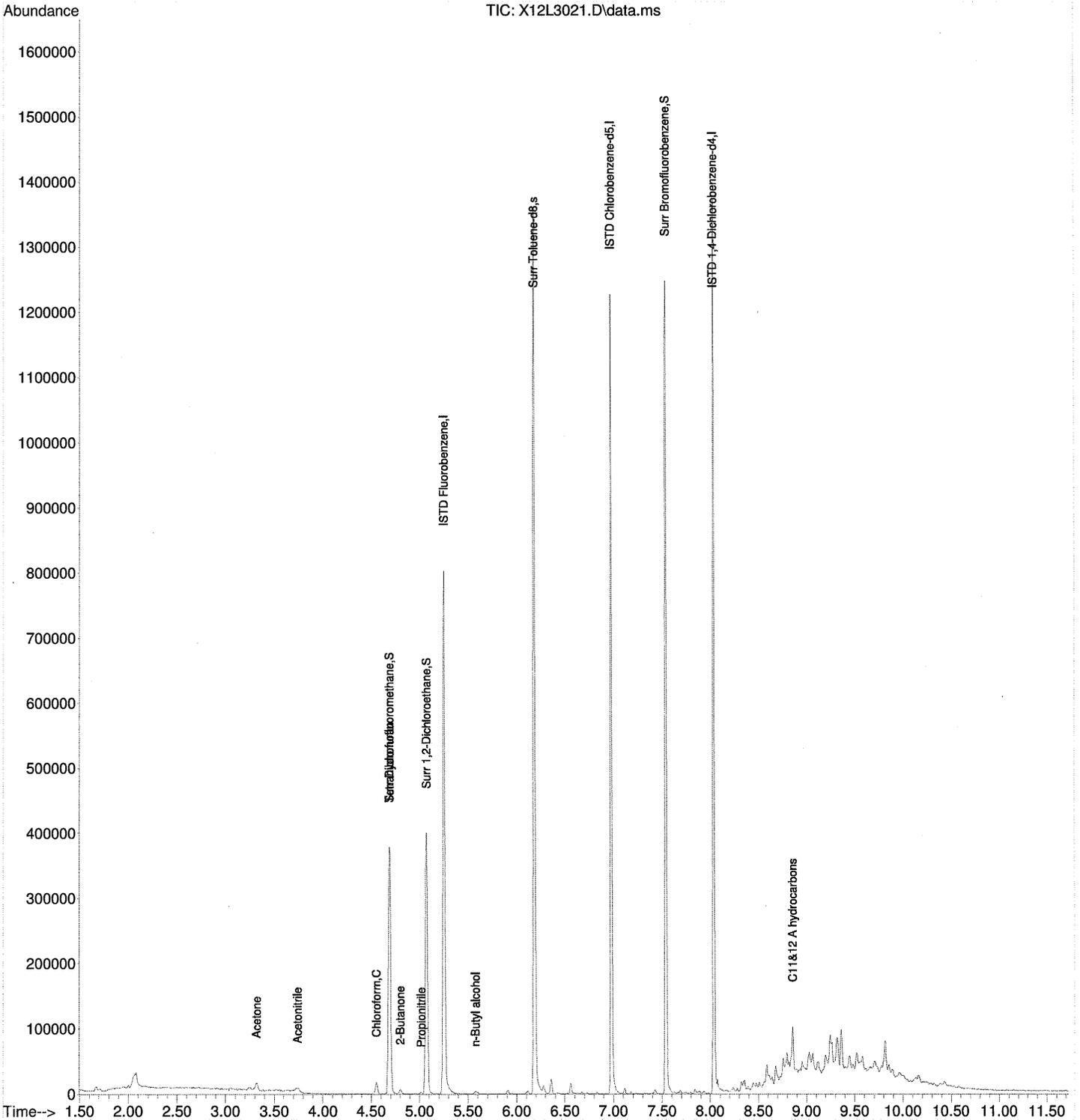




Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X12L3021.D  
Acq On : 22 Aug 2012 9:47 am  
Operator :  
Sample : 1208302-001A  
Misc : SAMP 5.0ML/50ML 1OF3 SB  
ALS Vial : 11 Sample Multiplier: 10

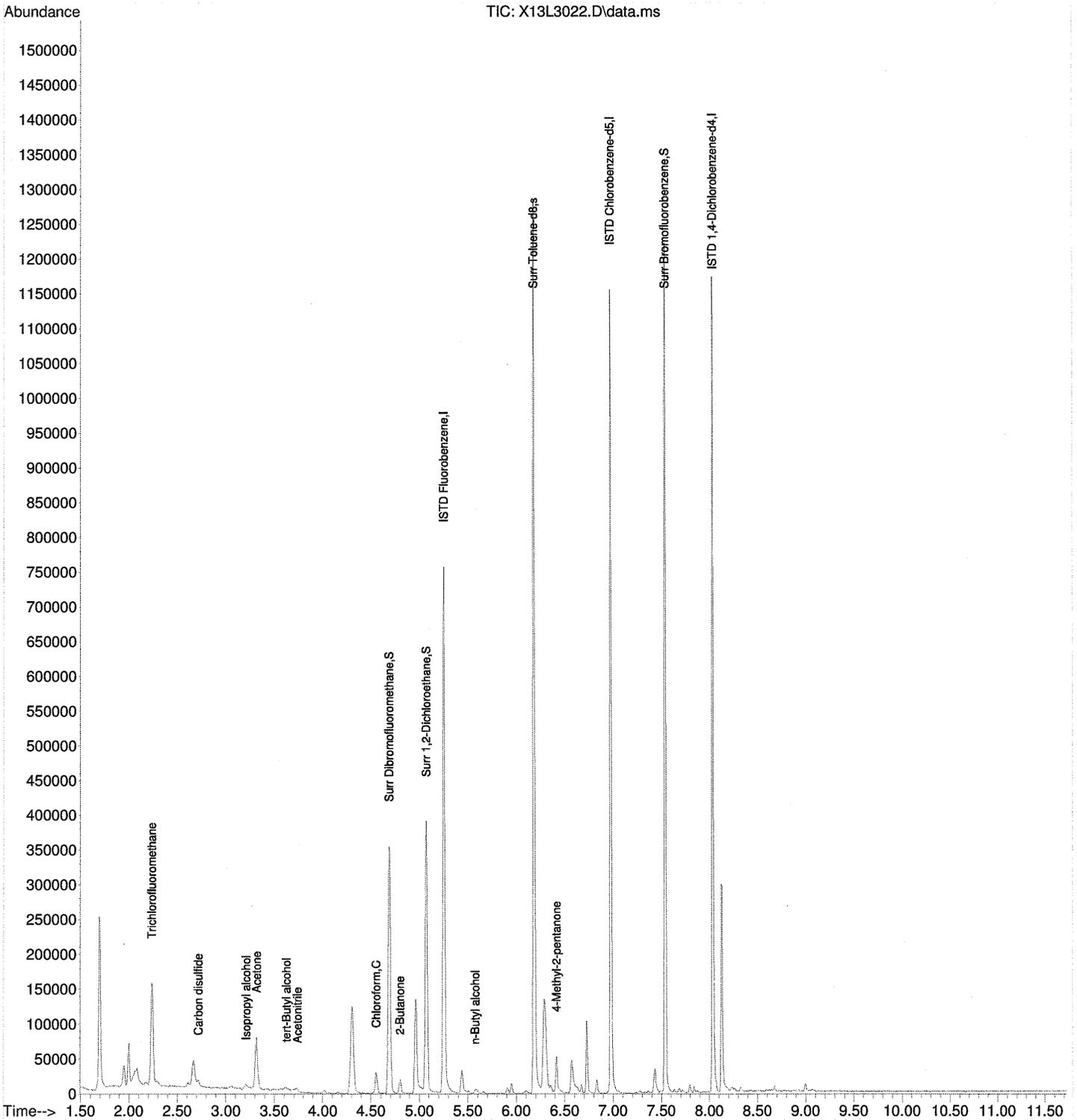
Quant Time: Aug 22 10:13:21 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X13L3022.D  
Acq On : 22 Aug 2012 10:06 am  
Operator :  
Sample : 1208302-002A  
Misc : SAMP 5.0ML 1OF3 SB  
ALS Vial : 12 Sample Multiplier: 1

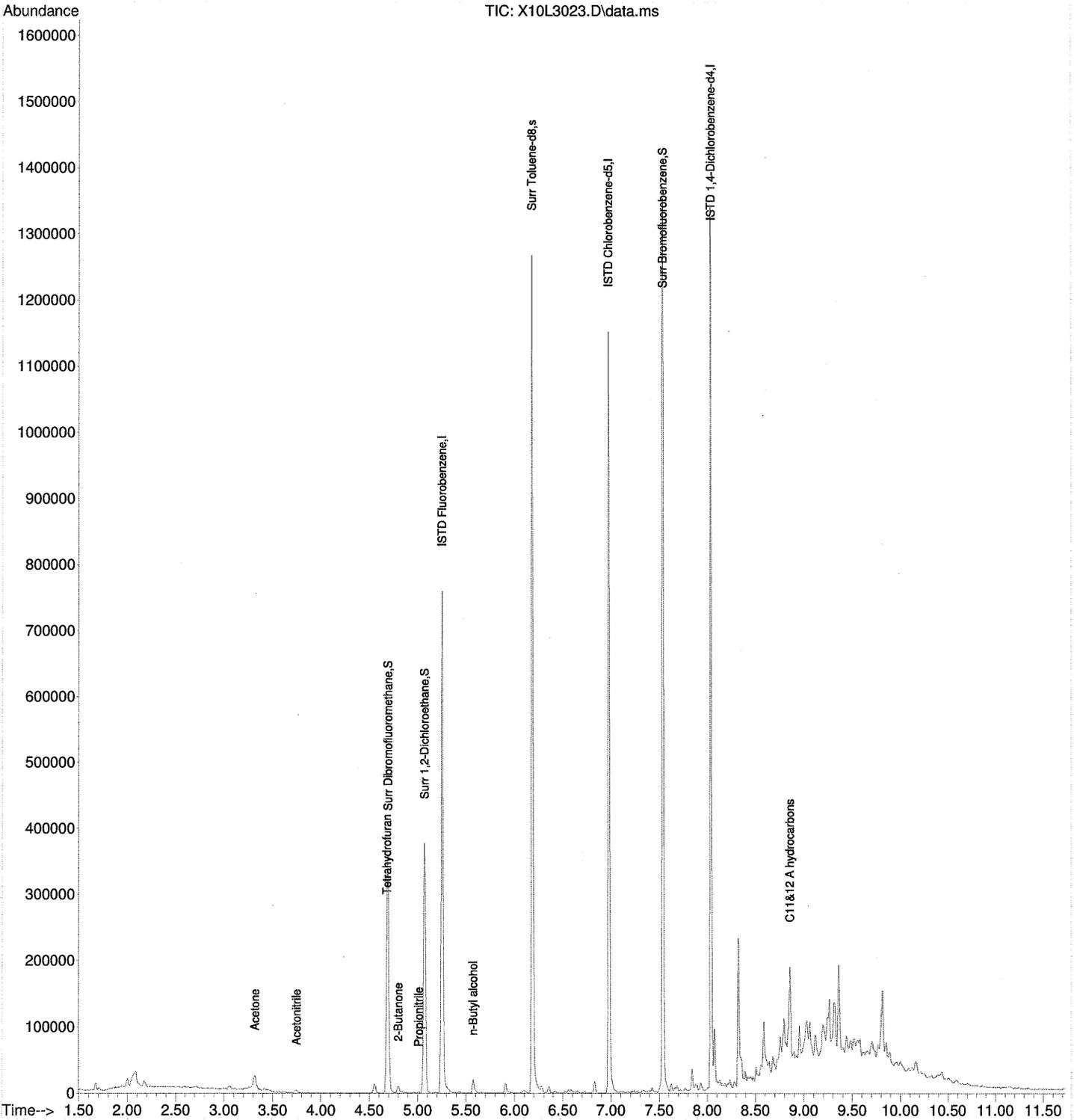
Quant Time: Aug 22 10:42:43 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X10L3023.D  
Acq On : 22 Aug 2012 9:09 am  
Operator :  
Sample : 1208302-003A  
Misc : SAMP 5.0ML 10F3 SB  
ALS Vial : 9 Sample Multiplier: 1

