



**TETRA TECH**

SITE: TVA Kingston Fossil  
BREAK: 2.8  
OTHER: \_\_\_\_\_

February 20, 2009

Mr. Leslie Sims  
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**Subject: Final Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Emergency Response Report, Revision 0  
Kingston Fossil Plant Fly Ash Response  
Harriman, Roane County, Tennessee  
EPA Contract No. EP-W-05-054  
TDD No. TTEMI-05-001-0084**

Dear Mr. Sims:

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) is submitting the final emergency response report for the Kingston Fossil Plant Fly Ash Response site in Harriman, Roane County, Tennessee. The report summarizes field activities conducted at the site during the response.

If you have any questions about the enclosed report, please call me at (678) 775-3106 or Andrew Johnson at (678) 775-3100.

Sincerely,

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Enclosure

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**FINAL CERCLA EMERGENCY RESPONSE REPORT  
KINGSTON FOSSIL PLANT FLY ASH RESPONSE  
HARRIMAN, ROANE COUNTY, TENNESSEE  
EPA CONTRACT NO. EP-W-05-054  
TDD NO. TTEMI-05-001-0084**

**Revision 0**

**Prepared for**

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- 2 ENVIRONMENTAL PROTECTION AGENCY, SCIENCE AND ECOSYSTEM SUPPORT DIVISION, SITE INVESTIGATION REPORT, TVA-KINGSTON PLANT, PROJECT IDENTIFICATION NUMBER 09-0175, dated January 9, 2009



TETRA TECH

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)

## 1.0 INTRODUCTION

This report has been prepared under the provisions of Technical Direction Document (TDD) No. TTEMI-05-001-0084, which the U.S. Environmental Protection Agency (EPA) Region 4 assigned to the Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) under Contract No. EP-W-05-054. The overall scope of this TDD, which is monitored by On-Scene Coordinator (OSC) Mr. Leslie Sims, was to support the Kingston Fossil Plant Fly Ash Response in Harriman, Roane County, Tennessee. Specific elements of this TDD included providing personnel, equipment, supplies, and services necessary to respond to a release of fly ash and possibly oil from a sluice pond into the Emory River; preparing a health and safety plan; coordinating sampling with the task monitor; conducting air monitoring; conducting multi-media sampling; providing data analysis and management; providing laboratory services; preparing written and photographic documentation of emergency response activities; and preparing a draft and final report upon completion of response activities.

This Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) emergency response report presents the site background (Section 2.0); discusses emergency response activities, including air monitoring and multi-media sampling objectives and results (Section 3.0); and provides a summary and conclusions (Section 4.0). Appendix A of this report provides figures that illustrate the site location, layout, and various activities of response. Appendix B presents a table summarizing the sampling conducted by Tetra Tech START and EPA during the response. Appendix C presents a photographic log of response activities and site conditions. Appendix D provides a project response timeline. Appendix E provides the logbook notes recorded to document the response. Appendix F provides validated analytical result tables and supporting data validation reports. Appendix G provides a table of witnesses associated with the response. Attachment 1 provides the Level 2 laboratory data packages for the samples analyzed. Attachment 2 provides the EPA, Science and Ecosystem Support Division (SESD), Site Investigation Report, TVA-Kingston Plant, Project Identification Number 09-0175, dated January 9, 2009.

## 2.0 SITE BACKGROUND

On December 22, 2008, at approximately 0100 hours, a failure of the northeastern dike used to contain fly ash occurred at the dewatering area of the Tennessee Valley Authority (TVA) Kingston Fossil Plant, located at 714 Swan Pond Road in Harriman, Roane County, Tennessee. The geographic coordinates for





the site are latitude 35.898304° north and longitude -84.520570° west (see Figure 1 in Appendix A). Subsequent to the dike failure, approximately 5.4 million cubic yards of fly ash sludge was released into a branch of the Emory River, two Emory River sloughs, eventually spilling into the main Emory River channel. The release extended approximately 300 acres outside of the fly ash dewatering and storage areas of the plant. Local emergency officials first responded to the scene, and then shortly thereafter, began to assist residents affected by the flows of fly ash sludge. Three residential homes were condemned as a result of damage sustained during the release.

Also on December 22, 2008, the National Response Center (NRC), and subsequently EPA Region 4, was notified of the incident. OSC Sims and Tetra Tech START were mobilized to the Kingston Fossil Plant facility the same day.

Fly ash is derived from the combustion of coal for power generation and represents the lightest and finest of all ash produced in this process. Fly ash is carried aloft by the escaping combustion gasses and would historically "fly" out of the stacks into the atmosphere — hence its name. Today, pollution control equipment is used to remove the ash from the exhaust. Fly ash is mainly silicon dioxide, aluminum dioxide, and iron oxide. Combustion rates in modern facilities are nearly 100 percent, which concentrates the levels of other potentially harmful adjunct contaminants in the ash, particularly metals such as arsenic, beryllium, boron, cadmium, chromium, chromium VI, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium. The ash is then mixed with water which creates a sludge that is transported to large dewatering basins. Once it has been dewatered, much of the ash is sold for useful purposes, mainly as filler in Portland cement. The American Coal Ash Association estimates 43 percent of all fly ash generated in the country is used in this way. The remainder is generally placed in landfills.

### 3.0 EMERGENCY RESPONSE ACTION ACTIVITIES

#### 3.1 RESPONSE OVERSIGHT ACTIVITIES

As requested by EPA, Tetra Tech START provided technical assistance during response activities at the Kingston Fossil Plant fly ash response site from December 22, 2008, through January 10, 2009. On January 11, 2009, EPA transferred the role of lead federal agency to TVA and demobilized all remaining personnel and equipment from the site.



On December 22, 2008, Tetra Tech START mobilized to the site and met with representatives from EPA and TVA. TVA had initiated spill response cleanup by mobilizing large numbers of heavy equipment (backhoes, amphibious backhoes, bull dozers, dump trucks, and related equipment) and personnel to clear and repair affected roadways and rail lines necessary to plant operations. The heavy equipment was also used to clear waterways to allow creeks to drain that had been blocked by the fly ash release. Barges were used to bring in riprap to install a weir to slow the flow of ash downstream. Booms were placed in the Emory and Clinch Rivers to contain cenospheres that migrated downstream. Cenospheres are small, hollow ceramic spheres of varying chemical constituency generated during high-efficiency coal combustion at thermal power plants. They are much less dense than water and float easily. Contractors were employed to vacuum the cenospheres and clean up debris along the waterways. TVA restored gas and water supplies to affected residents. In addition, TVA sampled air, soil, and water throughout the cleanup. Additional information on TVA's activities at the Kingston Fossil Plant fly ash release can be found at TVA's website: <http://www.tva.gov/kingston/index.htm>.

## **3.2 FIELD MONITORING AND SAMPLING ACTIVITIES**

Tetra Tech was tasked by EPA to collect multimedia samples and conduct particulate air monitoring during the response at the Kingston TVA Fossil Plant. These activities were performed to provide data necessary to evaluate the initial and ongoing environmental impact of the fly ash release.

### **3.2.1 SURFACE WATER SAMPLING ACTIVITIES**

Between December 23, 2008, and January 2, 2009, Tetra Tech START was tasked by the EPA to collect surface water samples from potentially affected waterways. Tetra Tech START collected 23 surface water samples, three duplicate samples, and two background samples along an approximately 10-mile stretch of the Emory, Clinch, and Tennessee Rivers. Some surface water samples were collected in areas where cenospheres were visible just downstream from the release area.

#### **3.2.1.1 SURFACE WATER SAMPLING OBJECTIVES AND COMPARISON CRITERIA**

The purpose of the sampling was to provide an initial characterization of the natural waters that may have been environmentally impacted by the release of fly ash into the Emory River and to evaluate how these characterizations changed during the timeframe of this response. At the request of the Tennessee Department of Environmental Conservation (TDEC), the analytical results were compared with the Tennessee Water Quality Criteria (TWQC) for Domestic Water Supply (Rule 1200-4-3-.03), located at



[www.state.tn.us/sos/rules/1200/1200-04/1200-04-03.pdf](http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-03.pdf). The TWQC mirror the federal maximum contaminant levels (MCL) for drinking water. Although the TWQC and MCLs are designed for treated drinking water supplied to household users, they represent conservative standards to gauge potential impacts to drinking water supplies: if the analytical results for the intake water are below the TWQC, it is likely the treated water will be also.

### 3.2.1.2 SURFACE WATER SAMPLING METHODS AND ANALYSES

Sampling locations were selected to cover both upstream surface waters on the Emory River to mile marker 9.0 and downstream surface waters on the Clinch River to mile marker 0.0, as shown in Figure 2 of Appendix A and discussed in the sampling summary table presented in Appendix B. An additional upstream sample was collected from the Tennessee River before its confluence with the Clinch River at Tennessee River mile marker 568.5.

On December 23 and 29, 2008, Tetra Tech START accompanied TVA personnel in a boat to collect a total of 19 surface water samples and two duplicate samples from the Emory, Clinch, and Tennessee Rivers. Samples were collected using a Kemmerer bottle at depths ranging from the water's surface to 15 feet below the water surface. All samples were collected using laboratory-issued pre-preserved sampling containers. TVA collected general water quality data, including temperature, turbidity, dissolved oxygen, and pH. New nitrile gloves were worn when each set of samples was collected to prevent cross-contamination.

On December 28, 2008, an additional four surface water samples and one duplicate were collected from public and residential shorelines of the Emory and Clinch Rivers. No visual evidence of fly ash was seen at these locations. These samples were collected using laboratory-issued, pre-preserved sampling containers. Without entering the water on the shoreline, Tetra Tech START lowered each container into the water to slowly collect each sample to prevent overfilling. New nitrile gloves were worn during collection of each set of samples to prevent cross contamination.

On January 2, 2009, Tetra Tech START also collected two background surface water samples, one each from the Emory and Clinch Rivers. These samples were collected from the shoreline following the same procedure discussed above.



The samples were analyzed by Analytical Environmental Services, Inc. (AES), located at 3785 Presidential Parkway, Atlanta, Georgia 30340-3704, for a combination of Target Analyte List (TAL) total and dissolved metals (SW846 Method 6010B/7470A), total suspended solids (EPA 160.2), and total dissolved silica (SW846 Method 6010B). AES is a National Environmental Laboratory Accreditation Program (NELAP)-certified laboratory.

### 3.2.1.3 SURFACE WATER SAMPLING ANALYTICAL RESULTS

TAL total and dissolved metal results from initial sampling event on December 23, 2008, indicated levels of several analytes above the TWQC criteria. Sample KIF-ERM0.1 from the Emory River exceeded the TWQC for dissolved arsenic and thallium and for total antimony, arsenic, beryllium, cadmium, chromium, and lead. Samples TT-ERM1.9 and TT-ERM1.9DUP, a duplicate sample collected from the same location in the Emory River, exceeded the TWQC criteria for total arsenic. Sample KIF-CRM0.0, collected from the Clinch River, exceeded the TWQC criteria for dissolved thallium. On December 29, 2008, another round of surface water samples was collected at locations similar to those sampled on December 23, 2008. The results for TAL total and dissolved metal from these samples indicated that all analytes were below the TWQC criteria.