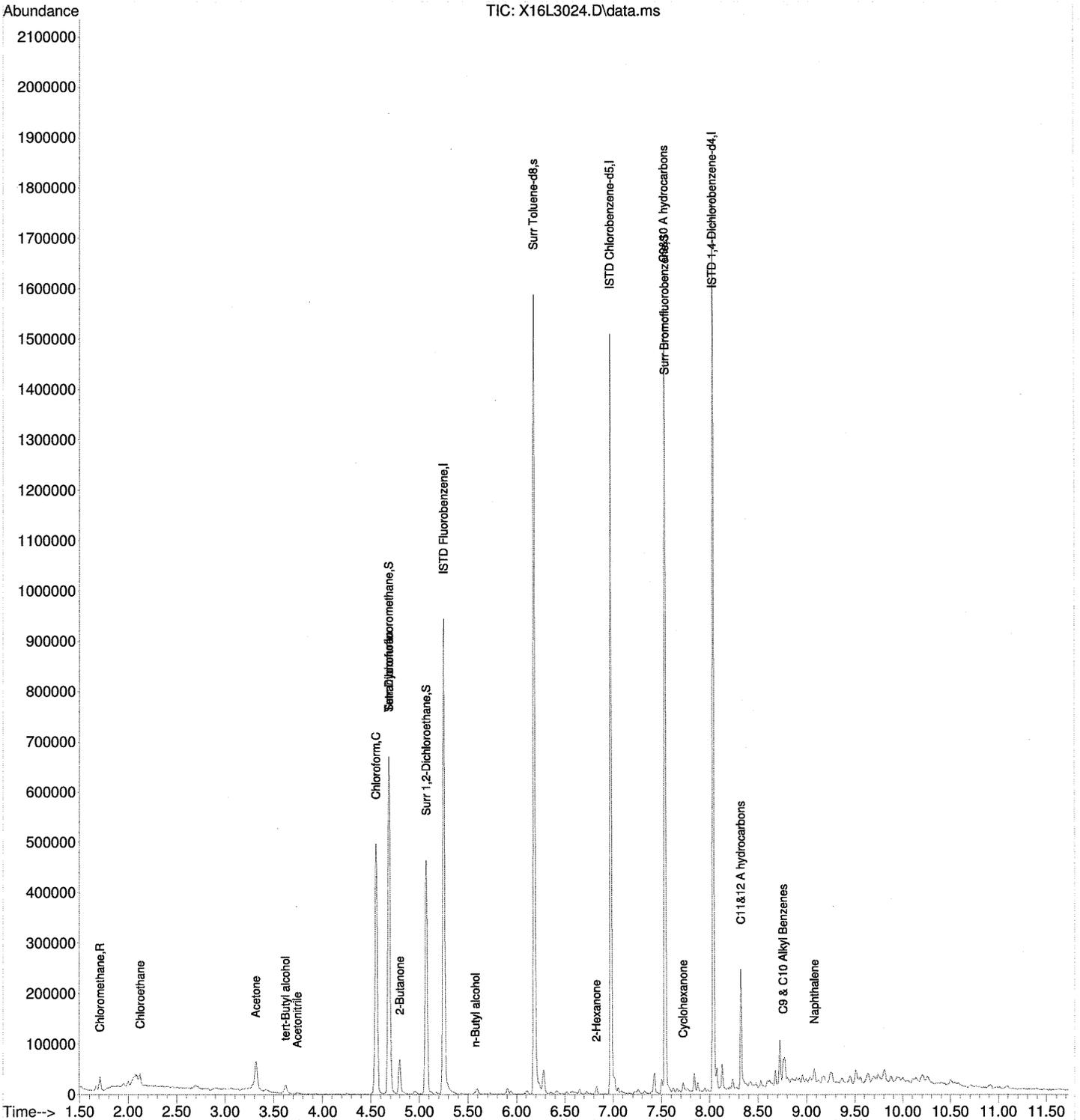
Quant Time: Aug 22 10:19:38 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
 Data File : X16L3024.D  
 Acq On : 22 Aug 2012 11:03 am  
 Operator :  
 Sample : 1208302-004A  
 Misc : SAMP 5.0ML 10F3 SB  
 ALS Vial : 15 Sample Multiplier: 1

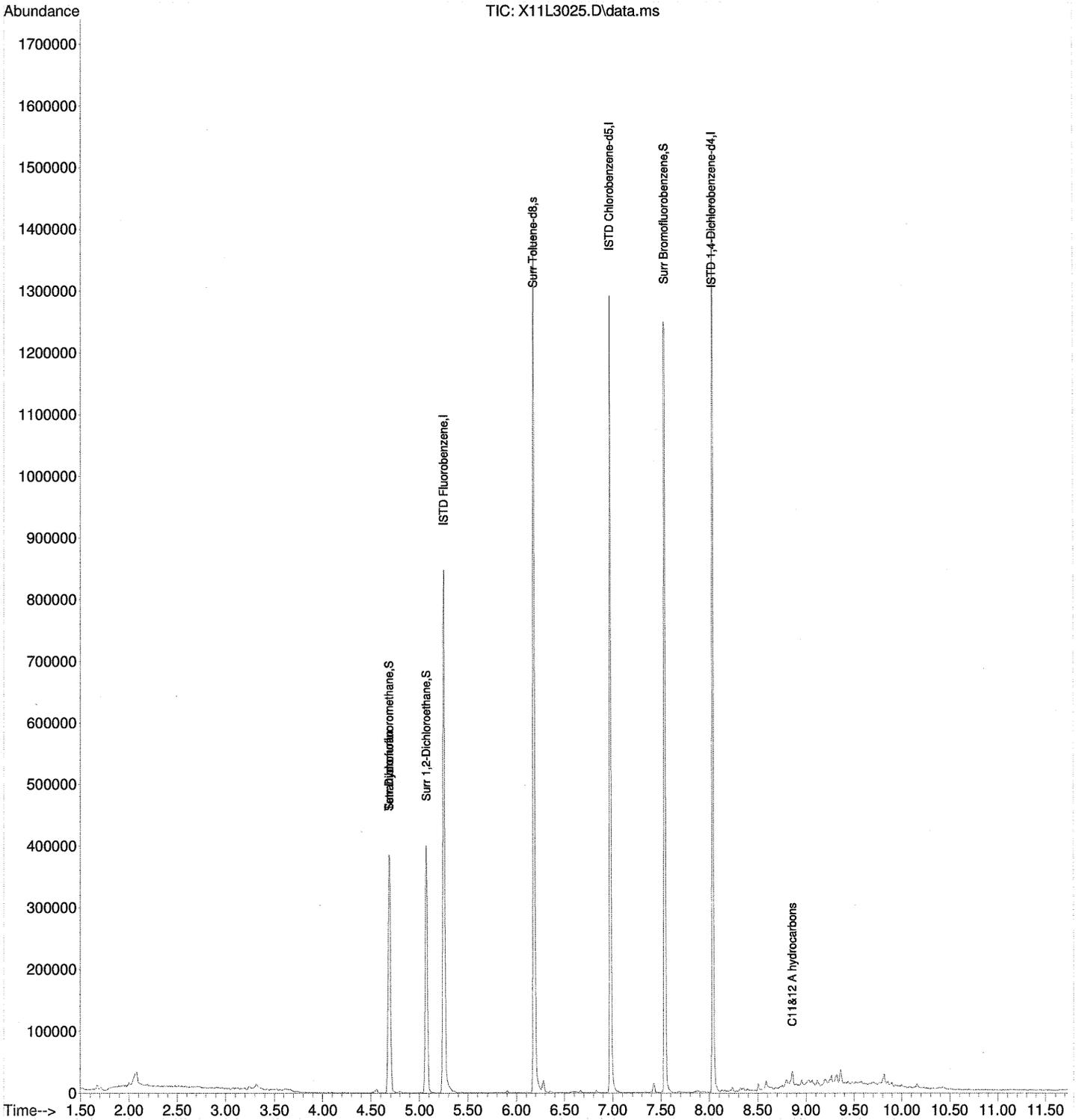
Quant Time: Aug 22 11:27:15 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
 Quant Title : VOA Calibration  
 QLast Update : Tue Aug 21 06:07:19 2012  
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X11L3025.D  
Acq On : 22 Aug 2012 9:28 am  
Operator :  
Sample : 1208302-005A  
Misc : SAMP 5.0ML/50ML 1OF3 SB  
ALS Vial : 10 Sample Multiplier: 10

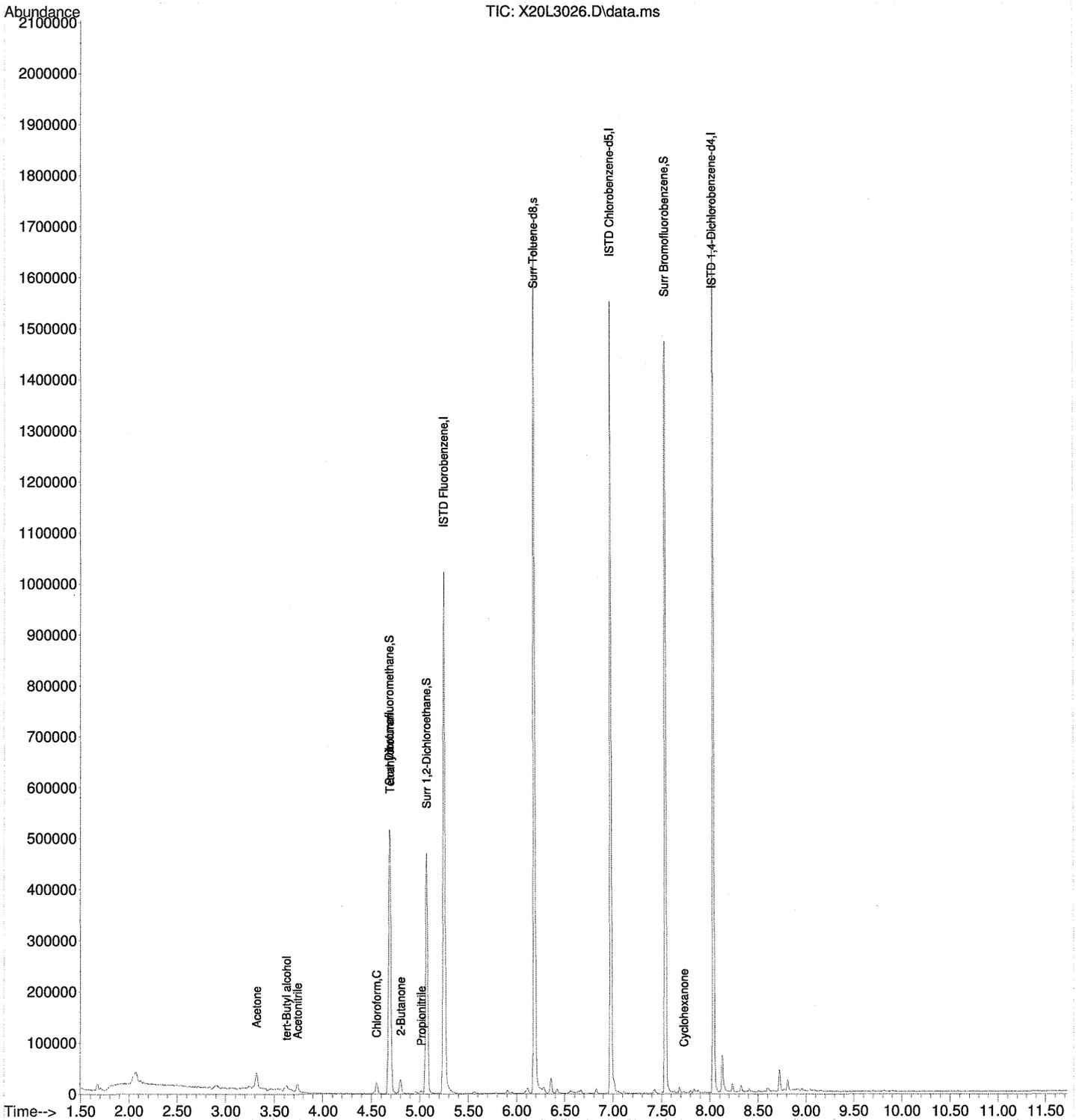
Quant Time: Aug 22 10:20:14 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X20L3026.D  
Acq On : 22 Aug 2012 12:19 pm  
Operator :  
Sample : 1208302-006A  
Misc : SAMP 5.0ML/50ML 2OF3 SB  
ALS Vial : 19 Sample Multiplier: 10

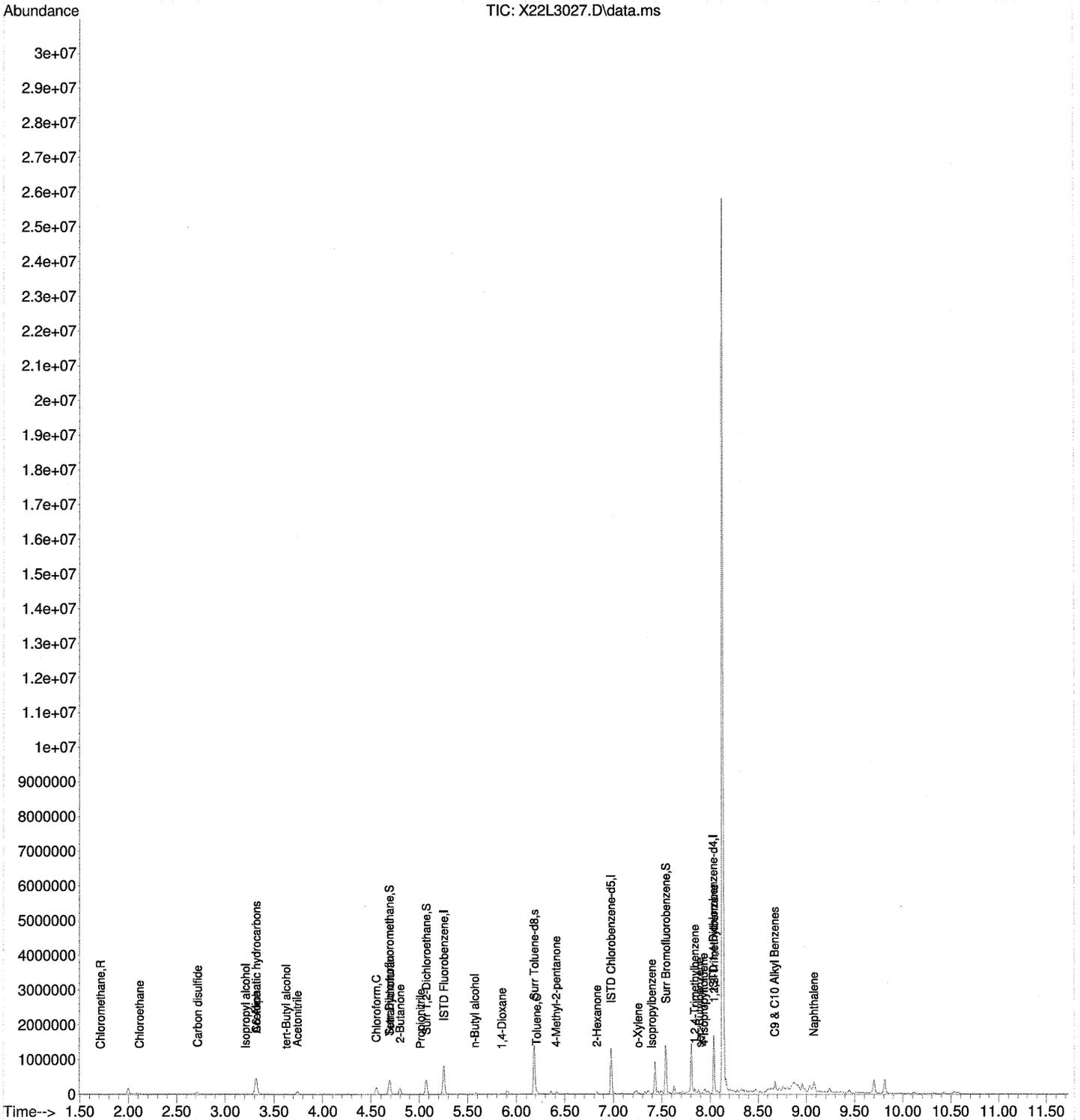
Quant Time: Aug 22 12:38:18 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
 Data File : X22L3027.D  
 Acq On : 22 Aug 2012 12:57 pm  
 Operator :  
 Sample : 1208302-007A  
 Misc : SAMP 5.0ML 20F3 SB  
 ALS Vial : 21 Sample Multiplier: 1

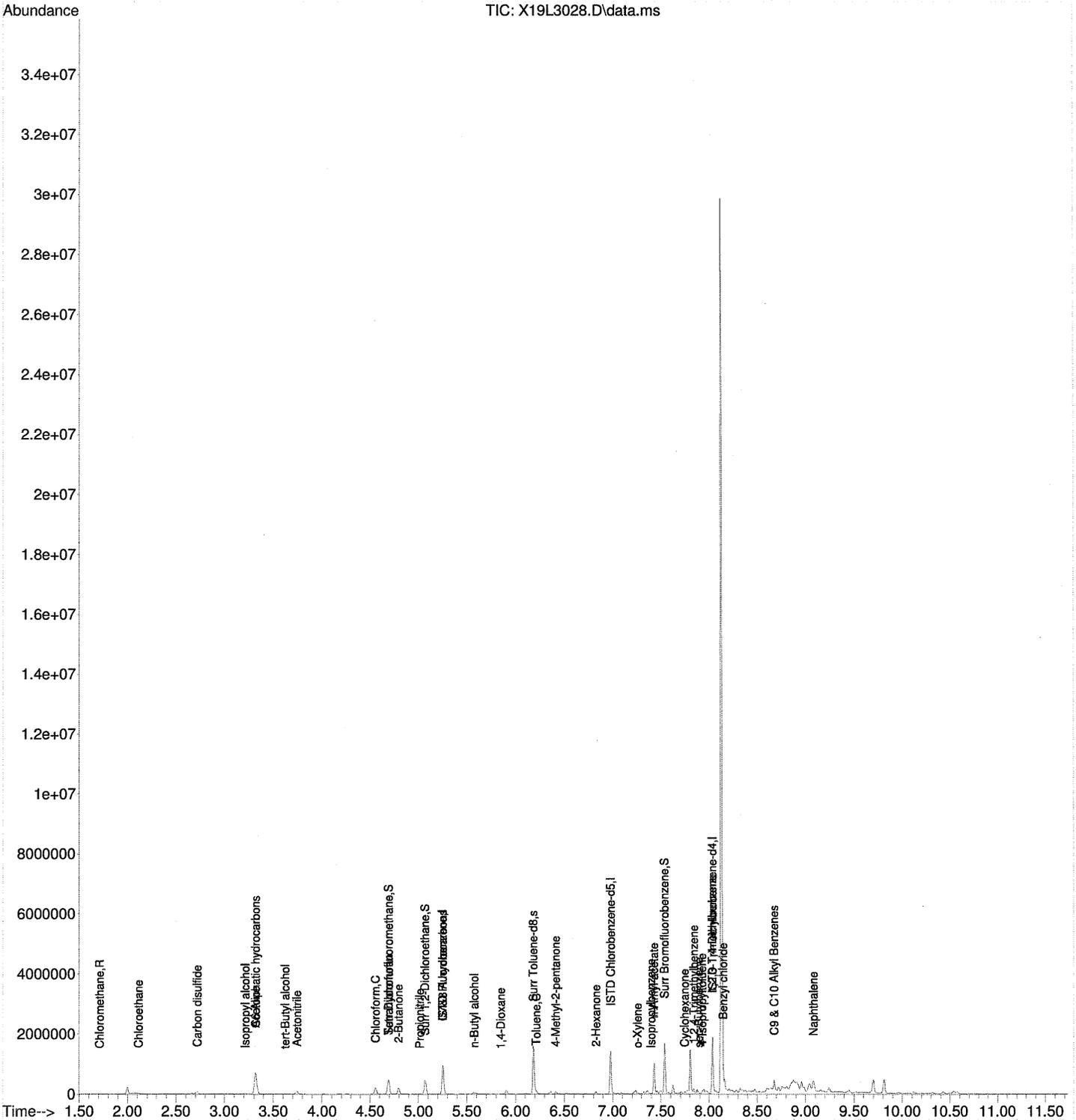
Quant Time: Aug 22 13:14:01 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
 Quant Title : VOA Calibration  
 QLast Update : Tue Aug 21 06:07:19 2012  
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
 Data File : X19L3028.D  
 Acq On : 22 Aug 2012 12:00 pm  
 Operator :  
 Sample : 1208302-008A  
 Misc : SAMP 5.0ML 10F3 SB  
 ALS Vial : 18 Sample Multiplier: 1

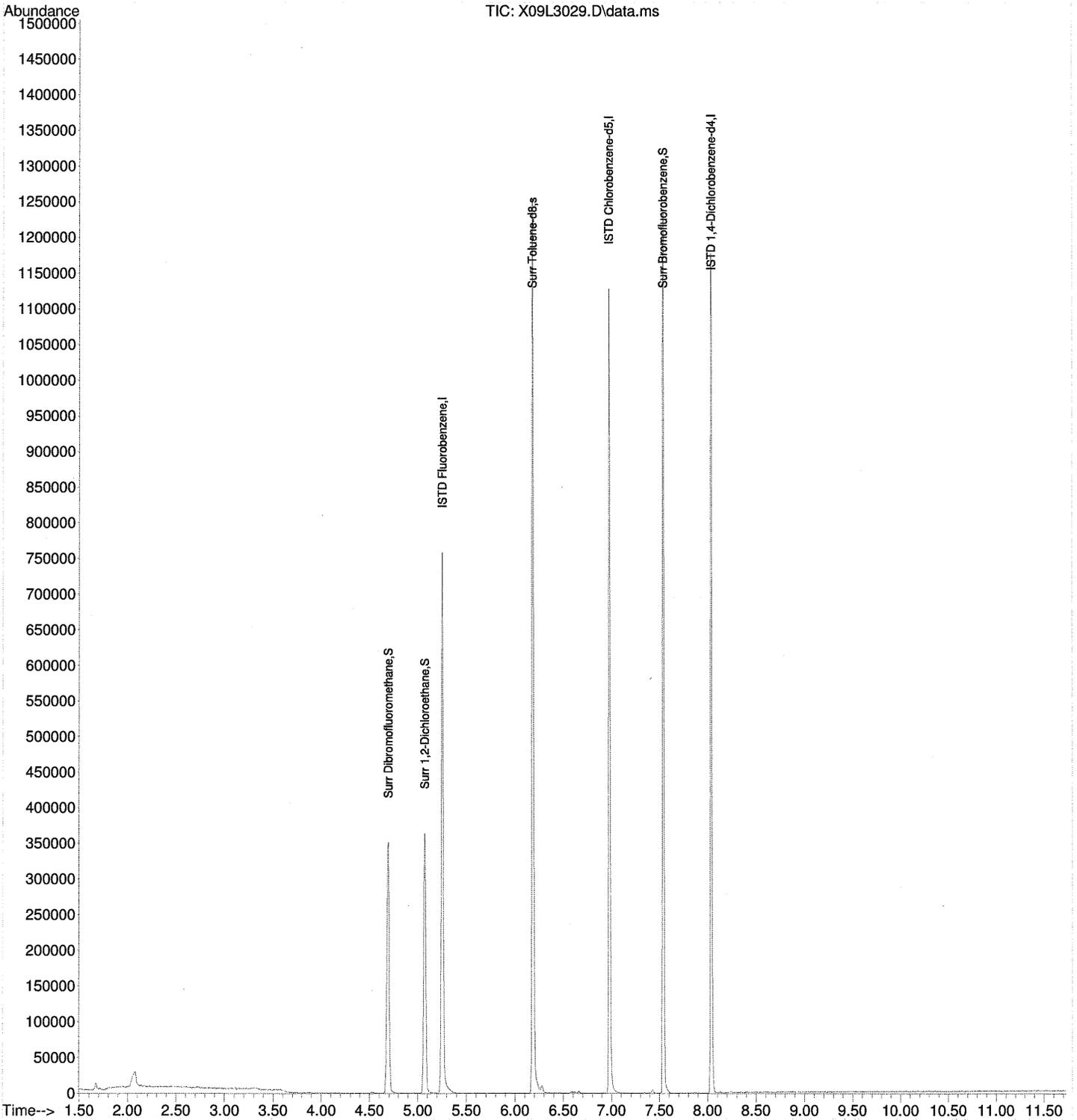
Quant Time: Aug 22 12:41:57 2012  
 Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
 Quant Title : VOA Calibration  
 QLast Update : Tue Aug 21 06:07:19 2012  
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X09L3029.D  
Acq On : 22 Aug 2012 8:50 am  
Operator :  
Sample : 1208302-009A  
Misc : SAMP 5.0ML 10F6 SB  
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 22 10:15:33 2012  
Quant Method : C:\msdchem\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Wed Aug 22 09:27:13 2012  
Response via : Initial Calibration