Analytical results from samples 081228-ERER-WS02, 081228-ERER-WS02-DUP, and 081228-KCPS-WS04, collected by Tetra Tech START from the banks of the Emory and Clinch Rivers on December 28, 2008, indicated dissolved thallium and total arsenic and thallium at concentrations above the TWQC criteria.

Analytical results from background samples collected on January 2, 2009, indicated that all analytes were below the TWQC criteria.

Arsenic and thallium were the most common chemicals of concern detected in the surface water samples. Arsenic concentrations were reported at five times the TWQC criteria and thallium concentrations were reported at four times the TWQC criteria. Table 2 located in Appendix F contains validated analytical results for all surface water samples Tetra Tech START collected. The results are sorted by date and the TWQC for Domestic Water Supply (Rule 1200-4-3-03) is included for each analyte in Table 2 for ease of comparison. Yellow highlighted cells identify the analytes that were above the TWQC criteria. It should be noted that TDEC's request to apply the TWQC comparison to these analytical results was made after many of the samples were collected and analyzed. As a result, some samples were analyzed using the



standard environmental water sampling guidelines for data quality, and not drinking water guidelines. Therefore, for all samples collected prior to January 2, 2009, the laboratory's minimum detection limit for antimony and arsenic was above the TWQC criteria. All samples collected January 2, 2009, and later were analyzed at the lower detection limits.

Total suspended solids (TSS) results for samples collected on December 23, 2008, ranged from 14,700 milligrams per liter (mg/L) in a sample collected from the Emory River at mile marker 0.1 to 10 mg/L in a sample collected from the Tennessee River at mile marker 568.5. TSS results for samples collected from December 28, 2008, through January 2, 2009, ranged from 969 mg/L in a sample collected along the shoreline of the Clinch River to 9 mg/L in a sample collected from the Emory River at mile marker 0.1. The results indicate a reduction in the upper range of the TSS results over time, while the lower range of the results is similar to the background sample results collected upstream of the release on the Emory and Clinch Rivers. These results ranged from an estimated 6 to 7 mg/L.

### **3.2.2. POTABLE WATER SAMPLING ACTIVITIES**

Between December 23, 2008, and January 5, 2009, Tetra Tech START was tasked by the EPA to collect potable water samples from local water treatment plants potentially affected by the release. Tetra Tech START collected seven potable water samples and one duplicate sample from the Kingston and Rockwood water treatment plants, downstream of the release. On December 30, 2008, EPA's SESD collected 10 potable water samples and one duplicate from the upstream Cumberland water treatment plant, the downstream Kingston and Rockwood water treatment plants, and four samples and one duplicate from residential properties (see Figure 2 in Appendix A).

#### **3.2.2.1. POTABLE WATER SAMPLING OBJECTIVES AND COMPARISON CRITERIA**

The purpose of the investigation was to evaluate whether the potable water supplies in the surrounding communities were affected by the fly ash release. The results were compared with the National Primary Drinking Water Regulation standards (or MCLs) set for public water systems. These standards are found at [www.epa.gov/safewater/contaminants/index.html](http://www.epa.gov/safewater/contaminants/index.html). The MCLs represent the maximum permissible level of a contaminant in water delivered to any user of a public water system.



### 3.2.2.2 POTABLE WATER SAMPLING METHODS AND ANALYSES

Tetra Tech START collected raw and finished water samples from the Kingston and Rockwood plants on two different dates. Raw water refers to the water before it is treated in the plant. Finished water refers to the water that has passed through all of the processes in a water treatment plant and is ready to be delivered to the consumer. The raw water intake was sampled from the water intake lines on the Tennessee River on December 23, 2008. This sample was analyzed for TAL total metals (SW846 Method 6010B/7470A) by AES. From December 29, 2008, through January 5, 2009, all other samples of water from the raw intake lines and of the finished water were collected inside the plants. The samples collected on December 29, 2008, through January 5, 2009, were analyzed by AES for TAL total and dissolved metals (SW846 Method 6010B/7470A), TSS (EPA 160.2), and total dissolved silica (SW846 Method 6010B).

EPA personnel from SESD mobilized to the site on December 30, 2008, to assist with potable water and private potable well sampling. SESD collected three residential well samples, one sample from a residence supplied by the Kingston public system, and six raw intake and finished water samples from the Kingston, Rockwood, and Cumberland plants. The ability to obtain access under a short time constraint limited the sample size of the initial residential well sampling by SESD. TDEC continued to sample residential wells in the days that followed. The samples collected by SESD were analyzed at its laboratory located in Athens, Georgia, for TAL total and dissolved metals (EPA 200.7/200.8/245.1), and total suspended solids (SM 2540D).

### 3.2.2.3 POTABLE WATER ANALYTICAL RESULTS

From December 23, 2008, through January 5, 2009, Tetra Tech START collected potable water samples (raw and finished water) from the Kingston and Rockwood Water Treatment Plants. Analytical results for the samples collected during these dates indicated that no analytes were detected at concentrations above the MCLs in either the finished or raw water sampled at the two public plants. The laboratory was not informed the samples collected on December 29, 2009, were of drinking water. Thus, standard environmental water sampling guidelines for data quality were applied to the analytical methodology and not drinking water guidelines. As a result, the laboratory's minimum detection limits for antimony and arsenic were above the MCL criteria. Sample KIF-KWTPI, collected on December 23, 2008, was reanalyzed by AES using a different analytical method (SW846 Method 6020) necessary to achieve lower reporting limits. All potable water samples, other than those collected on December 29, 2008, were



analyzed by the laboratory at the lower detection limits. Analysis indicated that no analytes were detected above the lower reporting limit.

Analysis of the SESD data collected December 30, 2008, indicates that no analytes at concentrations above the MCLs were detected in either finished or raw water sampled at the three public plants. Similarly, no levels above the MCLs were noted in the residential wells or from the residence supplied by the Kingston public system. SESDs minimum detection limits were all below the MCL criteria. See EPA SESD report, dated January 9, 2009, located in Attachment 2, for additional information.

Table 3 in Appendix F contains validated analytical results for all Tetra Tech START-collected potable water data, sorted by date. The results are sorted by date and the table includes the MCL for each analyte for ease of comparison. Both the total and dissolved phases of each analyte were compared with the MCLs. Details of this analytical method and the analysis are provided in the data validation report, dated February 2, 2009 (see Appendix F).

### **3.2.3 ASH AND SOIL SAMPLING ACTIVITIES**

Tetra Tech START was tasked by the EPA to collect ash and shoreline soil samples of affected and potentially affected areas. From December 23, 2008, through January 5, 2009, Tetra Tech START collected seven ash samples and one duplicate sample from the Emory River, fly ash storage area (dredge cell), and from released ash along affected roadways. From December 28, 2008, through January 5, 2009, nine soil samples, two duplicates, and four background samples were collected from residential and public shoreline locations along the Emory and Clinch Rivers (see Figure 2 in Appendix A).

#### **3.2.3.1 ASH AND SOIL SAMPLING OBJECTIVES AND COMPARISON CRITERIA**

The purpose of the sampling was to identify the chemical constituents of the ash and its potential impact on affected roadways and shorelines. The results were compared with the EPA Region 4 Removal Action Levels (RAL) for residential and industrial soil. RALs identify contaminant levels at which response actions may be required. In addition, exposure pathways must be analyzed with the RAL to determine the appropriate course of action.



### 3.2.3.2 ASH AND SOIL SAMPLING METHODS AND ANALYSES

On December 23, 2008, Tetra Tech START collected a grab sample from an "ash-berg" located on the Emory River that was analyzed for TAL metals (SW846 Method 6010B/7471A). From December 27, 2008, through January 5, 2009, Tetra Tech START collected ash samples from the ash in the dredge cell and along affected roadways. Ash samples collected from the dredge cell were 10-point composites. One sample each was collected from the undisturbed and disturbed ash. The remaining ash samples were grabs of the released ash from roadways affected by the ash release. Samples were collected from Swan Pond Road (Kingston Fossil Plant), North and South Swan Pond Road, and Swan Pond Circle Road. Samples collected from December 27, 2008, through January 5, 2009, were analyzed by AES for TAL metals (SW846 Method 6010B/7471A), benzene, toluene, ethylbenzene, and xylenes (BTEX) (SW846 Method 8260B), silica (SW846 Method 6010B), and Toxicity Characteristic Leaching Procedure (TCLP) metals (SW846 Method 1311/6010B/7470A). Sample locations are depicted on Figure 2 contained in Appendix A.

From December 28, 2008, through January 5, 2009, thirteen five-point composite soil samples and two duplicate samples were collected from public and residential shorelines along the Emory and Clinch Rivers. Samples were collected upstream of the release to establish background soil concentrations. The shorelines sampled contained no visible ash at the time of the sampling event. The samples were analyzed by AES for TAL metals (SW846 Method 6010B/7471A), BTEX (SW846 Method 8260B), silica (SW846 Method 6010B), and TCLP metals (SW846 Method 1311/6010B/7470A). See Figure 2 in Appendix A for sample locations.

### 3.2.3.3 ASH AND SOIL ANALYTICAL RESULTS

Analysis of the ash samples collected from December 23, 2008, to January 5, 2009, indicated that all Kingston Fossil Plant ash samples exceed the residential EPA Region 4 RAL for arsenic of 39 milligrams per kilogram (mg/kg), but not the industrial RAL of 177 mg/kg. Arsenic values of the ash ranged from 44.8 mg/kg to 81.3 mg/kg. Table 4 in Appendix F contains validated summary data of the ash samples collected during these dates.

Analysis of the shoreline soil samples collected from December 28, 2008, to January 5, 2009, indicated that all concentrations in the shoreline soil samples were below the RALs for all constituents, including arsenic. See Table 5 in Appendix F for the validated summary data of the shoreline soil samples collected

during these dates. Comparison of the shoreline results indicated the following analytes were up to three times higher than the background concentrations for TAL metals: aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Comparison of the shoreline results for cadmium indicated concentrations were almost six times higher than the background concentrations, but were still below the RAL.

Table 4 and Table 5 in Appendix F contain validated analytical results for all Tetra Tech START-collected ash and soil sampling data, sorted by date. The results in Table 4 and Table 5 are sorted by date and include the EPA Region 4 RALs (industrial and residential) for each analyte for ease of comparison. Yellow highlighted cells identify the analytes that were detected above the RAL criteria.

### 3.2.4 AIR MONITORING ACTIVITIES

From December 27, 2008, through January 10, 2009, Tetra Tech START was tasked by the EPA to conduct perimeter and community particulate air monitoring activities.

#### 3.2.4.1 AIR MONITORING OBJECTIVES AND COMPARISON CRITERIA

Particulate air monitoring was performed to assess whether particulate concentrations were exceeding the criteria for worker safety as well as community protection. The results of the air monitoring were compared with the short-term (24-hour or daily average) National Ambient Air Quality Standard (NAAQS) for particulate matter-10 ( $PM_{10}$ ) and  $PM_{2.5}$ .  $PM_{10}$  includes all particles with a diameter of 10 micrometers or less, including the  $PM_{2.5}$  particles.  $PM_{10}$  particles are small enough to be inhaled but do not generally penetrate deep into the lungs, whereas  $PM_{2.5}$  particles can penetrate into the deepest portions of the lungs. The NAAQS for  $PM_{10}$  is 150 micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ) and for  $PM_{2.5}$  is 35  $\mu\text{g}/\text{m}^3$ . The results of the total particulate readings were compared with the Occupational Safety and Health Administration (OSHA) permissible exposure level (PEL) for nuisance dust of 5.0 mg/kg.