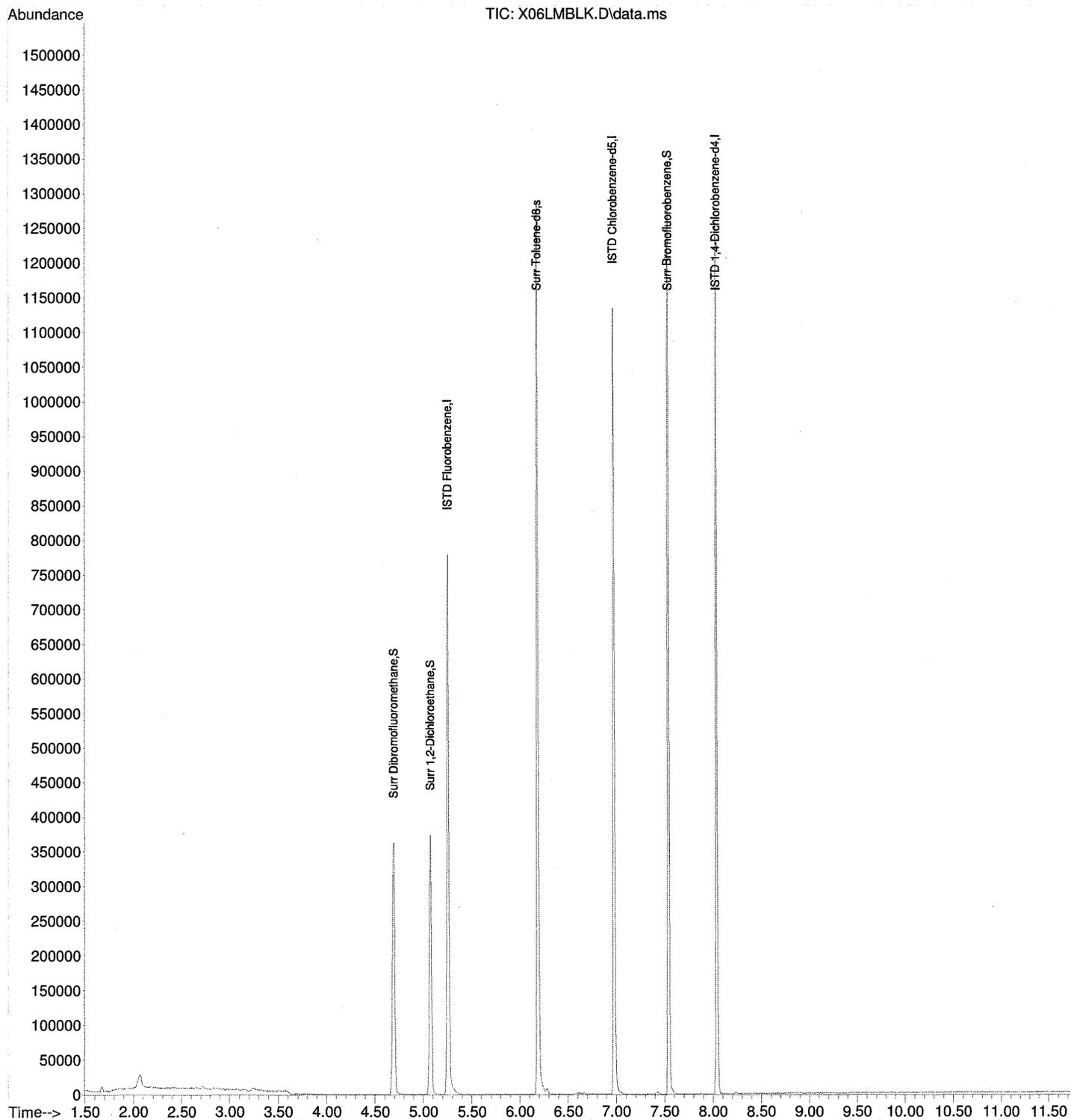




Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X06LMBLK.D  
Acq On : 22 Aug 2012 7:53 am  
Operator :  
Sample : MB VOC 082212A  
Misc : MBLK 5.0ML JO  
ALS Vial : 5 Sample Multiplier: 1

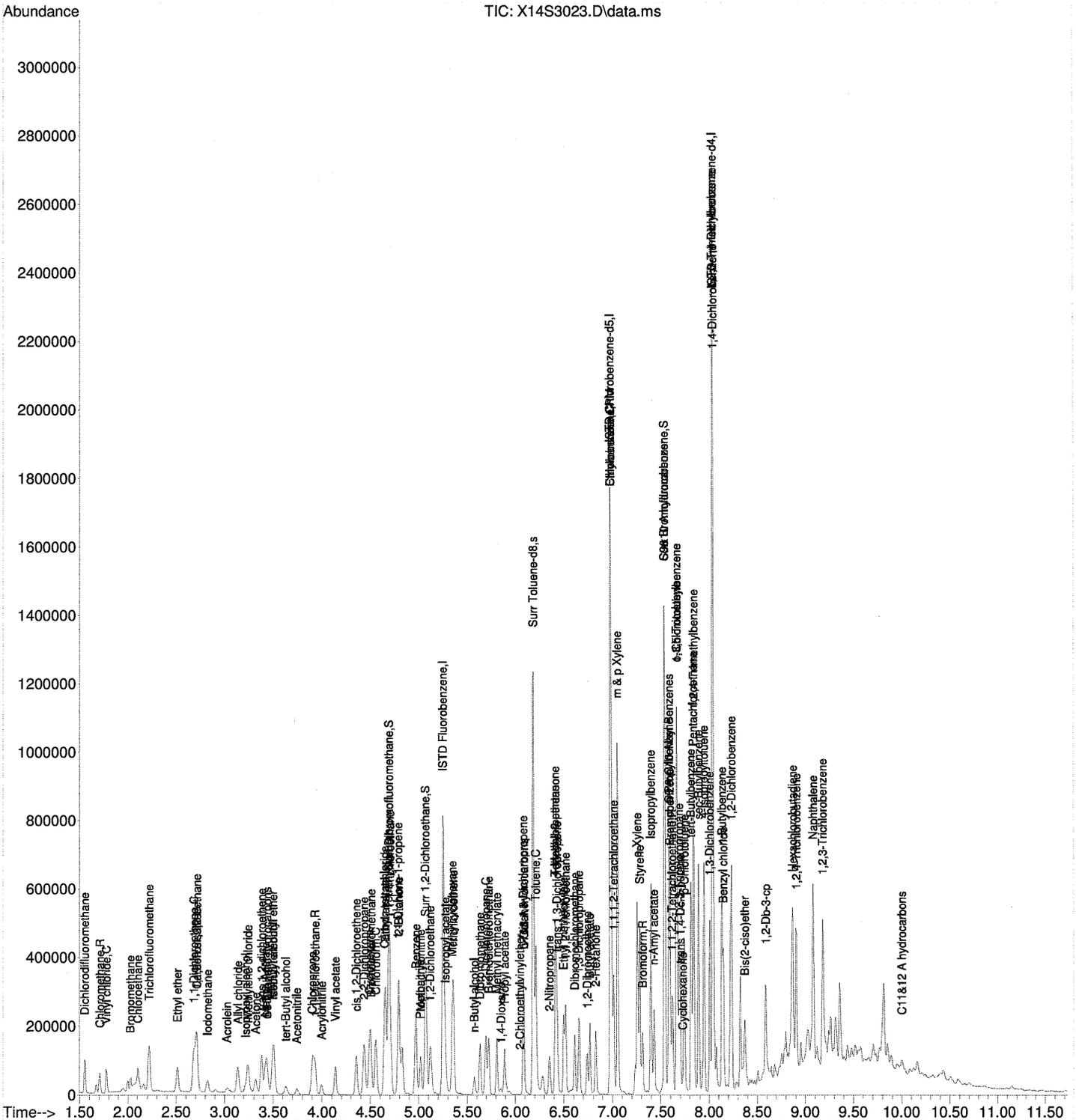
Quant Time: Aug 22 10:17:01 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X14S3023.D  
Acq On : 22 Aug 2012 10:25 am  
Operator :  
Sample : 1208302-003AMS  
Misc : MS 5.0ML 10F3 SB  
ALS Vial : 13 Sample Multiplier: 1

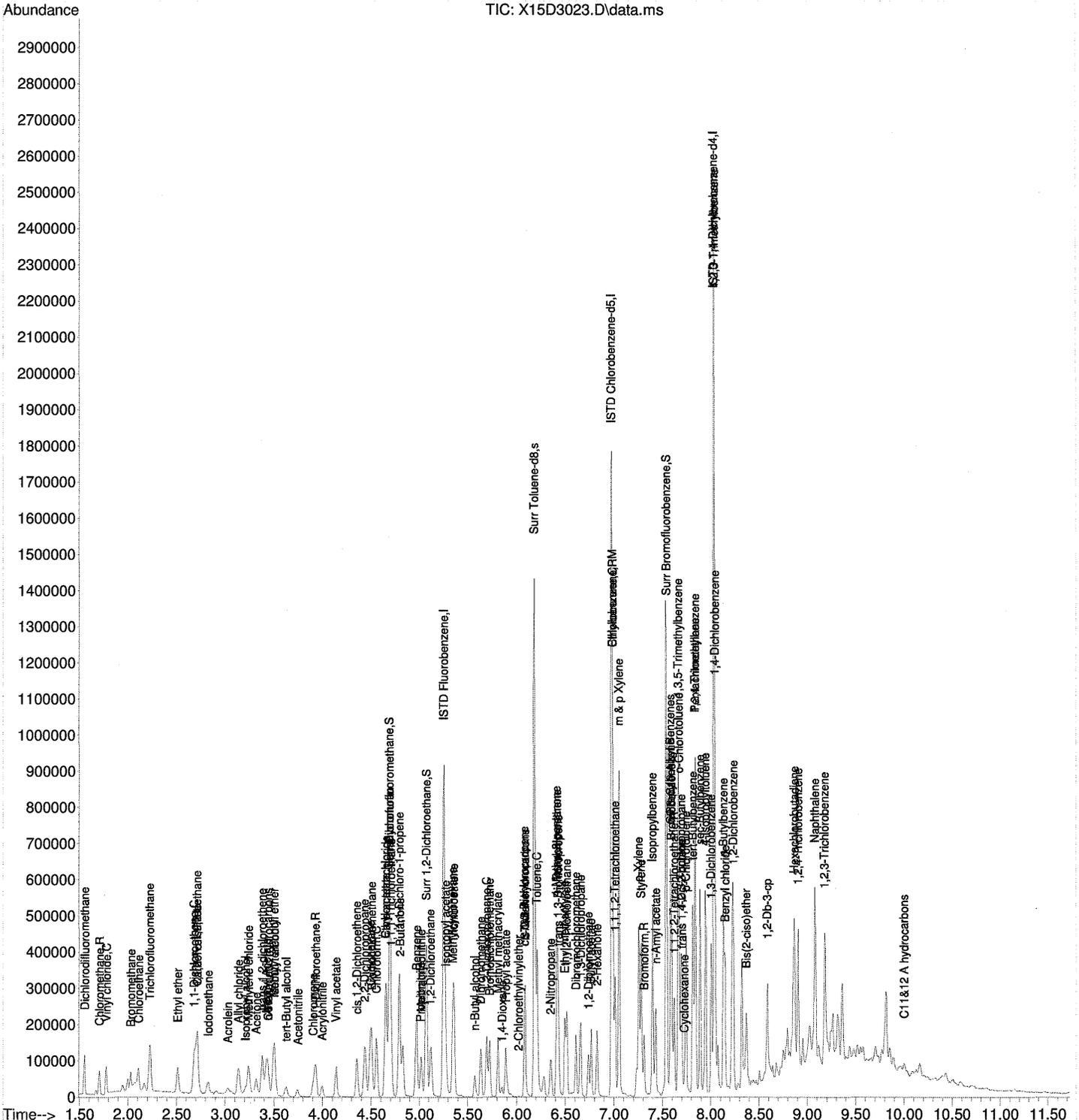
Quant Time: Aug 22 10:37:04 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\AUG12-C\22AUG12\  
Data File : X15D3023.D  
Acq On : 22 Aug 2012 10:44 am  
Operator :  
Sample : 1208302-003AMSD  
Misc : MSD 5.0ML 10F3 SB  
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 22 10:56:00 2012  
Quant Method : C:\MSDCHEM\1\METHODS\AFULLW\_62.M  
Quant Title : VOA Calibration  
QLast Update : Tue Aug 21 06:07:19 2012  
Response via : Initial Calibration



# American West Analytical Laboratories

UL  
Denison

## WORK ORDER Summary

Work Order: **1208302**

Client: Denison Mines

Page 1 of 2 8/17/2012

Client ID: DEN100

Contact: Jo Ann Tischler

Project: Annual Tailings

QC Level: LEVEL III

WO Type: Project

Comments: PA Rush. QC 3 & Summary. EDD-CSV. Report THF to 1 µg/L. Library search required for 4-chlorophenol. / use #3 for the MS/MSD;

*ch*

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1208302-001A	Cell 1	8/15/2012 1015h	8/17/2012 1020h	8/28/2012	Aqueous	8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-001B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	2
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-002A	Cell 3	8/15/2012 1120h				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-002B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	2
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-003A	Cell 4A	8/15/2012 0750h				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-003B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	4
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-004A	Cell 4A LDS	8/15/2012 0810h				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-004B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	2
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-005A	Cell 4B	8/15/2012 0905h				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-005B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	2
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-006A	Cell 4B LDS	8/15/2012 0835h				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-006B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	2
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-007A	Slimes #2	8/15/2012 1047h				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-007B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	1

# WORK ORDER Summary

Work Order: **1208302**

Client: Denison Mines

Page 2 of 2 8/17/2012

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1208302-007B	Slimes #2	8/15/2012 1047h	8/17/2012 1020h	8/28/2012	Aqueous	8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	1
1208302-008A	Cell 65					8260-W	<input checked="" type="checkbox"/>	VOCFridge	3
1208302-008B						3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	2
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1208302-009A	Trip Blank	8/15/2012				8260-W	<input checked="" type="checkbox"/>	VOCFridge	3



## Denison Mines

### Annual Tailings - 8270 Analyte List

Analyte		Library Search
1,2,4-Trichlorobenzene	Di-n-butyl phthalate	4-chlorophenol
1,2-Dichlorobenzene	Di-n-octyl phthalate	
1,3-Dichlorobenzene	Dibenz(a,h)anthracene	
1,4-Dichlorobenzene	Diethyl phthalate	
1-Methylnaphthalene	Dimethyl phthalate	
2,4,5-Trichlorophenol	Fluoranthene	
2,4,6-Trichlorophenol	Fluorene	
2,4-Dichlorophenol	Hexachlorobenzene	
2,4-Dimethylphenol	Hexachlorobutadiene	
2,4-Dinitrophenol	Hexachlorocyclopentadiene	
2,4-Dinitrotoluene	Hexachloroethane	
2,6-Dinitrotoluene	Indeno(1,2,3-cd)pyrene	
2-Chloronaphthalene	Isophorone	
2-Chlorophenol	N-Nitrosodimethylamine	
2-Methylnaphthalene	N-Nitrosodiphenylamine	
2-Methylphenol	N-nitrosodipropylamine	
2-Nitrophenol	Naphthalene	
3&4-Methylphenol	Nitrobenzene	
3,3'-Dichlorobenzidine	Pentachlorophenol	
4,6-Dinitro-2-methylphenol	Phenanthrene	
4-Bromophenyl phenyl ether	Phenol	
4-Chloro-3-methylphenol	Pyrene	
4-Chlorophenyl phenyl ether	Pyridine	
4-Nitrophenol		
Acenaphthene		
Acenaphthylene		
Anthracene		
Azobenzene		
Benz(a)anthracene		
Benzidine		
Benzo(a)pyrene		
Benzo(b)fluoranthene		
Benzo(g,h,i)perylene		
Benzo(k)fluoranthene		
Bis(2-chloroethoxy)methane		
Bis(2-chloroethyl) ether		
Bis(2-chloroisopropyl) ether		
Bis(2-ethylhexyl) phthalate		
Butyl benzyl phthalate		

Surrogate
2,4,6-Tribromophenol
2-Fluorobiphenyl
2-Fluorophenol
Nitrobenzene-d5
Phenol-d6
Terphenyl-d14

Lab Set ID: 1208302

<b>Samples Were:</b>	<b>COC Tape Was:</b>	<b>Container Type:</b>	<b>No. Rec.</b>
<input checked="" type="checkbox"/> Shipped By: <u>UPS</u>	<b>Present on Outer Package</b>	<input type="checkbox"/> AWAL Supplied Plastic	
<input type="checkbox"/> Hand Delivered	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> AWAL Supplied Clear Glass	
<input type="checkbox"/> Ambient	<b>Unbroken on Outer package</b>	<input type="checkbox"/> AWAL Supplied Amber Glass	
<input checked="" type="checkbox"/> Chilled <u>in ice</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> AWAL Supplied VOA/TOC/TOX Vials	
Temperature <u>3.4 °C</u>	<b>Present on Sample</b>	<input type="checkbox"/> Amber <input type="checkbox"/> Clear <input type="checkbox"/> Headspace <input type="checkbox"/> No Headspace	
Rec. Broken/Leaking <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Non AWAL Supplied Container	
Notes: <u>one amber bottle for Slimes #2 was rec. broken</u>	<b>Unbroken on Sample</b>	Notes:	
Properly Preserved <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	8/17/12 <i>[Signature]</i>	
Notes:	Notes:		
Rec. Within Hold <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Discrepancies Between Labels and COC</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Notes:		Notes:	

Bottle Type	Preservative	All pHs OK																		
Ammonia	pH <2 H <sub>2</sub> SO <sub>4</sub>																			
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>																			
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, ZnAC																			
TKN	pH <2 H <sub>2</sub> SO <sub>4</sub>																			
TOC	pH <2 H <sub>3</sub> PO <sub>4</sub>																			
T PO <sub>4</sub>	pH <2 H <sub>2</sub> SO <sub>4</sub>																			
TPH	pH <2 HCL																			

- 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 and notify client for further instructions
  - 6) Place client conversation on COC
  - 7) Samples may be adjusted at client request

8/17/12  
*[Signature]*



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

RE: Annual Tails 2012

Dear Garrin Palmer:

Lab Set ID: 1210392

463 West 3600 South

Salt Lake City, UT 84115

American West Analytical Laboratories received 2 sample(s) on 10/24/2012 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](mailto:awal@awal-labs.com)

web: [www.awal-labs.com](http://www.awal-labs.com)

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Association Conference (NELAC) Institute in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, and Missouri. In addition, AWAL is also accredited by the American Analytical Laboratory Association (A2LA) on ISO IEC 17025:2005, Department of Defense (DOD), UST for the State of Wyoming, and the National Lead Laboratory Accreditation Program (NLLAP). All analyses were performed in accordance to The NELAC Institute and/or A2LA protocols unless noted otherwise. Accreditation 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: 2012.11.02 16:13:46 -06'00'

Approved by:

Laboratory Director or designee



## Semivolatile Case Narrative

**Client:** Denison Mines  
**Contact:** Jo Ann Tischler  
**Project:** Annual Tails 2012  
**Lab Set ID:** 1210392

---

### Sample Receipt Information:

**Date of Receipt:** 10/24/2010  
**Date of Collection:** 10/22/2010  
**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. Internal standard areas were outside of the QC limits for samples 1210392-001A and -002A. Reanalysis or MS sample yielded similar results indicating matrix interference.

**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):** Sample 1210392-001A exhibited multiple percent recoveries outside of established limits indicating matrix interference and multiple RPDs (Relative Percent Differences) were high 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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Salt Lake City, UT 84115

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web: www.awal-labs.com

Kyle F. Gross

Laboratory Director

Jose Rocha

QA Officer



## SAMPLE SUMMARY

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

**Contact:** Garrin Palmer

**Project:** Annual Tails 2012

**Lab Set ID:** 1210392

**Date Received:** 10/24/2012 1010h

463 West 3600 South  
Salt Lake City, UT 84115

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Date Collected</u>	<u>Matrix</u>	<u>Analysis</u>
1210392-001A	Cell1	10/22/2012 1230h	Aqueous	SVOAs by GC/MS Method 8270D
1210392-002A	Cell70	10/22/2012 1230h	Aqueous	SVOAs by GC/MS Method 8270D

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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1210392  
**Project:** Annual Tails 2012

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

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
LCS-21826	1,2,4-Trichlorobenzene	µg/L	SW8270D	40.1	80.00	0	50.2	10-104				10/26/2012 1731h
LCS-21826	1,4-Dichlorobenzene	µg/L	SW8270D	30.2	80.00	0	37.7	10-118				10/26/2012 1731h
LCS-21826	2,4,6-Trichlorophenol	µg/L	SW8270D	70.9	80.00	0	88.7	17-119				10/26/2012 1731h
LCS-21826	2,4-Dimethylphenol	µg/L	SW8270D	60.8	80.00	0	76.0	10-131				10/26/2012 1731h
LCS-21826	2,4-Dinitrotoluene	µg/L	SW8270D	90.4	80.00	0	113	42-219				10/26/2012 1731h
LCS-21826	2-Chloronaphthalene	µg/L	SW8270D	61.0	80.00	0	76.3	23-126				10/26/2012 1731h
LCS-21826	2-Chlorophenol	µg/L	SW8270D	53.8	80.00	0	67.2	15-128				10/26/2012 1731h
LCS-21826	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	105	80.00	0	132	30-198				10/26/2012 1731h
LCS-21826	4-Chloro-3-methylphenol	µg/L	SW8270D	71.9	80.00	0	89.9	29-148				10/26/2012 1731h
LCS-21826	4-Nitrophenol	µg/L	SW8270D	25.5	80.00	0	31.8	10-157				10/26/2012 1731h
LCS-21826	Acenaphthene	µg/L	SW8270D	68.6	80.00	0	85.8	20-116				10/26/2012 1731h
LCS-21826	Benzo(a)pyrene	µg/L	SW8270D	126	80.00	0	157	10-221				10/26/2012 1731h
LCS-21826	N-Nitrosodi-n-propylamine	µg/L	SW8270D	68.4	80.00	0	85.5	20-148				10/26/2012 1731h
LCS-21826	Pentachlorophenol	µg/L	SW8270D	87.1	80.00	0	109	21-153				10/26/2012 1731h
LCS-21826	Phenol	µg/L	SW8270D	31.5	80.00	0	39.3	10-131				10/26/2012 1731h
LCS-21826	Pyrene	µg/L	SW8270D	77.6	80.00	0	97.0	37-150				10/26/2012 1731h
LCS-21826	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	95.2	80.00		119	10-165				10/26/2012 1731h
LCS-21826	Surr: 2-Fluorobiphenyl	%REC	SW8270D	29.0	40.00		72.5	10-118				10/26/2012 1731h
LCS-21826	Surr: 2-Fluorophenol	%REC	SW8270D	32.7	80.00		40.9	10-121				10/26/2012 1731h
LCS-21826	Surr: Nitrobenzene-d5	%REC	SW8270D	24.6	40.00		61.4	10-127				10/26/2012 1731h
LCS-21826	Surr: Phenol-d6	%REC	SW8270D	30.2	80.00		37.8	10-124				10/26/2012 1731h
LCS-21826	Surr: Terphenyl-d14	%REC	SW8270D	41.1	40.00		103	51-221				10/26/2012 1731h



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1210392  
**Project:** Annual Tails 2012

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

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-21826	1,2,4-Trichlorobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	1,2-Dichlorobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	1,3-Dichlorobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	1,4-Dichlorobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	1-Methylnaphthalene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,4,5-Trichlorophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,4,6-Trichlorophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,4-Dichlorophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,4-Dimethylphenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,4-Dinitrophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,4-Dinitrotoluene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2,6-Dinitrotoluene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2-Chloronaphthalene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2-Chlorophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2-Methylnaphthalene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2-Methylphenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	2-Nitrophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	3&4-Methylphenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	3,3'-Dichlorobenzidine	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	4-Bromophenyl phenyl ether	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	4-Chloro-3-methylphenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	4-Chlorophenyl phenyl ether	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	4-Nitrophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Acenaphthene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Acenaphthylene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h