#### 3.2.4.2 AIR MONITORING METHODS

Tetra Tech START conducted air monitoring activities at a total of ten locations on and off site from December 27, 2008, through January 10, 2009. Each air monitoring location, designated P1 to P9, is depicted on Figure 3 in Appendix A.

On December 27, 2008, Tetra Tech START staged a fixed total particulate monitor near on-going response activities along Swan Pond Road (Kingston Fossil Plant property) to record particulate concentrations in the area immediately around active disturbance of the released ash. This monitor was operated continuously for approximately three to nine hours per day from December 27, 2008, through January 10, 2009.

From December 30, 2008, through January 10, 2009, Tetra Tech START monitored particulate concentrations at nine additional locations. Five locations were in the immediate vicinity of the release on the Kingston Fossil Plant property, and five others were in surrounding residential areas near the release. The monitoring locations are presented in Figure 3 of Appendix A. From December 30 to 31, 2008, monitoring was performed using portable  $PM_{2.5}$  monitors. From January 1 to 10, 2009, Tetra Tech START replaced the  $PM_{2.5}$  monitors with portable  $PM_{10}$  monitors to validate comparable data collected by TVA. During the entire monitoring period, up to two particulate monitors were deployed each day. One monitor was placed at a fixed location for a continuous monitoring period. The second monitor was rotated to all nine locations throughout the day, monitoring each location for approximately 10 minutes, and returning to each location several times.

### 3.2.4.3 AIR MONITORING RESULTS

A summary of the particulate concentrations recorded by Tetra Tech START during air monitoring activities is described below:

- Continuous air monitoring for total particulates at the fixed location (P1) on site from December 27 to 31, 2008, indicated the average total particulate concentrations were below the OSHA PEL of 5.0 mg/kg for nuisance dust. The concentrations ranged from 0 to 0.01 milligrams per cubic meter ( $mg/m^3$ ).
- Air monitoring with a portable particulate monitor equipped with a  $PM_{2.5}$  filter from December 30 to 31, 2008, indicated particulate concentrations at locations on and off site (P2 to P9) were below the NAAQS for  $PM_{2.5}$  of  $35 \mu g/m^3$ . The concentrations ranged from 5 to  $9.9 \mu g/m^3$ .
- Continuous air monitoring performed at the fixed location (P1) on site with a particulate monitor equipped with a  $PM_{10}$  filter from January 1 to 10, 2009, indicated the average particulate

concentrations were below the NAAQS for  $PM_{10.0}$  of  $150 \mu\text{g}/\text{m}^3$ . From January 5 to 8, 2009, and on January 10, 2009, work activities at this location caused instantaneous maximum particulate concentrations to exceed the NAAQS for  $PM_{10.0}$ . However, the average particulate concentration based on a time-weighted average did not exceed the NAAQS for  $PM_{10.0}$ . The concentrations ranged from 6.1 to  $55.6 \mu\text{g}/\text{m}^3$ .

- Air monitoring performed with a portable monitor equipped with a  $PM_{10.0}$  filter at locations on site (P1 to P5) from January 1 to 10, 2009, indicated average particulate concentrations were below the NAAQS for  $PM_{10}$  of  $150 \mu\text{g}/\text{m}^3$ . The concentrations ranged from 7.5 to  $76.2 \mu\text{g}/\text{m}^3$ .
- Air monitoring performed with a portable monitor equipped with a  $PM_{10.0}$  filter at locations off site (P6 to P9) from January 1 to 10, 2009, indicated average particulate concentrations were below the NAAQS for  $PM_{10}$  of  $150 \mu\text{g}/\text{m}^3$ . The concentrations ranged from 9.8 to  $49.4 \mu\text{g}/\text{m}^3$ .

The wet nature of the ash and the continuous rain and fog from December 27, 2008, to January 10, 2009, assisted in keeping the ambient particulate concentrations low. Table 6 in Appendix F summarizes the daily average particulate concentrations recorded at the various locations from December 27, 2008, to January 10, 2009. Background concentrations collected inside the EPA mobile command post (MCP), located on site, ranged from 1.5 to  $37.6 \mu\text{g}/\text{m}^3$ .

#### 4.0 SUMMARY AND CONCLUSIONS

On December 22, 2008, at approximately 0100 hours, the northeastern dike at the TVA Kingston Power Plant failed. The dike retained one of three cells at the facility used for dewatering fly ash. As a result of the dike failure, approximately 5.4 million cubic yards of fly ash sludge was released into portions of the Emory River and onto approximately 300 acres of land located outside of the cells. Local emergency personnel were first responders to the scene, and assisted residents at properties impacted by the release.

In response to the incident, an OSC from EPA's Region 4 Emergency Response Branch was deployed to investigate and provide technical assistance at the scene. The OSC deployed EPA technical assets to the scene to provide multimedia environmental sampling, data management and oversight of cleanup activities. EPA's START contractor, Tetra Tech, was activated and tasked to collect surface water samples from the Emory, Clinch, and Tennessee Rivers; potable water samples at the Kingston and Rockwood Water Treatment Plants; soil and ash samples near the release point and along the shoreline of



the Emory and Clinch Rivers, and provide ambient air particulate monitoring at the site. Additionally, at the request of the OSC, EPA's Science and Ecosystem Support Division was deployed to the scene to collect residential well samples and raw and finished water samples at the Kingston, Rockwood and Cumberland Water Treatment plants.

The analytical results related to the surface water samples collected by Tetra Tech START were compared with the TWQC for Domestic Water Supply (Rule 1200-4-3-03) which are equivalent to the federal MCLs for public water systems. Analysis of surface water samples collected on December 23, 2008, indicated levels of analytes at or above the TWQCs for the total and dissolved-phase analysis. Analytical results from the samples collected on December 29, 2008, indicated that all analytes were below the TWQCs for the total and dissolved-phase analysis. Comparison of the two data sets indicated a general decrease in total suspended solids and metals concentrations. The data indicated that settling of the released ash has reduced particulate and metal levels in the water column. Dispersion may also have been a factor in reduced contaminant measurements.

Analytical results related to the surface water samples collected along the shorelines of the Emory and Clinch Rivers on December 28, 2008, indicated the TWQCs for total arsenic and dissolved thallium were exceeded in one surface water sample and one duplicate sample. Analytical results from background samples collected on January 2, 2009, indicated that all analytes were below the TWQCs for the total and dissolved-phase analysis. Comparison of the two data sets indicated an increase in TSS downstream of the release along the shorelines of the Emory and Clinch Rivers. Furthermore, there was a slight increase in the metals concentrations (total and dissolved) at two locations downstream of the release. The data indicated that the release may have had an impact on natural waters downstream of the release; however, the last sampling event indicated the natural water did not exceed federal drinking water standards for the analytes tested. Analytical results related to water samples collected by Tetra Tech START at the Kingston and Rockwood Water Treatment Plants indicated that no analytes at levels above the MCLs were detected in either the finished or raw water at the two locations.

Analytical results related to the Kingston, Rockwood and Cumberland Water Treatment Plants, as well as, the three private residential well samples and one residential municipal water sample, collected by EPA/SESD, indicated that no analytes at concentrations above the MCLs were detected in any of the samples tested.



Analytical results related to the ash samples collected by Tetra Tech START from the Kingston Fossil Plant and along roadways indicated that the ash exceeded the residential EPA Region 4 RAL for arsenic, but was below the industrial RAL for this contaminant. Analytical results related to the soil samples collected along the shorelines of the Emory and Clinch Rivers indicated that concentrations were below the RALs for all analytes tested, including arsenic.

The air monitoring program conducted by Tetra Tech START included five locations on the Kingston Fossil Plant property and at five locations near affected residences. The air monitoring results related to this effort indicated that daily averages of particulate concentrations were below the OSHA PEL and the NAAQS PM<sub>2.5</sub> and PM<sub>10.0</sub> for nuisance and respirable dust, respectively. The wet nature of the ash and the continuous rain and fog present during most of the monitoring program assisted in keeping the ambient particulate concentrations low in the area.

On January 11, 2009, EPA transferred the role of Lead Federal Agency to TVA and demobilized all remaining personnel and equipment from the site. It is anticipated that TDEC will continue to conduct independent sampling throughout the long-term project and provide oversight of all TVA cleanup-related activities.



**APPENDIX A**

**FIGURES**

(3 Pages)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)







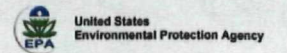
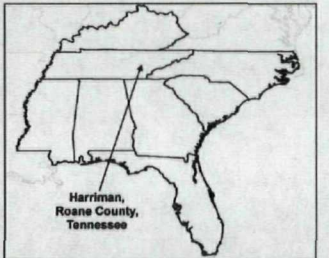
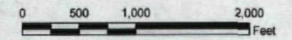