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Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1210392  
**Project:** Annual Tails 2012

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

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-21826	Anthracene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Azobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Benz(a)anthracene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Benzidine	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Benzo(a)pyrene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Benzo(b)fluoranthene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Benzo(g,h,i)perylene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Benzo(k)fluoranthene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Bis(2-chloroethoxy)methane	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Bis(2-chloroethyl) ether	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Bis(2-chloroisopropyl) ether	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Bis(2-ethylhexyl) phthalate	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Butyl benzyl phthalate	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Chrysene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Dibenz(a,h)anthracene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Diethyl phthalate	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Dimethyl phthalate	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Di-n-butyl phthalate	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Di-n-octyl phthalate	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Fluoranthene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Fluorene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Hexachlorobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Hexachlorobutadiene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Hexachlorocyclopentadiene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Hexachloroethane	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Indeno(1,2,3-cd)pyrene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h



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## QC SUMMARY REPORT

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

**Lab Set ID:** 1210392

**Project:** Annual Tails 2012

**Contact:** Garrin Palmer

**Dept:** MSSV

**QC Type:** MBLK

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
MB-21826	Isophorone	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Naphthalene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Nitrobenzene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	N-Nitrosodimethylamine	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	N-Nitrosodiphenylamine	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	N-Nitrosodi-n-propylamine	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Pentachlorophenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Phenanthrene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Phenol	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Pyrene	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Pyridine	µg/L	SW8270D	< 10.0				-				10/26/2012 1705h
MB-21826	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	89.6	80.00		112	10-165				10/26/2012 1705h
MB-21826	Surr: 2-Fluorobiphenyl	%REC	SW8270D	27.3	40.00		68.3	10-118				10/26/2012 1705h
MB-21826	Surr: 2-Fluorophenol	%REC	SW8270D	35.2	80.00		44.0	10-121				10/26/2012 1705h
MB-21826	Surr: Nitrobenzene-d5	%REC	SW8270D	20.9	40.00		52.4	10-127				10/26/2012 1705h
MB-21826	Surr: Phenol-d6	%REC	SW8270D	30.7	80.00		38.4	10-124				10/26/2012 1705h
MB-21826	Surr: Terphenyl-d14	%REC	SW8270D	42.9	40.00		107	51-221				10/26/2012 1705h

A library search was performed for 4-chlorophenol and the analyte was not detected



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Laboratory Director

Jose Rocha  
QA Officer

## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1210392  
**Project:** Annual Tails 2012

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

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1210392-001AMS	1,2,4-Trichlorobenzene	µg/L	SW8270D	94.8	80.00	0	118	20-107			'	10/26/2012 1824h
1210392-001AMS	1,4-Dichlorobenzene	µg/L	SW8270D	78.8	80.00	0	98.5	11-90			'	10/26/2012 1824h
1210392-001AMS	2,4,6-Trichlorophenol	µg/L	SW8270D	186	80.00	0	232	10-223			'	10/26/2012 1824h
1210392-001AMS	2,4-Dimethylphenol	µg/L	SW8270D	130	80.00	0	162	10-176				10/26/2012 1824h
1210392-001AMS	2,4-Dinitrotoluene	µg/L	SW8270D	142	80.00	0	177	21-191				10/26/2012 1824h
1210392-001AMS	2-Chloronaphthalene	µg/L	SW8270D	91.5	80.00	0	114	12-132				10/26/2012 1824h
1210392-001AMS	2-Chlorophenol	µg/L	SW8270D	117	80.00	0	146	20-107			'	10/26/2012 1824h
1210392-001AMS	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	168	80.00	0	210	20-250				10/31/2012 2043h
1210392-001AMS	4-Chloro-3-methylphenol	µg/L	SW8270D	153	80.00	0	192	10-136			'	10/26/2012 1824h
1210392-001AMS	4-Nitrophenol	µg/L	SW8270D	42.4	80.00	0	53.0	10-135				10/26/2012 1824h
1210392-001AMS	Acenaphthene	µg/L	SW8270D	134	80.00	0	167	21-113			'	10/26/2012 1824h
1210392-001AMS	Benzo(a)pyrene	µg/L	SW8270D	244	80.00	0	305	15-169			'	10/31/2012 2043h
1210392-001AMS	N-Nitrosodi-n-propylamine	µg/L	SW8270D	153	80.00	0	192	10-133			'	10/26/2012 1824h
1210392-001AMS	Pentachlorophenol	µg/L	SW8270D	23.6	80.00	0	29.6	10-131				10/26/2012 1824h
1210392-001AMS	Phenol	µg/L	SW8270D	139	80.00	5.640	167	10-71			'	10/26/2012 1824h
1210392-001AMS	Pyrene	µg/L	SW8270D	176	80.00	0	219	23-150			'	10/26/2012 1824h
1210392-001AMS	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	88.3	80.00		110	14-159				10/26/2012 1824h
1210392-001AMS	Surr: 2-Fluorobiphenyl	%REC	SW8270D	35.0	40.00		87.6	10-124				10/26/2012 1824h
1210392-001AMS	Surr: 2-Fluorophenol	%REC	SW8270D	50.3	80.00		62.9	10-106				10/26/2012 1824h
1210392-001AMS	Surr: Nitrobenzene-d5	%REC	SW8270D	28.9	40.00		72.3	10-180				10/26/2012 1824h
1210392-001AMS	Surr: Phenol-d6	%REC	SW8270D	68.8	80.00		86.0	10-122				10/26/2012 1824h
1210392-001AMS	Surr: Terphenyl-d14	%REC	SW8270D	53.8	40.00		134	10-199				10/26/2012 1824h

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

1210392-001AMS: Internal standard areas were outside of the QC limits. MS samples yielded similar results indicating matrix interference.



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## QC SUMMARY REPORT

**Client:** Energy Fuels Resources, Inc.  
**Lab Set ID:** 1210392  
**Project:** Annual Tails 2012

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

Sample ID	Analyte	Units	Method	Result	Amount Spiked	Original Amount	%REC	Limits	%RPD	RPD Limit	Qual	Date Analyzed
1210392-001AMSD	1,2,4-Trichlorobenzene	µg/L	SW8270D	102	80.00	0	127	20-107	7.25	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	1,4-Dichlorobenzene	µg/L	SW8270D	85.4	80.00	0	107	11-90	8.07	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	2,4,6-Trichlorophenol	µg/L	SW8270D	181	80.00	0	226	10-223	2.74	25	<sup>1</sup>	10/31/2012 2110h
1210392-001AMSD	2,4-Dimethylphenol	µg/L	SW8270D	140	80.00	0	175	10-176	7.49	25		10/26/2012 1850h
1210392-001AMSD	2,4-Dinitrotoluene	µg/L	SW8270D	163	80.00	0	204	21-191	14	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	2-Chloronaphthalene	µg/L	SW8270D	147	80.00	0	184	12-132	46.6	25	<sup>1</sup> @	10/26/2012 1850h
1210392-001AMSD	2-Chlorophenol	µg/L	SW8270D	126	80.00	0	157	20-107	6.87	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	4,6-Dinitro-2-methylphenol	µg/L	SW8270D	169	80.00	0	211	20-250	18.3	25		10/31/2012 2110h
1210392-001AMSD	4-Chloro-3-methylphenol	µg/L	SW8270D	161	80.00	0	201	10-136	4.88	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	4-Nitrophenol	µg/L	SW8270D	46.3	80.00	0	57.9	10-135	8.79	25		10/26/2012 1850h
1210392-001AMSD	Acenaphthene	µg/L	SW8270D	145	80.00	0	181	21-113	7.87	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	Benzo(a)pyrene	µg/L	SW8270D	263	80.00	0	329	15-169	17.6	25	<sup>1</sup>	10/31/2012 2110h
1210392-001AMSD	N-Nitrosodi-n-propylamine	µg/L	SW8270D	156	80.00	0	195	10-133	1.78	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	Pentachlorophenol	µg/L	SW8270D	148	80.00	0	185	10-131	145	25	<sup>1</sup> @	10/31/2012 2110h
1210392-001AMSD	Phenol	µg/L	SW8270D	146	80.00	5.640	176	10-71	4.81	25	<sup>1</sup>	10/26/2012 1850h
1210392-001AMSD	Pyrene	µg/L	SW8270D	165	80.00	0	207	23-150	6.01	25	<sup>1</sup>	10/31/2012 2110h
1210392-001AMSD	Surr: 2,4,6-Tribromophenol	%REC	SW8270D	112	80.00		140	14-159				10/26/2012 1850h
1210392-001AMSD	Surr: 2-Fluorobiphenyl	%REC	SW8270D	36.7	40.00		91.8	10-124				10/26/2012 1850h
1210392-001AMSD	Surr: 2-Fluorophenol	%REC	SW8270D	54.2	80.00		67.7	10-106				10/26/2012 1850h
1210392-001AMSD	Surr: Nitrobenzene-d5	%REC	SW8270D	30.6	40.00		76.6	10-180				10/26/2012 1850h
1210392-001AMSD	Surr: Phenol-d6	%REC	SW8270D	75.2	80.00		94.0	10-122				10/26/2012 1850h
1210392-001AMSD	Surr: Terphenyl-d14	%REC	SW8270D	63.8	40.00		160	10-199				10/26/2012 1850h

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

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

1210392-001AMSD: Internal standard areas were outside of the QC limits. MS samples yielded similar results indicating matrix interference.

**WORK ORDER Summary**

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

**Client ID:** DEN100

**Project:** Annual Tails 2012

**Comments:** PA Rush. QC 2+ & Summary. EDD-CSV. Library search required for 4-chlorophenol.;

**Contact:** Garrin Palmer

**QC Level:** II+

**Work Order:** 1210392

Page 1 of 1 10/24/2012

**WO Type:** Project *eh*

Sample ID	Client Sample ID	Collected Date	Received Date	Date Due	Matrix	Test Code	Sel	Storage	
1210392-001A	Cell1	10/22/2012 1230h	10/24/2012 1010h	11/2/2012	Aqueous	3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	3
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	
1210392-002A	Cell70					3510-SVOA-PR	<input type="checkbox"/>	Walkin-Semi	
						8270-W	<input checked="" type="checkbox"/>	Walkin-Semi	