**Legend**

- AIR MONITORING STATIONS
- ROADWAYS
- RAILROADS



**KINGSTON FOSSIL PLANT  
FLY ASH RESPONSE  
HARRIMAN,  
ROANE COUNTY,  
TENNESSEE  
TDD: TTEMI-05-001-0084**

**FIGURE 3  
EPA AIR  
MONITORING LOCATIONS**



**APPENDIX B**  
**SAMPLING SUMMARY TABLE**  
(2 Pages)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)



**TABLE 1  
SAMPLING SUMMARY**

DATE	MATRIX	LOCATION	LOCATION DETAILS	QC	ANALYSIS PERFORMED	RESULTS STATUS	ELEVATED RESULTS COMPARED TO	SAMPLE ID	SAMPLER
							<b>TWQC<sup>1</sup></b>		
<b>Surface Water (Emory)</b>									
12/23/2008	Surface Water	Emory River	Mile Marker 0.1 (Water Surface)		TM, DM, TSS	Final	DM Arsenic = 0.0116 J mg/L DM Thallium = 0.00774 J mg/L TM Antimony = 0.00655 mg/L TM Arsenic = 1.49 mg/L TM Beryllium = 0.0119 mg/L TM Cadmium = 0.0115 mg/L TM Chromium = 0.127 mg/L TM Lead = 0.0754 mg/L	KIF-ERM 0.1	TVA / Tt Spilt
12/23/2008	Surface Water	Emory River	Mile Marker 1.9 (Water Surface)		TM	Final	TM Arsenic = 0.0208 J mg/L	TT-ERM 1.9	Tt
12/23/2008	Surface Water	Emory River	Mile Marker 1.9 (Water Surface)	DUP	TM	Final	TM Arsenic = 0.0337 J mg/L	TT-ERM 1.9 DUP	Tt
12/23/2008	Surface Water	Emory River	Mile Marker 3.5 (15 foot depth)	MS/MSD	TM	Final		KIF-ERM 2.1	TVA / Tt Spilt
12/23/2008	Surface Water	Emory River	Mile Marker 5.0 (15 foot depth)		TM	Final		KIF-ERM 4.0	TVA / Tt Spilt
12/28/2008	Surface Water	Emory River Road Power Lines	From Emory River bank: Public Area ??		TM, DM, TSS, DS	Final		081228-ERPL-WS01	Tt
12/28/2008	Surface Water	496 Emory River Road	From Emory River bank: Residential	MS/MSD	TM, DM, TSS, DS	Final	TM Arsenic = 0.0127 J mg/L	081228-ERER-WS02	Tt
12/28/2008	Surface Water	496 Emory River Road	From Emory River bank: Residential	DUP	TM, DM, TSS, DS	Final	DM Thallium = 0.0047 J mg/L TM Arsenic = 0.0106 J mg/L	081228-ERER-WS02-DUP	Tt
12/29/2008	Surface Water	Emory River	Mile Marker 0.1 (7 foot depth)		TM, DM, TSS, DS	Final		KIF-ERM 0.1	TVA & Tt
12/29/2008	Surface Water	Emory River	Mile Marker 1.75 (15 foot depth)		TM, DM, TSS, DS	Final		KIF-ERM 1.75	TVA & Tt
12/29/2008	Surface Water	Emory River	Mile Marker 2.0 (3 foot depth)		TM, DM, TSS, DS	Final		KIF-ERM 2.0	TVA & Tt
12/29/2008	Surface Water	Emory River	Mile Marker 2.0 DUP (3 foot depth)	DUP	TM, DM, TSS, DS	Final		KIF-ERM 2.0-DUP	TVA & Tt
12/29/2008	Surface Water	Emory River	Mile Marker 4.0 (15 foot depth)	MS/MSD	TM, DM, TSS, DS	Final		KIF-ERM 4.0	TVA & Tt
							<b>TWQC<sup>1</sup></b>		
<b>Surface Water (Clinch)</b>									
12/23/2008	Surface Water	Clinch River	Mile Marker 0.0 (15 foot depth)	MS/MSD	TM, DM, TSS	Final	DM Thallium = 0.00463 J mg/L	KIF-CRM 0.0	TVA / Tt Spilt
12/23/2008	Surface Water	Clinch River	Mile Marker 2.0 (15 foot depth)		TM, DM, TSS	Final		KIF-CRM 2.0	TVA / Tt Spilt
12/23/2008	Surface Water	Clinch River	Mile Marker 4.0 (15 foot depth)		TM	Final		KIF-CRM 4.0	TVA / Tt Spilt
12/23/2008	Surface Water	Clinch River	Mile Marker 5.5 (15 foot depth)		TM	Final		KIF-CRM 5.5	TVA / Tt Spilt
12/28/2008	Surface Water	Sugar Grove Valley Boat Ramp	From Clinch River bank: Public		TM, DM, TSS, DS	Final		081228-SGUBR-WS03	Tt
12/28/2008	Surface Water	Kingston City Park South Boat Ramp	From Clinch River bank: Public		TM, DM, TSS, DS	Final	TM Arsenic = 0.0480 J mg/L	081228-KCPS-WS04	Tt
12/29/2008	Surface Water	Clinch River	Mile Marker 0.0 (15 foot depth)		TM, DM, TSS, DS	Final		KIF-CRM 0.0	TVA & Tt
12/29/2008	Surface Water	Clinch River	Mile Marker 2.0 (15 foot depth)	MS/MSD	TM, DM, TSS, DS	Final		KIF-CRM 2.0	TVA & Tt
12/29/2008	Surface Water	Clinch River	Mile Marker 2.5 (15 foot depth)		TM, DM, TSS, DS	Final		TT-CRM 2.5	Tt
12/29/2008	Surface Water	Clinch River	Mile Marker 4.0 (15 foot depth)		TM, DM, TSS, DS	Final		KIF-CRM 4.0	TVA & Tt
12/29/2008	Surface Water	Clinch River	Mile Marker 5.5 (15 foot depth)		TM, DM, TSS, DS	Final		KIF-CRM 5.5	TVA & Tt
							<b>TWQC<sup>1</sup></b>		
<b>Surface Water (Tennessee)</b>									
12/23/2008	Surface Water	Tennessee River	Mile Marker 568.5 (15 foot depth)		TM, DM, TSS	Final		KIF-TRM 568.5	TVA / Tt Spilt
12/29/2008	Surface Water	Tennessee River	Mile Marker 568.5 (15 foot depth)		TM, DM, TSS, DS	Final		KIF-TRM 568.5	TVA & Tt
							<b>NPDWRs (MCLs)</b>		
<b>Well Water</b>									
12/30/2008	Residential Well	1015 Swan Pond Road	Well Water		TM, DM, TSS	Final		1015	SESD
12/30/2008	Residential Well	1007 Swan Pond Road	Well Water		TM, DM, TSS	Final		1007	SESD
12/30/2008	Residential Well	937 Swan Pond Road	Well Water		TM, DM, TSS	Final		937	SESD
							<b>NPDWRs (MCLs)</b>		
<b>Raw Water</b>									
12/23/2008	Raw Water	Kingston Water Treatment Plant	Sampled from boat on Tennessee River	MS/MSD	TM	Final	TM: Thallium = Below RL (RL=0.001 mg/L)	KIF-KWTPI	TVA / Tt Spilt
12/29/2008	Raw Water	Kingston Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS, DS	Final		KWTPI-WS01	Tt
12/29/2008	Raw Water	Rockwood Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS, DS	Final		RWWT1-WS04	Tt
12/30/2008	Raw Water	Kingston Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS	Final		KWT1A	SESD
12/30/2008	Raw Water	Rockwood Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS	Final		KWT3A	SESD
12/30/2008	Raw Water	Cumberland Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS, DS	Final		KWT5A	SESD
1/5/2009	Raw Water	Kingston Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS, DS	Final		KWTP-RWU-01	Tt
1/5/2009	Raw Water	Kingston Water Treatment Plant	Sampled from inside the plant	DUP	TM, DM, TSS, DS	Final		KWTP-RWU-01-DUP	Tt



**TABLE 1  
SAMPLING SUMMARY**

DATE	MATRIX	LOCATION	LOCATION DETAILS	QC	ANALYSIS PERFORMED	RESULTS STATUS	ELEVATED RESULTS COMPARED TO	SAMPLE ID	SAMPLER
							<b>NPDRs (MCLs)</b>		
12/29/2008	Finished Water	Kingston Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS, DS	Final		KWTDW-WS02	Tt
12/29/2008	Finished Water	Rockwood Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS, DS	Final		RWDW-WS03	Tt
12/30/2008	Finished Water	993 Swan Pond Road	City Supply		TM, DM, TSS	Final		993	SESD
12/30/2008	Finished Water	Kingston Water Treatment Plant	Sampled from inside the plant	MS/MSD	TM, DM, TSS	Final		KWT2A	SESD
12/30/2008	Finished Water	Rockwood Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS	Final		KWT4A	SESD
12/30/2008	Finished Water	Rockwood Water Treatment Plant	Sampled from inside the plant	DUP	TM, DM, TSS	Final		KWT4AX	SESD
12/30/2008	Finished Water	Cumberland Water Treatment Plant	Sampled from inside the plant		TM, DM, TSS	Final		KWT6A	SESD
1/5/2009	Finished Water	Kingston Water Treatment Plant	Sampled from inside the plant	MS/MSD	TM, DM, TSS, DS	Final		KWTP-FWU-01	Tt
							<b>EPA RESIDENTIAL RALs</b>		
12/23/2008	Ash	Emory River	Mile Marker 1.9 (Ash-berg)		TM	Final	TM Arsenic = 44.8 mg/kg	TT-SS01	Tt
12/27/2008	Ash	Dredge Cell	Undisturbed Fly Ash; 10-pt composite		TM, S, BTEX, TCLP	Final	TM Arsenic = 45.8 mg/kg	081227-DKC-SS-01	Tt
12/27/2008	Ash	Dredge Cell	Disturbed Fly Ash; 10-pt composite		TM, S, BTEX, TCLP	Final	TM Arsenic = 59.9 mg/kg	081227-DKCL-SS-02	Tt
12/28/2008	Ash	Kingston Fossil Plant	South Swan Pond Road; grab		TM, S, BTEX, TCLP	Final	TM Arsenic = 54.2 mg/kg	081228-KFPRW-01	Tt
12/28/2008	Ash	North Swan Pond Road	North Swan Pond Road; grab		TM, S, BTEX, TCLP	Final	TM Arsenic = 81.3 mg/kg	081228-SPRRW-02	Tt
12/28/2008	Ash	Swan Pond Circle Road	Swan Pond Circle Road; grab residential		TM, S, BTEX, TCLP	Final	TM Arsenic = 69.8 mg/kg	081228-SPCRW-03	Tt
1/5/2009	Ash	Swan Pond Road	Swan Pond Road; grab	MS/MSD	TM, S, BTEX, TCLP	Final	TM Arsenic = 72.2 mg/kg	090105-KFPRW-SS12	Tt
1/5/2009	Ash	Swan Pond Road	Swan Pond Road; grab	DUP	TM, S, BTEX, TCLP	Final	TM Arsenic = 56.6 mg/kg	090105-KFPRW-SS12-DUP	Tt
							<b>EPA RESIDENTIAL RALs</b>		
12/28/2008	Soil	496 Emory River Road	Emory River bank 5-pt composite; Residential		TM, S, BTEX, TCLP	Final		081228-ERER-SS07	Tt
12/28/2008	Soil	496 Emory River Road	Emory River bank 5-pt composite; Residential	DUP	TM, S, BTEX, TCLP	Final		081228-ERER-SS07-DUP	Tt
12/28/2008	Soil	444 Emory River Road	Emory River bank 5-pt composite; Residential	MS/MSD	TM, S, BTEX, TCLP	Final		081228-ERER-SS08	Tt
							<b>EPA RESIDENTIAL RALs</b>		
12/28/2008	Soil	Emory River Road	Emory River bank 5-pt composite; Public Area ??		TM, S, BTEX, TCLP	Final		081228-EERBS-SS04	Tt
12/28/2008	Soil	Emory River Road Power Lines	Emory River bank 5-pt composite; Public Area ??		TM, S, BTEX, TCLP	Final		081228-ERPL-SS05	Tt
12/28/2008	Soil	346 Peninsula Road (adjacent to)	Emory River bank 5-pt composite; Public		TM, S, BTEX, TCLP	Final		081228-ERPR-SS06	Tt
12/28/2008	Soil	Sugar Grove Valley Boat Ramp	Clinch River bank 5-pt composite; Public		TM, S, BTEX, TCLP	Final		081228-SGUBR-SS09	Tt
12/28/2008	Soil	Kingston City Park South Boat Ramp	Clinch River bank 5-pt composite; Public		TM, S, BTEX, TCLP	Final		081228-KCPS-SS10	Tt
12/28/2008	Soil	Kingston City Park Boat Ramp	Clinch River bank 5-pt composite; Public		TM, S, BTEX, TCLP	Final		081228-KCPS-SS11	Tt
1/5/2009	Soil	Longshore Road and Highway 70	Clinch River bank	MS/MSD	TM, S, BTEX, TCLP	Final		090105-CRM-SS13	Tt
1/5/2009	Soil	Longshore Road and Highway 70	Clinch River bank	DUP	TM, S, BTEX, TCLP	Final		090105-CRM-SS13-DUP	Tt

**BACKGROUND SAMPLES**

							<b>TWQC<sup>1</sup></b>		
<b>Surface Water (Tennessee)</b>									
1/2/2009	Surface Water	Bullard Ford Road Dock	Emory River Background	MS/MSD	TM, DM, TSS, DS	Final		090102-ERB-WS-01	Tt
1/2/2009	Surface Water	117 Settlers Road	Clinch River Background	MS/MSD	TM, DM, TSS, DS	Final		090102-CRB-WS-01	Tt
							<b>EPA RESIDENTIAL RALs</b>		
1/2/2009	Soil	125 Osprey Road	Emory River bank 5-pt composite; Residential Background	MS/MSD	TM, S, BTEX, TCLP	Final		090102-ERB-SS-01	Tt
1/2/2009	Soil	302 Lakecrest Drive	Clinch River bank 5-pt composite; Residential Background		TM, S, BTEX, TCLP	Final		090102-CRB-SS-01	Tt
1/2/2009	Soil	117 Settlers Road	Clinch River bank 5-pt composite; Residential Background	MS/MSD	TM, S, BTEX, TCLP	Final		090102-CRB-SS-02	Tt
							<b>EPA RESIDENTIAL RALs</b>		
1/2/2009	Soil	Bullard Ford Road Dock	Emory River bank 5-pt composite; Public Area ?? Background		TM, S, BTEX, TCLP	Final		090102-ERB-SS-02	Tt

**NOTES**

- 1 The Tennessee Water Quality Criteria is equivalent to the National Primary Drinking Water Regulation Standards.
- BTEX Benzene, Toluene, Ethylbenzene, and Xylene
- DM Dissolved Metals
- DS Dissolved Silica
- DUP Field Duplicate
- EPA Environmental Protection Agency
- J The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- MCL Maximum Contaminant Level
- mg/kg Milligrams Per Kilogram
- mg/L Milligrams Per Liter
- MS/MSD Matrix Spike/Matrix Spike Duplicate

- NPDR National Primary Drinking Water Regulation
- RAL Removal Action Level
- RL Reporting Limit
- S Silica
- SESD Science and Ecosystem Support Division
- TCLP Toxicity Characteristic Leaching Procedure
- TM Total Metals
- TSS Total Suspended Solids
- Tt Tetra Tech EM Inc.
- TVA Tennessee Valley Authority
- TWQC Tennessee Water Quality Criteria

**APPENDIX C**  
**PHOTOGRAPHIC LOG**  
(32 Pages)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 1  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northeast

**Date:** January 8, 2009

**Photographer:** TVA

**Witness:** Not Applicable

**Subject:** On the morning of December 22, 2008, the dike on the main dredge cell at the Kingston Fossil Plant failed for an unknown reason, releasing 5.4 million cubic yards of material into the adjacent Emory River to the right and its slough to the left.



**TETRA TECH**

C-1

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 2  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Not Applicable

**Date:** January 4, 2009

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Not Applicable

**Subject:** EPA and Tetra Tech START conducting response operations in the Incident Command Post.



**TETRA TECH**

C-2

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)

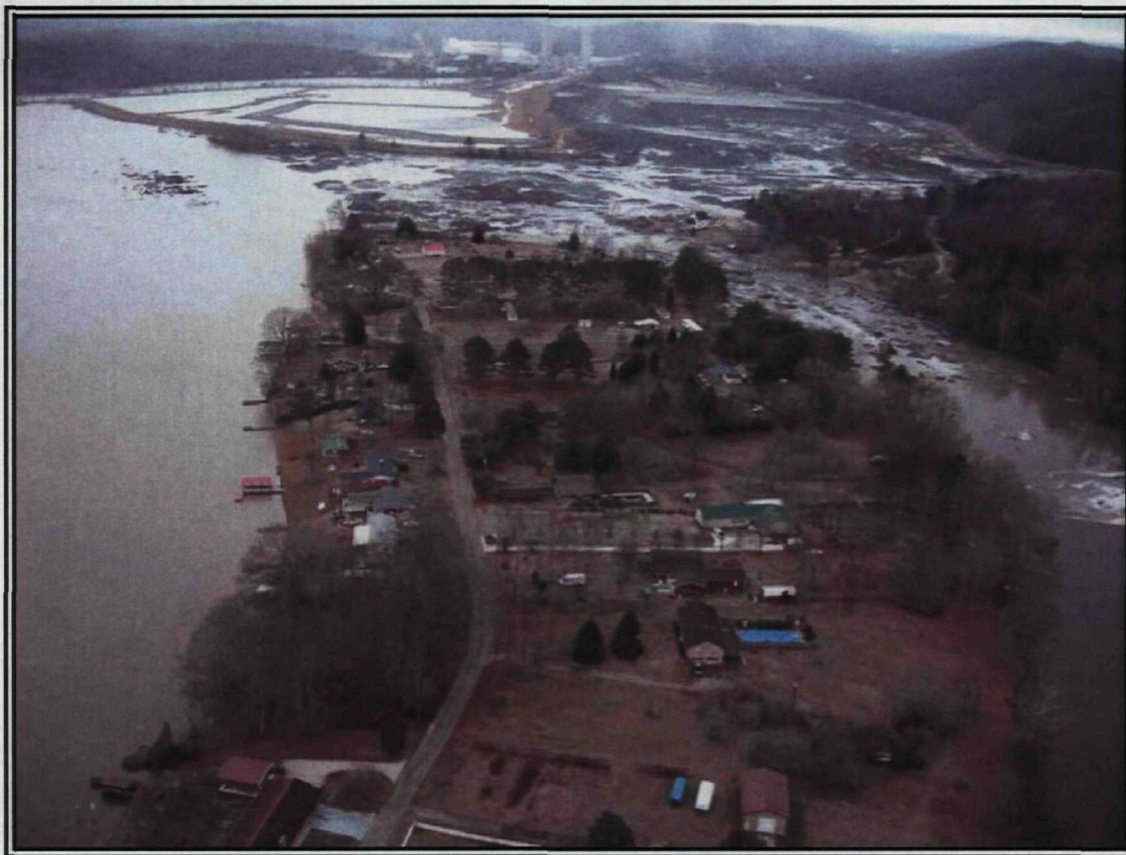




**OFFICIAL PHOTOGRAPH NO. 3  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

<b>TDD Number:</b>	TTEMI-05-001-0084	<b>Location:</b>	Kingston Fossil Plant Fly Ash Response
<b>Orientation:</b>	Northeast	<b>Date:</b>	December 23, 2008
<b>Photographer:</b>	TVA	<b>Witness:</b>	Not Applicable
<b>Subject:</b>	Aftermath of the fly ash release into the Emory River and surrounding sloughs.		





**OFFICIAL PHOTOGRAPH NO. 4  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southwest

**Date:** January 8, 2009

**Photographer:** Alyssa Hughes, EPA

**Witness:** Not Applicable

**Subject:** The release flowed toward the Swan Pond Circle Road slough located to the right of Lakeshore Drive. The Kingston Fossil Plant and main dredge cell are located southwest of Lakeshore Drive and the slough.

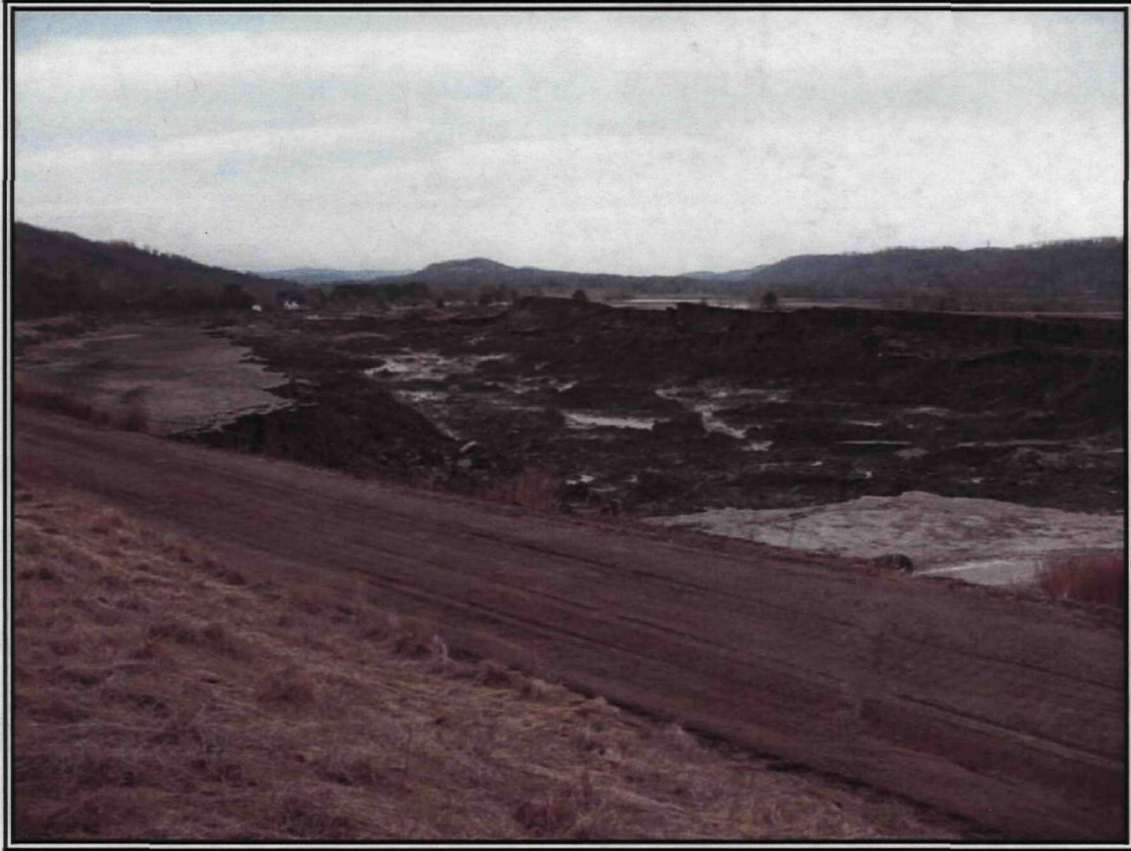


**TETRA TECH**

C-4

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 5  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Northeast

**Date:** December 24, 2008

**Photographer:** Chris Jones, Tetra Tech

**Witness:** Not Applicable

**Subject:** Top of the former fly ash staging area. Note the ravine that was formed by the fly ash sludge flow.

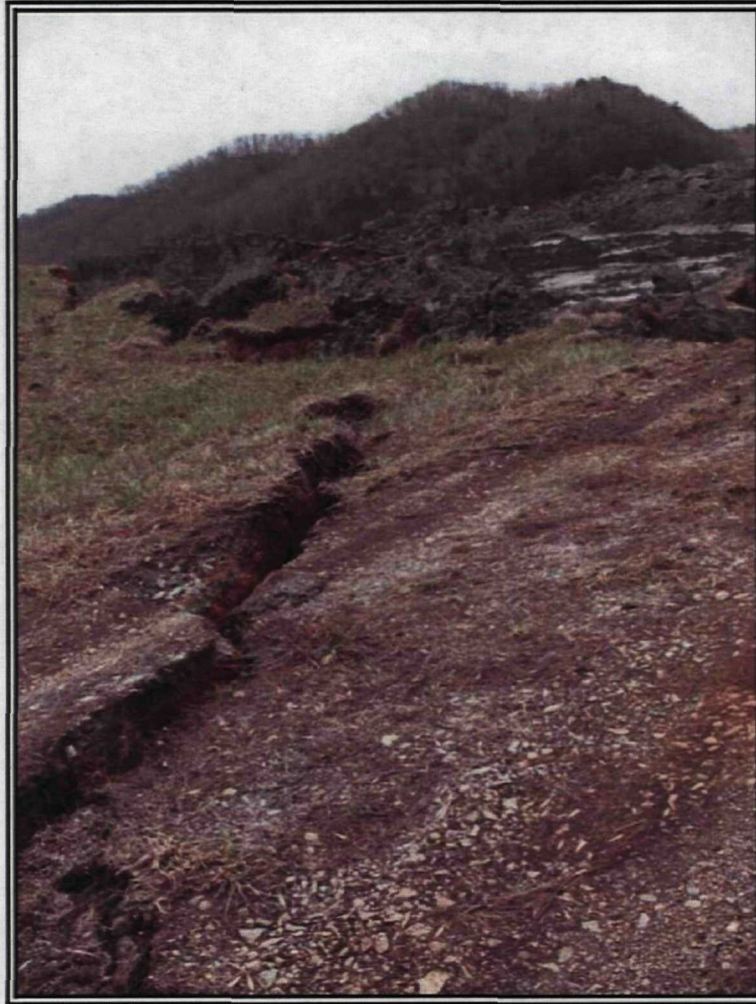


**TETRA TECH**

C-5

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 6  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084      **Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** West-Northwest      **Date:** December 24, 2008