**Tab D**

**Chemical and Radiological Summary Tables**

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

Constituent	1987	2003 (Avg)	2007 (Avg)	2008	2009	2010	2011	2012	2012 (resample*)
<b>Major Ions (mg/l)</b>									
Carbonate	<5	<1	ND	ND	<1	<1	<1	<1	NS
Bicarbonate	<5	NA	ND	ND	<1	<1	<1	<1	NS
Calcium	630	307	483.8	604	635	711	577	426	NS
Chloride	8000	6728	37340	9830	20700	7440	33800	78000	NS
Fluoride	<100	3005	31.72	0.3	0.4	28.4	69.2	62.9	NS
Magnesium	7900	5988	21220	6550	16200	5410	14300	16000	NS
Nitrogen-Ammonia	7800	3353	10628	5250	15200	8120	12900	9750	NS
Nitrogen-Nitrate	<100	41.8	269.4	64.9	142	58	212	556	NS
Potassium	NA	647	5698	1880	4140	1840	4510	9750	NS
Sodium	10000	8638	62600	13200	39000	16700	29500	41700	NS
Sulfate	190000	63667	287600	118000	232000	107000	182000	158000	NS
pH (s.u.)	0.70	1.88	0.80	1.53	1.15	2.73	2.23	1.9	NS
TDS	120000	94700	357400	131000	140000	130000	216000	342000	NS
Conductivity (umhos/cm)	NA	NA	NA	NA	365000	110000	112000	136000	NS
<b>Metals (ug/l)</b>									
Arsenic	440000	121267	849000	271000	436000	74400	299000	25500	NS
Beryllium	780	475	2262	500	410	338	1270	3180	NS
Cadmium	6600	3990	29320	8790	9120	2940	13700	30700	NS
Chromium	13000	6365	29940	6760	18700	5620	22700	12100	NS
Cobalt	120000	NA	88240	23500	97500	16200	56000	53100	NS
Copper	740000	196667	881000	360000	168000	125000	483000	885000	NS
Iron	3400000	2820000	13480000	3280000	2390000	3400000	8940000	840000	NS
Lead	<20000	3393	27420	11200	10600	9240	23600	17000	NS
Manganese	140000	162500	990200	206000	723000	173000	735000	1560000	NS
Mercury	NA	NA	ND	ND	7.61	7.2	61.4	117	NS
Molybdenum	240000	50550	415600	106000	142000	35300	235000	434000	NS
Nickel	370000	36950	40860	32000	156000	27500	43700	15000	NS
Selenium	<20000	1862	15420	13000	14800	5220	11600	8090	NS
Silver	<5000	NA	1559.2	449	558	155	1110	4310	NS
Thallium	45000	NA	407.8	165	387	193	560	13	NS
Tin	<5000	NA	6512	1240	2290	263	1500	<100	NS
Uranium	105000	134517	788600	416000	578000	159000	838000	1450000	NS
Vanadium	280000	348000	2208200	1200000	773000	752000	2500000	1940000	NS
Zinc	1300000	NA	642940	476000	229000	171000	398000	811000	NS
<b>Radiologics (pCi/l)</b>									
Gross Alpha	NA	169333 <sup>1</sup>	29380	21900	16500	11300	3610	12600	NS
<b>VOCS (ug/L)</b>									
Acetone	35	NA	66.5	110	710	260	80	310	NS
Benzene	<5	NA	ND	ND	<1	<1	<1	<1	NS
Carbon tetrachloride	<5	NA	ND	ND	<1	<1	<1	<1	NS
Chloroform	8	NA	6.7	6.6	16	4.9	13	19	NS
Chloromethane	NA	NA	ND	9.4	11	4.4	3.6	4.0	NS
MEK	NA	NA	ND	ND	120	65	<1	200	NS
Methylene Chloride	11	NA	ND	ND	2.0	<1	<1	2	NS
Naphthalene	<10000	NA	<10	ND	1.1	5.4	2	3	NS
Tetrahydrofuran	NA	NA	150	<20	<100	<10	<500	2.9	NS
Toluene	<5	NA	ND	ND	<1	<1	<1	<1	NS
Xylenes	<5	NA	ND	ND	<1	<1	<1	<1	NS
<b>SVOCS (ug/L)</b>									
1,2,4-Trichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
1,2-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
1,3-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
1,4-Dichlorobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
1-Methylnaphthalene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2,4,5-Trichlorophenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2,4,6-Trichlorophenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2,4-Dichlorophenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2,4-Dimethylphenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2,4-Dinitrophenol	NA	NA	NA	NA	<250	<20	<20	<67.7	<20
2,4-Dinitrotoluene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10

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

Constituent	1987	2003 (Avg)	2007 (Avg)	2008	2009	2010	2011	2012	2012 (resample*)
<b>Major Ions (mg/l)</b>									
2,6-Dinitrotoluene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2-Chloronaphthalene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2-Chlorophenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2-Methylnaphthalene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2-Methylphenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
2-Nitrophenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
3&4-Methylphenol	NA	NA	NA	NA	<22	<10	<10	<33.3	<10
3,3'-Dichlorobenzidine	NA	NA	NA	NA	<100	<10	<10	<33.3	<10
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	<250	<10	<10	<33.3	<10
4-Bromophenyl phenyl ether	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
4-Chloro-3-methylphenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
4-Nitrophenol	NA	NA	NA	NA	<250	<10	<10	<33.3	<10
Acenaphthene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Acenaphthylene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Anthracene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Azobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Benz(a)anthracene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Benzdine	NA	NA	NA	NA	<100	<10	<10	<33.3	<10
Benzo(a)pyrene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Benzo(b)fluoranthene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Benzo(g,h,i)perylene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Benzo(k)fluoranthene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Bis(2-chloroethoxy)methane	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Bis(2-chloroethyl) ether	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Bis(2-chloroisopropyl) ether	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Bis(2-ethylhexyl) phthalate	NA	NA	NA	NA	<50	27	<10	37.7	<10
Butyl benzyl phthalate	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Chrysene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Dibenz(a,h)anthracene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Diethyl phthalate	NA	NA	NA	NA	170	<10	<10	<33.3	<10
Dimethyl phthalate	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Di-n-butyl phthalate	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Di-n-octyl phthalate	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Fluoranthene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Fluorene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Hexachlorobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Hexachlorobutadiene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Hexachlorocyclopentadiene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Hexachloroethane	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Isophorone	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Naphthalene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Nitrobenzene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
N-Nitrosodimethylamine	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
N-Nitrosodiphenylamine	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Pentachlorophenol	NA	NA	NA	NA	<250	<10	<10	<33.3	<10
Phenanthrene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Phenol	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Pyrene	NA	NA	NA	NA	<50	<10	<10	<33.3	<10
Pyridine	NA	NA	NA	NA	<50	<10	<10	<33.3	<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 3

## Chemical and Radiological Characteristics

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

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

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

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

## Cell 4A

## Chemical and Radiological Characteristics

Constituent	2009	2010	2011	2012
<b>Major Ions (mg/l)</b>				
2,4-Dinitrophenol	<53	<20	<20	<20
2,4-Dinitrotoluene	<11	<10	<10	<10
2,6-Dinitrotoluene	<11	<10	<10	<10
2-Chloronaphthalene	<11	<10	<10	<10
2-Chlorophenol	<11	<10	<10	<10
2-Methylnaphthalene	<11	<10	<10	<10
2-Methylphenol	<11	<10	<10	<10
2-Nitrophenol	<11	<10	<10	<10
3&4-Methylphenol	<11	<10	<10	<10
3,3'-Dichlorobenzidine	<21	<10	<10	<10
4,6-Dinitro-2-methylphenol	<53	<10	<10	<10
4-Bromophenyl phenyl ether	<11	<10	<10	<10
4-Chloro-3-methylphenol	<11	<10	<10	<10
4-Chlorophenyl phenyl ether	<11	<10	<10	<10
4-Nitrophenol	<53	<10	<10	<10
Acenaphthene	<11	<10	<10	<10
Acenaphthylene	<11	<10	<10	<10
Anthracene	<11	<10	<10	<10
Azobenzene	<11	<10	<10	<10
Benz(a)anthracene	<11	<10	<10	<10
Benzidine	<21	<10	<10	<10
Benzo(a)pyrene	<11	<10	<10	<10
Benzo(b)fluoranthene	<11	<10	<10	<10
Benzo(g,h,i)perylene	<11	<10	<10	<10
Benzo(k)fluoranthene	<11	<10	<10	<10
Bis(2-chloroethoxy)methane	<11	<10	<10	<10
Bis(2-chloroethyl) ether	<11	<10	<10	<10
Bis(2-chloroisopropyl) ether	<11	<10	<10	<10
Bis(2-ethylhexyl) phthalate	<11	19.6	<10	<10
Butyl benzyl phthalate	<11	<10	<10	<10
Chrysene	<11	<10	<10	<10
Dibenz(a,h)anthracene	<11	<10	<10	<10
Diethyl phthalate	<11	<10	<10	<10
Dimethyl phthalate	<11	<10	<10	<10
Di-n-butyl phthalate	<11	<10	<10	<10
Di-n-octyl phthalate	<11	<10	<10	<10
Fluoranthene	<11	<10	<10	<10
Fluorene	<11	<10	<10	<10
Hexachlorobenzene	<11	<10	<10	<10
Hexachlorobutadiene	<11	<10	<10	<10
Hexachlorocyclopentadiene	<11	<10	<10	<10
Hexachloroethane	<11	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<11	<10	<10	<10
Isophorone	<11	<10	<10	<10
Naphthalene	<11	<10	<10	<10
Nitrobenzene	<11	<10	<10	<10
N-Nitrosodimethylamine	<11	<10	<10	<10
N-Nitrosodi-n-propylamine	<11	<10	<10	<10
N-Nitrosodiphenylamine	<11	<10	<10	<10
Pentachlorophenol	<53	<10	<10	<10
Phenanthrene	<11	<10	<10	<10
Phenol	<11	<10	<10	<10
Pyrene	<11	<10	<10	<10
Pyridine	<11	<10	<10	<10

**Cell 4B**

**Chemical and Radiological Characteristics**

<b>Constituent</b>	<b>2011</b>	<b>2012</b>
<b>Major Ions (mg/l)</b>		
Carbonate	<1	<1
Bicarbonate	<1	<1
Calcium	570	580
Chloride	8290	8170
Fluoride	26.7	23.3
Magnesium	3910	4500
Nitrogen-Ammonia	5220	5580
Nitrogen-Nitrate	39	42
Potassium	1370	1650
Sodium	9050	11700
Sulfate	134000	119000
pH (s.u.)	1.87	1.5
TDS	98000	128000
Conductivity (umhos/cm)	76900	86900
<b>Metals (ug/l)</b>		
Arsenic	67400	80000
Beryllium	311	356
Cadmium	1990	2540
Chromium	6860	8280
Cobalt	17800	29300
Copper	193000	340000
Iron	2960000	3580000
Lead	9960	11600
Manganese	128000	148000
Mercury	13.7	2.6
Molybdenum	21400	27600
Nickel	33900	50500
Selenium	4670	4470
Silver	137	169
Thallium	237	368
Tin	196	215
Uranium	133000	171000
Vanadium	660000	783000
Zinc	191000	270000
<b>Radiologies (pCi/l)</b>		
Gross Alpha	8590	13600
<b>VOCS (ug/L)</b>		
Acetone	130	94
Benzene	<1	<1
Carbon tetrachloride	<1	<1
Chloroform	9.4	4
Chloromethane	8.5	8
MEK	<1	<1
Methylene Chloride	<1	<1
Naphthalene	<1	<1
Tetrahydrofuran	<10	11.1
Toluene	<1	<1
Xylenes	<1	<1
<b>SVOCS (ug/L)</b>		
1,2,4-Trichlorobenzene	<10	<10
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

**Cell 4B**

**Chemical and Radiological Characteristics**

<b>Constituent</b>	<b>2011</b>	<b>2012</b>
<b>Major Ions (mg/l)</b>		
2,4-Dinitrotoluene	<10	<10
2,6-Dinitrotoluene	<10	<10
2-Chloronaphthalene	<10	<10
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	410	19
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

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

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

Major Ions (mg/l)	2007	2008	2009	2010	2011	2012
2,6-Dinitrotoluene	NA	NA	<11	<10	<10	<10
2-Chloronaphthalene	NA	NA	<11	<10	<10	<10
2-Chlorophenol	NA	NA	<11	<10	<10	<10
2-Methylnaphthalene	NA	NA	<11	<10	<10	<10
2-Methylphenol	NA	NA	<11	<10	<10	<10
2-Nitrophenol	NA	NA	<11	<10	<10	<10
3&4-Methylphenol	NA	NA	<21	<10	<10	<10
3,3'-Dichlorobenzidine	NA	NA	<51	<10	<10	<10
4,6-Dinitro-2-methylphenol	NA	NA	<11	<10	<10	<10
4-Bromophenyl phenyl ether	NA	NA	<11	<10	<10	<10
4-Chloro-3-methylphenol	NA	NA	<11	<10	<10	<10
4-Chlorophenyl phenyl ether	NA	NA	<51	<10	<10	<10
4-Nitrophenol	NA	NA	<11	<10	<10	<10
Acenaphthene	NA	NA	<11	<10	<10	<10
Acenaphthylene	NA	NA	<11	<10	<10	<10
Anthracene	NA	NA	<11	<10	<10	<10
Azobenzene	NA	NA	<11	<10	<10	<10
Benz(a)anthracene	NA	NA	<21	<10	<10	<10
Benzidine	NA	NA	<11	<10	<10	<10
Benzo(a)pyrene	NA	NA	<11	<10	<10	<10
Benzo(b)fluoranthene	NA	NA	<11	<10	<10	<10
Benzo(g,h,i)perylene	NA	NA	<11	<10	<10	<10
Benzo(k)fluoranthene	NA	NA	<11	<10	<10	<10
Bis(2-chloroethoxy)methane	NA	NA	<11	<10	<10	<10
Bis(2-chloroethyl) ether	NA	NA	<11	<10	<10	<10
Bis(2-chloroisopropyl) ether	NA	NA	<11	<10	<10	<10
Bis(2-ethylhexyl) phthalate	NA	NA	<11	<10	<10	<10
Butyl benzyl phthalate	NA	NA	<11	<10	<10	<10
Chrysene	NA	NA	<11	<10	<10	<10
Dibenz(a,h)anthracene	NA	NA	<11	<10	<10	<10
Diethyl phthalate	NA	NA	<11	<10	<10	<10
Dimethyl phthalate	NA	NA	<11	<10	<10	<10
Di-n-butyl phthalate	NA	NA	<11	<10	<10	<10
Di-n-octyl phthalate	NA	NA	<11	<10	<10	<10
Fluoranthene	NA	NA	<11	<10	<10	<10
Fluorene	NA	NA	<11	<10	<10	<10
Hexachlorobenzene	NA	NA	<11	<10	<10	<10
Hexachlorobutadiene	NA	NA	<11	<10	<10	<10
Hexachlorocyclopentadiene	NA	NA	<11	<10	<10	<10
Hexachloroethane	NA	NA	<11	<10	<10	<10
Indeno(1,2,3-cd)pyrene	NA	NA	<11	<10	<10	<10
Isophorone	NA	NA	<11	<10	<10	<10
Naphthalene	NA	NA	<11	<10	<10	<10
Nitrobenzene	NA	NA	<11	<10	<10	<10
N-Nitrosodimethylamine	NA	NA	<11	<10	<10	<10
N-Nitrosodi-n-propylamine	NA	NA	<11	<10	<10	<10
N-Nitrosodiphenylamine	NA	NA	<51	<10	<10	<10
Pentachlorophenol	NA	NA	<11	<10	<10	<10
Phenanthrene	NA	NA	<11	<10	<10	<10
Phenol	NA	NA	<11	10.7	<10	<10
Pyrene	NA	NA	<11	<10	<10	<10
Pyridine	NA	NA	<11	<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
<b>Major Ions (mg/l)</b>				
Carbonate	<1	<1	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
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
<b>VOCS (ug/L)</b>				
Acetone	<20	<20	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
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
<b>Major Ions (mg/l)</b>				
2,4-Dinitrotoluene	NA	<10	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 4A LDS**  
**Chemical and Radiological Characteristics**