**Photographer:** Chris Jones, Tetra Tech      **Witness:** Not Applicable

**Subject:** A fissure on the north most point of the remaining dike.



**TETRA TECH**

C-6

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 7  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** East

**Date:** December 27, 2008

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Chris Jones, Tetra Tech

**Subject:** The northwestern Emory River slough from Swan Pond Road. Note the large portion of the dike in the center of the photograph.



**TETRA TECH**

C-7

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 8  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** North

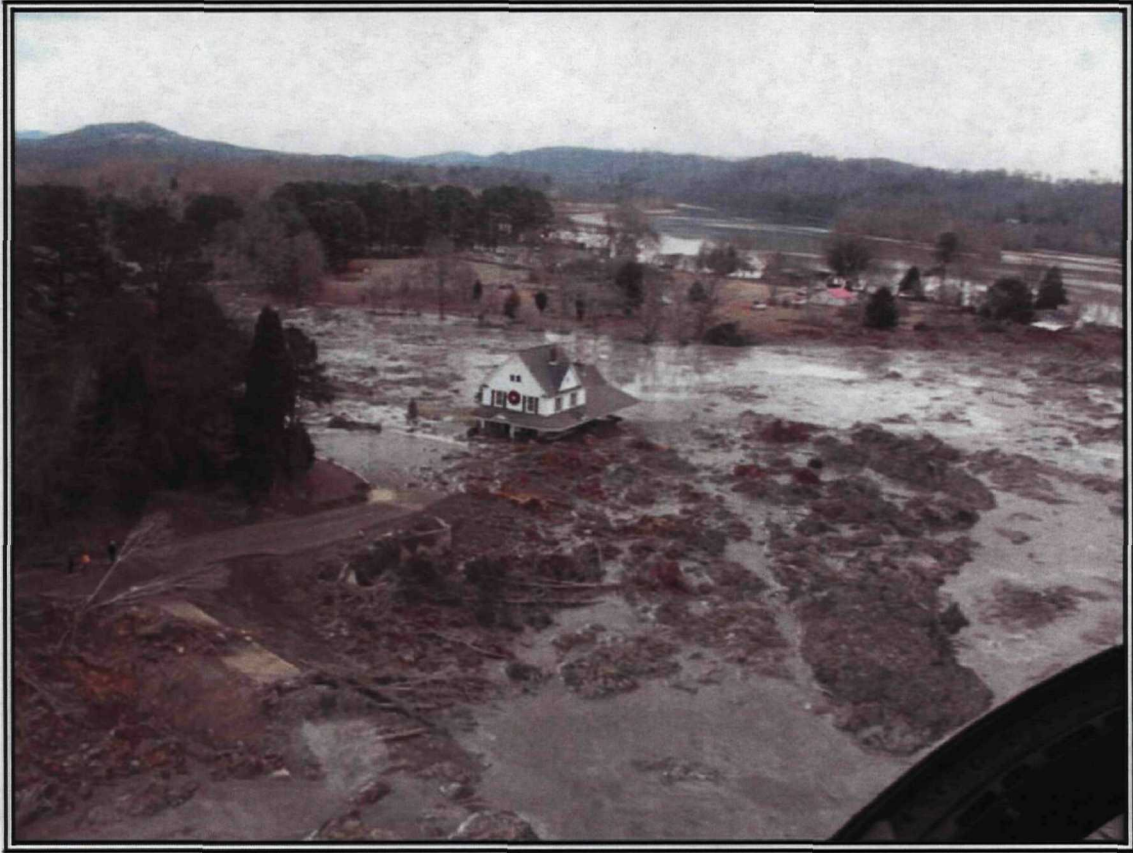
**Date:** December 23, 2008

**Photographer:** Chris Jones, Tetra Tech

**Witness:** Not Applicable

**Subject:** Residential home located on Swan Pond Circle, directly across from the area where the fly ash staging area dike failed. The force of the material striking the home dislodged it from its foundation.





**OFFICIAL PHOTOGRAPH NO. 9  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northeast

**Date:** December 23, 2008

**Photographer:** Chris Jones, Tetra Tech

**Witness:** Not Applicable

**Subject:** Residential home along Swan Pond Circle Road that suffered structural damage from due to the fly ash release.



**TETRA TECH**

C-9

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 10  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southeast

**Date:** December 27, 2008

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Chris Jones, Tetra Tech

**Subject:** Closeup of the residential home along Swan Pond Circle Road that suffered structural damage. Fly ash broke through the windows spilling onto the first floor of this home.

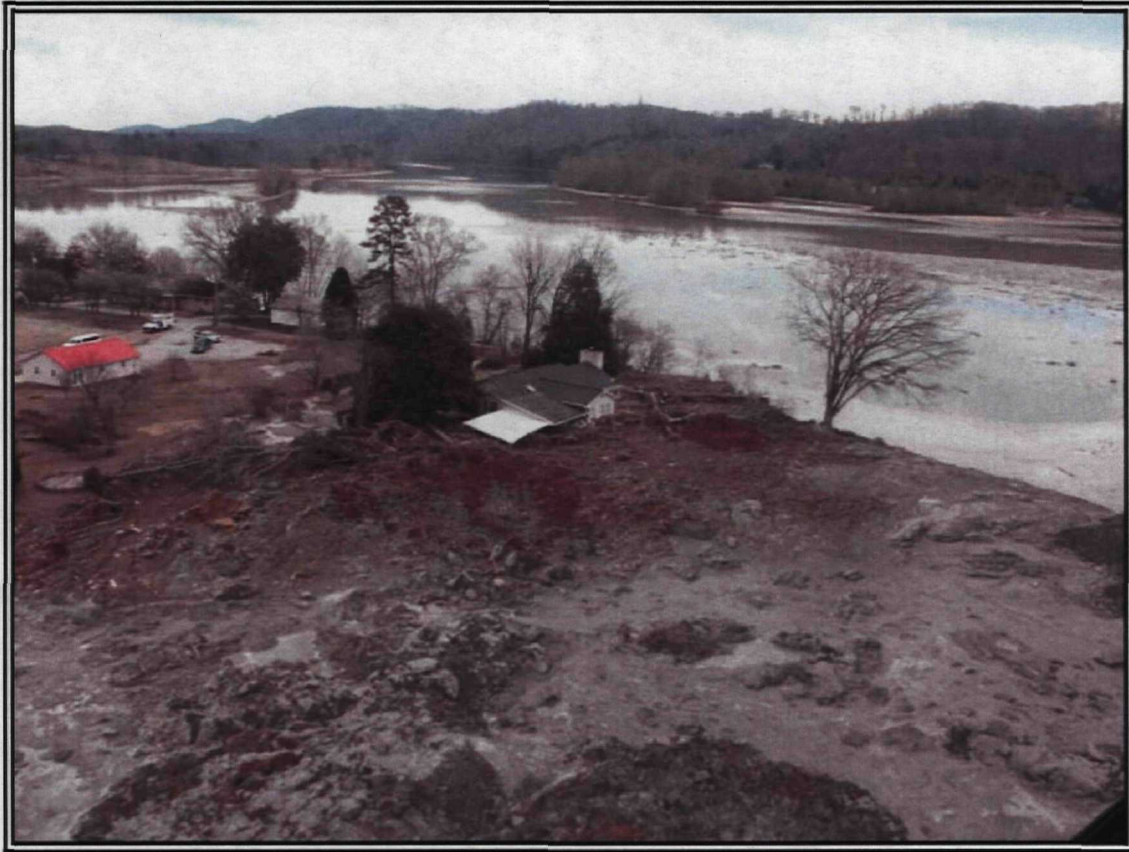


**TETRA TECH**

C-10

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 11  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084                      **Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Northeast                                      **Date:** December 23, 2008

**Photographer:** Chris Jones, Tetra Tech                      **Witness:** Not Applicable

**Subject:** Residential home located along Lakeshore Drive heavily damaged by the fly ash release.





**OFFICIAL PHOTOGRAPH NO. 12  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084      **Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Southeast      **Date:** December 23, 2008

**Photographer:** Chris Jones, Tetra Tech      **Witness:** Not Applicable

**Subject:** The lighter material seen floating in the Emory River is a nonhazardous substance known as cenospheres which were formed during the coal burning process and released with the fly ash. Cenospheres are tiny grains of silica with pockets of trapped air.



**TETRA TECH**

C-12

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 13  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southeast

**Date:** January 3, 2009

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Kirt Watts, Tetra Tech

**Subject:** The Kingston Fossil Plant deployed booms in several locations along the Emory and Clinch Rivers to capture and remove the released cenospheres.





**OFFICIAL PHOTOGRAPH NO. 14  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southeast

**Date:** December 24, 2008

**Photographer:** Chris Jones, Tetra Tech

**Witness:** Not Applicable

**Subject:** Cenospheres became highly concentrated at the water intake of the Kingston Fossil Plant. Vacuum trucks were used to remove the cenospheres from the water surface.





**OFFICIAL PHOTOGRAPH NO. 15  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084                      **Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Northwest                                      **Date:** December 23, 2008

**Photographer:** Chris Jones, Tetra Tech                      **Witness:** Not Applicable

**Subject:** Downstream point where the Emory River, located at the top portion of the photograph, joins the Clinch River. Notice the contrast in colors between the two rivers.





**OFFICIAL PHOTOGRAPH NO. 16  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** West

**Date:** January 8, 2009

**Photographer:** Alyssa Hughes

**Witness:** Not Applicable

**Subject:** Downstream point at which the Clinch River, located in the top right portion of the photograph, joins the Tennessee River. Notice the contrast in colors between the two rivers.



**TETRA TECH**

C-16

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 17  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southeast

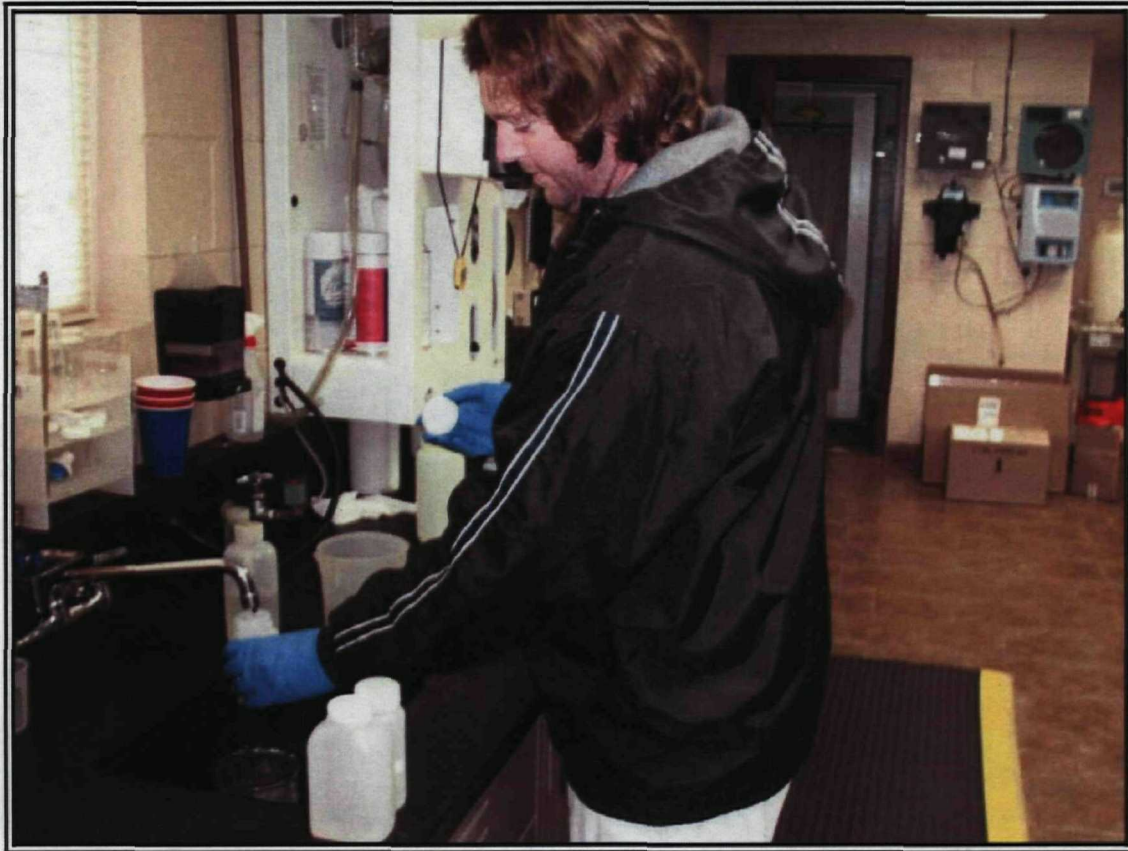
**Date:** December 24, 2008

**Photographer:** Chris Jones, Tetra Tech

**Witness:** Not Applicable

**Subject:** A weir was constructed in the Emory River at mile marker 1.8. It extended out from the eastern edge of the Tennessee Valley Authority (TVA) settling pond area. The purpose of the weir was to impede the downstream migration of the released fly ash while allowing the river to flow.





**OFFICIAL PHOTOGRAPH NO. 18  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Not Applicable

**Date:** January 5, 2009

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Charles Berry, Tetra Tech

**Subject:** Tetra Tech START collected finished water sample from the Kingston Water  
Treatment Plant.



**TETRA TECH**

C-18

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 19  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northwest

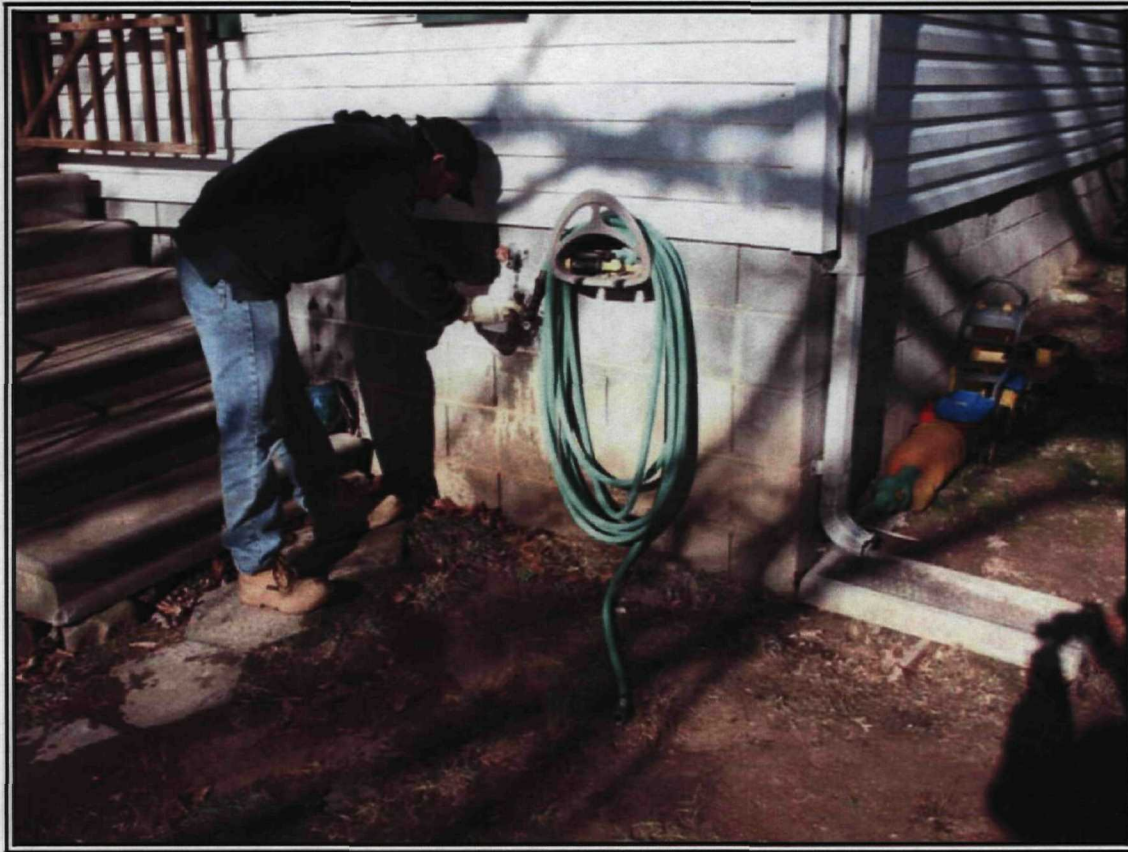
**Date:** January 5, 2009

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Charles Berry, Tetra Tech

**Subject:** Tetra Tech START collected five-point composite shoreline soil sample from along the bank of the Clinch River near Longshore Road.





**OFFICIAL PHOTOGRAPH NO. 20  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** West-Northwest

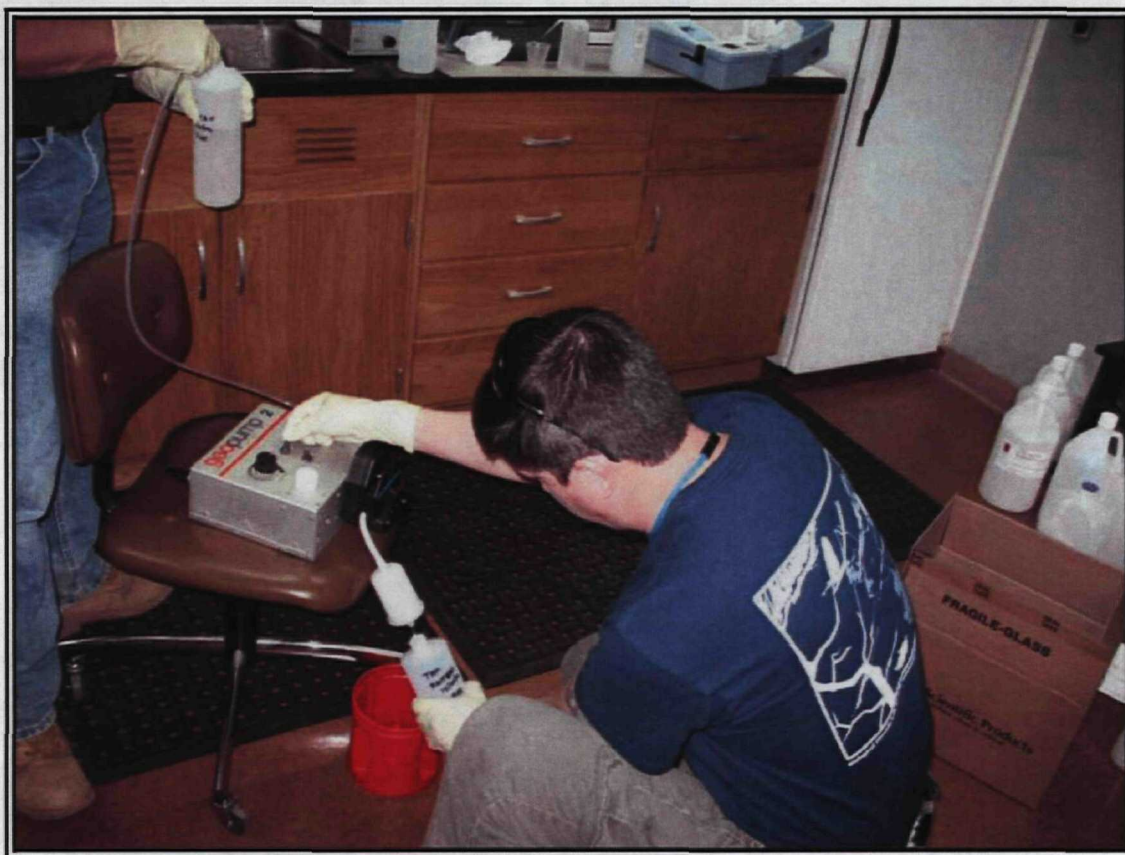
**Date:** December 30, 2008

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Not Applicable

**Subject:** The Science and Ecosystem Support Division (SESD) of the U.S. Environmental Protection Agency (EPA) sampled the groundwater wells at three residential homes. The purpose was to ensure that their primary drinking water source was not affected.





**OFFICIAL PHOTOGRAPH NO. 21  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Not Applicable

**Date:** December 30, 2008

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Not Applicable

**Subject:** SESD filtering water samples collected for analysis of dissolved metals at the Rockwood Water Treatment Plant. SESD collected raw and finished water samples from the Kingston Water Treatment Plant, the Rockwood Water Treatment Plant, and the Cumberland Water Treatment Plant.





**OFFICIAL PHOTOGRAPH NO. 22  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southeast

**Date:** January 8, 2009

**Photographer:** Dannena Bowman, TN&A, Inc. **Witness:** Not Applicable

**Subject:** The flow from a spring located northwest of the Kingston Fossil Plant was backed up by the released fly ash. Water depth in this area was slowly rising



**TETRA TECH**

C-22

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 23  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Southeast

**Date:** January 8, 2009

**Photographer:** Dannena Bowman, TN&A, Inc.

**Witness:** Not Applicable

**Subject:** The natural spring, heavy rains, and fly ash impeded drainage and caused water levels to rise at this residence.