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

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

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

<b>Constituent</b>	<b>Minimum</b>	<b>Maximum</b>
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.

**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 4A Tailings Fluid	Cell 4A LDS	Cell 4B Tailings Fluid	Cell 4B LDS	Cell 65 (Duplicate of Cell 2 Slimes Drain)	Cell 70 (Duplicate of Cell 1 resample)
Major Ions											
Carbonate	14 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Bicarbonate	14 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Calcium	6 months	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Chloride	28 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Fluoride	28 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Magnesium	6 months	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Nitrogen-Ammonia	28 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Nitrogen-Nitrate	28 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Potassium	6 months	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Sodium	6 months	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Sulfate	28 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
pH (s.u.)	N/A	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
TDS	7 days	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Conductivity (umhos/cm)	N/A	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Metals	6 months (except mercury which is 28 days)	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
Radiologics	6 months	OK	N/A	OK	OK	OK	OK	OK	OK	OK	N/A
VOCS (including THF)	14 days	OK	N/A	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

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

**E-2 Laboratory Receipt Temperature Check**

Work Order Number/Lab Set ID	Receipt Temp
EL - C12080790	2.8°C
AWAL - 1208302	3.4°C
AWAL - 1210392	0.1°C

**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	A4500-NH3 G
Nitrate + Nitrite (as N)	E353.1 or E353.2	E353.2
Metals except Iron	E200.7 or E200.8	E200.8
Iron	E200.7 or E200.8	E200.7
Gross Alpha	E900.0 or E900.1	E900.1
VOCs except Tetrahydrofuran	SW8260B or SW8260C	SW8260B
Tetrahydrofuran	SW8260B or SW8260C	SW8260C
Chloride	A4500-Cl B or E300.0	E300.0
Fluoride	A4500-F C or E300.0	A4500-F C
Sulfate	A4500-SO4 E or E300.0	E300.0
TDS	A2540 C	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

Parameter	Permit-Specified RL
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 2012 sampling program were nondetect.

Blank	Sample Date	Laboratory
1	8/15/2012	AWAL
2	8/15/2012	EL

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

<b>Major Ions (mg/l)</b>	<b>Cell 2 Slimes Drain</b>	<b>Cell 65</b>	<b>RPD %</b>
Carbonate	<1	<1	NA
Bicarbonate	<1	<1	NA
Calcium	462	503	8
Chloride	3730	3990	7
Fluoride	1.32	1.22	8
Magnesium	3760	3840	2
Nitrogen-Ammonia	3540	3610	2
Nitrogen-Nitrate	27	28	4
Potassium	611	585	4
Sodium	4380	4380	0
Sulfate	58300	62300	7
pH (s.u.)	3	3	0
TDS	83800	88400	5
Conductivity (umhos/cm)	52900	52600	1
<b>Metals (ug/l)</b>			
Arsenic	19400	19100	2
Beryllium	251	249	1
Cadmium	5290	5320	1
Chromium	2350	2450	4
Cobalt	48700	50800	4
Copper	138000	138000	0
Iron	2850000	3150000	10
Lead	619	643	4
Manganese	141000	144000	2
Mercury	1.9	1.5	24
Molybdenum	3610	3520	3
Nickel	125000	120000	4
Selenium	711	655	8
Silver	<10	<10	NA
Thallium	338	290	15
Tin	<100	<100	NA
Uranium	33400	33600	1
Vanadium	475000	506000	6
Zinc	639000	706000	10
<b>Radiologics (pCi/l)</b>			
Gross Alpha*	1370	1550	5.37
<b>Radiologics (pCi/l)**</b>			
Gross Alpha*	2400	2190	7.94
<b>VOCS (ug/L)</b>			
Acetone	600	500	18
Benzene	<1	<1	NA
Carbon tetrachloride	<1	<1	NA
Chloroform	16	15	6

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

<b>Major Ions (mg/l)</b>	<b>Cell 2 Slimes Drain</b>	<b>Cell 65</b>	<b>RPD %</b>
Chloromethane	3	3	0
MEK	100	96	4
Methylene Chloride	<1	<1	NA
Naphthalene	12	10	18
Tetrahydrofuran	3.2	3.77	16
Toluene	2	2	0
Xylenes	2	2	0
<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

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

Major Ions (mg/l)	Cell 2 Slimes Drain	Cell 65	RPD %
Bis(2-chloroethyl) ether	<10	<10	NA
Bis(2-chloroisopropyl) ether	<10	<10	NA
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

\* Duplicate checks reported for gross alpha minus RN and U are not %RPD. Calculated values are based on the formula in the approved QAP.

\*\* Cell 2 slimes and Cell 65 were reanalyzed for gross alphah because the original data did not meet the required duplicate checks specified in the QAP.

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

Major Ions (mg/l)	Cell 2 Slimes Drain	Cell 65	RPD %
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**E-6 Duplicate Sample Relative Percent Difference**

SVOCS (ug/L)	Cell 1 Tailings Fluid (Resample)	Cell 70 Tailings Fluid (Resample)	RPD %
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
Bis(2-ethylhexyl) phthalate	<10	<10	NA
Butyl benzyl phthalate	<10	<10	NA
Chrysene	<10	<10	NA

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

<b>Major Ions (mg/l)</b>	<b>Cell 2 Slimes Drain</b>	<b>Cell 65</b>	<b>RPD %</b>
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-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	12600	73.2	Y	15	NA
Cell 2 Slimes	1370	22.4	Y	15	NA
Cell 3	1530	14.4	Y	15	NA
Cell 4A	16300	66.8	Y	15	NA
Cell 4A LDS	4730	45.1	Y	15	NA
Cell 4B	13600	73.8	Y	15	NA
Cell 4B LDS	7500	55.5	Y	15	NA
Cell 65 (Duplicate of Cell 2 Slimes Drain)	1550	24.9	Y	15	NA

## E-8: Laboratory Matrix QC

## Matrix Spike % Recovery Comparison

Lab Report	Sample ID	Analyte	MS %REC	MSD %REC	REC Range	RPD
C12080790	Cell 2 Slimes Drain	TDS	87	NA**	90-110	1.3
C12080790	NA	Sodium*	NC	NC	70-130	NC
C12080790	Cell 1	Copper*	NC	NC	70-130	NC
C12080790	Cell 1	Iron*	NC	NC	70-130	NC
C12080790	Cell 1	Sodium*	NC	NC	70-130	NC
C12080790	Cell 1	Zinc*	NC	NC	70-130	NC
C12080790	Cell 1	Copper*	NC	NC	70-130	NC
C12080790	Cell 1	Manganese*	NC	NC	70-130	NC
C12080790	Cell 1	Molybdenum*	NC	NC	70-130	NC
C12080790	Cell 1	Uranium*	NC	NC	70-130	NC
C12080790	Cell 1	Zinc*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Arsenic*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Cobalt*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Manganese*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Nickel*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Uranium*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Vanadium*	NC	NC	70-130	NC
C12080790	Cell 4A LDS	Zinc*	NC	NC	70-130	NC
C12080790	NA	Sulfate	93	84	90-110	3.2
C12080790	Cell 4A LDS	Nitrate+Nitrite as N	82	81	90-110	1.1
C12080790	NA	Naphthalene	83	103	70-130	21
1208302	Cell 4A	1,2,4-Trichlorobenzene	37.9	54.3	20-107	35.5
1208302	Cell 4A	1,4-Dichlorobenzene	23.2	40	11-90	53.2
1208302	Cell 4A	2,4,6-Trichlorophenol	61.9	90	10-223	37
1208302	Cell 4A	2,4-Dimethylphenol	49.2	70.6	10-176	35.7
1208302	Cell 4A	2-Chloronaphthalene	51	72.2	12-132	34.4
1208302	Cell 4A	2-Chlorophenol	40.3	94.6	20-107	80.5
1208302	Cell 4A	4,6-Dinitro-2-methylphenol	57.3	74.1	20-250	25.6
1208302	Cell 4A	4-Chloro-3-methylphenol	53	76.8	10-136	36.8
1208302	Cell 4A	Acenaphthene	56	79.2	21-113	34.2
1208302	Cell 4A	N-Nitrosodi-n-propylamine	57.4	130	10-133	77.6
1208302	Cell 4A	Phenol	39.6	90.9	10-71	78.6
1210392	Cell 1	1,2,4-Trichlorobenzene	118	127	20-107	7.25
1210392	Cell 1	1,4-Dichlorobenzene	98.5	107	11-90	8.07
1210392	Cell 1	2,4,6-Trichlorophenol	232	226	10-223	2.74
1210392	Cell 1	2,4-Dinitrotoluene	177	204	21-191	14
1210392	Cell 1	2-Chloronaphthalene	114	184	12-132	46.6
1210392	Cell 1	2-Chlorophenol	146	157	20-107	6.87
1210392	Cell 1	4-Chloro-3-methylphenol	192	201	10-136	4.88
1210392	Cell 1	Acenaphthene	167	181	21-113	7.87
1210392	Cell 1	Benzo(a)pyrene	305	329	15-169	17.6
1210392	Cell 1	N-Nitrosodi-n-propylamine	192	195	10-133	1.78
1210392	Cell 1	Pentachlorophenol	29.6	185	10-131	145
1210392	Cell 1	Phenol	167	176	10-71	4.81

NA = MS samples were not Denison samples.

NA\*\* - Per the analytical method, only a matrix spike is analyzed. Precision is calculated and based on the results of laboratory duplicate samples.

\*= Recovery was not calculated as the analyte level in the sample was greater than 4 times the spike level.

**Surrogate % Recovery**

Lab Report	Well/Sample	Analyte	Surrogate %REC	Lab Specified REC Range	QAP Required Range
C12080790	Cell 1	Dibromofluoromethane	204	70-130	None
C12080790	Cell 1	1,2 Dichlorobenzene - d4	121	80-120	None
1208302	Cell 1	Phenol-d6	0.375	10-122	None
1208302	Cell 1	2-Fluorophenol	2.18	10-106	None
1208302	Cell 1	2-Fluorobiphenyl	1090	10-124	None
1208302	Cell 1	2,4,6-Tribromophenol	239	14-159	None
1208302	Cell 4B	2-Fluorophenol	8.76	10-106	None
1208302	Cell 4B LDS	2-Fluorophenol	3.56	10-106	None

**Method Blank detections**

Lab Report	Well/Sample	Analyte	Reported Concentration
C12080790	NA	Bicarbonate as HCO <sub>3</sub>	1.76 mg/L
C12080790	NA	Sulfate	0.1 mg/L
C12080790	NA	Sulfate	0.2 mg/L