**TETRA TECH**

C-23

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 24  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northeast

**Date:** December 27, 2008

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Chris Jones, Tetra Tech

**Subject:** Creeks upstream experienced significant flooding along their banks because of the blockage caused by the fly ash release.





**OFFICIAL PHOTOGRAPH NO. 25  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084                      **Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Northeast                                      **Date:** January 8, 2009

**Photographer:** TVA    **Witness:** Not Applicable

**Subject:** Due to the blockage caused by the fly ash release, creeks upstream experienced significant flooding along their banks.





**OFFICIAL PHOTOGRAPH NO. 26  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northwest

**Date:** December 31, 2008

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Alyssa Hughes, EPA

**Subject:** Kingston Fossil Plant representatives were concerned about the effect of the rising creek waters, so driveways and roadways were raised for affected residents.



**TETRA TECH**

C-26

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 27  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northwest

**Date:** January 3, 2009

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Not Applicable

**Subject:** Pipelines were installed in an effort to reduce the flooding caused by the fly ash release into the Emory River slough.





**OFFICIAL PHOTOGRAPH NO. 28  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northwest

**Date:** January 8, 2009

**Photographer:** TVA

**Witness:** Not Applicable

**Subject:** Progress of the cleanup efforts 18 days after the release occurred. Work crews used amphibious trackhoes to construct drainage pathways to alleviate rising waters in the slough.



**TETRA TECH**

C-28

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 29  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northwest

**Date:** January 3, 2009

**Photographer:** Paul Prys, Tetra Tech

**Witness:** Not Applicable

**Subject:** Amphibious trackhoes were used to help clear fly ash from the sloughs and other areas where conventional equipment could not gain access.



**TETRA TECH**

C-29

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 30  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** Northeast

**Date:** December 27, 2008

**Photographer:** Kirt Watts, Tetra Tech

**Witness:** Not Applicable

**Subject:** A portion of the fly ash release flowed northwest covering approximately 2,300 feet of Swan Pond Road and the adjacent railroad tracks on the west side of the Kingston Fossil Plant property. Crews worked 24 hours a day to clear the road and railroad.

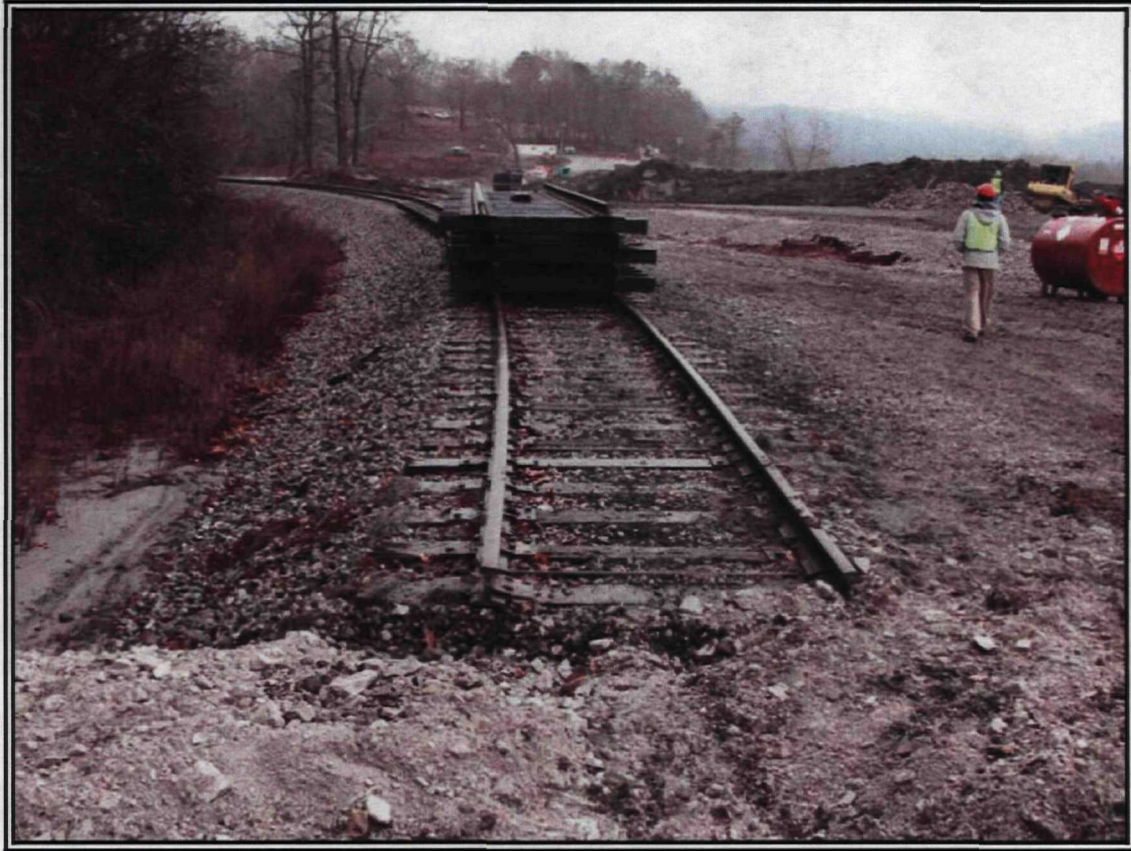


**TETRA TECH**

C-30

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 31  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084

**Location:** Kingston Fossil Plant Fly Ash  
Response

**Orientation:** North

**Date:** January 3, 2009

**Photographer:** Kirt Watts, Tetra Tech

**Witness:** Not Applicable

**Subject:** After fly ash had been cleared from Swan Pond Road and the adjacent railroad tracks, damaged portions of the track were removed and replaced with prefabricated sections.



**TETRA TECH**

C-31

TDD No. TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**OFFICIAL PHOTOGRAPH NO. 32  
U.S. ENVIRONMENTAL PROTECTION AGENCY**

**TDD Number:** TTEMI-05-001-0084      **Location:** Kingston Fossil Plant Fly Ash Response

**Orientation:** Southwest      **Date:** January 8, 2009

**Photographer:** Dannena Bowman, TN&A, Inc.      **Witness:** Not Applicable

**Subject:** Eighteen days after the release occurred, work crews removed enough material to install a temporary road (Swan Pond Road) and repair the railroad line to the facility.



**APPENDIX D**  
**RESPONSE TIMELINE**  
(5 Pages)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)



**RESPONSE TIMELINE  
KINGSTON FOSSIL PLANT FLY ASH RESPONSE  
HARRIMAN, ROANE COUNTY, TENNESSEE**

December 22, 2008:

- EPA notified via NRC Report #893129 at approximately 0440 hrs
- EPA OSC (Leslie Sims) dispatched at approximately 1200 with START contractor support.
- DOI (Greg Hogue) was notified.
- HQ EOC notified.
- R4 External Affairs and Regional Counsel were briefed.
- TVA sampled water intakes at Kingston and Watts Bar Nuclear Plant.
- TEMA, TDEC, TN Wildlife Resources, and Roane County EMA (REMA) were on-scene.
- Unified Command Established

December 23, 2008:

- Aerial reconnaissance via helicopter was performed.
- TVA began to clear the affected roadway, railroad, and restore power to the local community.
- EPA Technical Services Section reviewed initial data collected by TVA.
- Regional Counsel was copied on ERNS.
- EPA and TVA collected surface water, ash, and potable water samples.

December 24, 2008:

- TVA continued to restore utilities.
- TVA hired certified inspectors for initial assessment of damaged homes.
- TVA received initial surface water sampling results.
- TVA removed cenospheres from the river.
- TVA Bridge Conference Call established for 1600 hrs.
- TVA managed river flow to minimize possible downstream migration.
- EPA received preliminary data from December 23 sampling event.

December 25, 2008:

- TVA continued to clear ash from affected roadway and rail lines.
- TVA began building a catchment dam.
- OSC Sims demobilized. OSC Stilman mobilized.
- ATSDR Bob Safay contacted to assist with Tennessee Department of Health (TNDOH) coordination of upcoming EPA sampling effort.

December 26, 2008:

- TVA collected river water samples at river water locations.
- EPA Public Affairs Specialist (PAS) Laura Niles requested on-scene.
- Two additional START contractors deployed to support sampling effort.
- EPA received final data from December 23 sampling event.

December 27, 2008:

- TVA removed debris from the river and continued to move ash to an unaffected cell on plant property.
- TVA mobilized O'Brien Group to provide an Incident Management Team (IMT).
- TVA mobilized CTEH to perform air sampling/air monitoring.



TETRA TECH

D-1

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)



- TVA sampled Kingston Water Intake.
- TVA sampled ash on four residential properties.
- EPA began on-site air monitoring for particulates.
- EPA collected two dredge cell ash samples.
- EPA PAS Laura Niles arrived on-scene to serve as Public Information Officer (PIO).
- TVA, TEMA, REMA, TDEC, and EPA set up the Joint Information Center.

December 28, 2008:

- TVA begins construction of weir 1 in the Emory River.
- EPA continued on-site air monitoring.
- EPA collected 3 ash samples from the right of way of roads.
- EPA collected 3 soil samples from residential properties. An additional 5 soil samples were collected from public areas.
- EPA collected 4 shoreline surface water samples.
- OSC Sims remobilized with Community Involvement Specialist (CIS) Sherryl Carbonaro. OSC Stilman demobilized.
- SESD mobilized to provide drinking water sampling support.
- ATSDR Bob Safay mobilized to Kingston to assist in getting access agreements at the request of OSC Stilman.

December 29, 2008:

- TVA bridge conference calls resume at 1600 hrs.
- TVA begins 4 on-site air sampling stations.
- TVA collected ash samples from ash pond/dredge cell area and residential area for radiological analysis.
- TDEC and EPA held a conference call at 1400 hrs regarding transition to TDEC oversight.
- OSC Natus deployed to assist with implementation of the Scribe database, data flow and data collection processes.
- OSC David Dorian deployed to assist with ICS development and implementation.
- EPA continued on-site air monitoring.
- EPA and TVA collected 10 surface water samples from the Emory, Clinch and Tennessee Rivers.
- EPA and TVA collected 2 raw water and 2 finished water samples from Kingston and Rockwood Plants.

December 30, 2008:

- TVA continued to remove ash.
- TVA sampled same 9 locations along the Emory, Clinch and Tennessee Rivers.
- Operational command transitioned to Unified Command Center on TVA Kingston Fossil Plant property.
- ERRB Branch Chief met with TVA, TEMA, and TDEC in Nashville, TN.
- Mobile Command Post delivered to support Data Management Team.
- EPA continued on-site air monitoring.
- EPA SESD collected 3 residential well samples, 1 city water sample, 3 raw and 3 finished water samples were collected from Kingston, Rockwood and Cumberland Plants.

December 31, 2008:

- TN Governor met with Unified Command on-scene.
- TDEC began water treatment plant sampling (Kingston, Rockwood).
- TVA began mobile lab for air sample analysis.



- TVA received air sampling data from December 29 – all below NAAQS
- TVA Environmental Unit leader debriefed EPA regarding activities to date.
- EPA received preliminary data (does not include mercury, silica and TCLP) for December 27-29 sampling event.
- EPA began off-site air monitoring.
- EPA continued on-site monitoring.

January 1, 2009:

- TVA installed 5 residential air sampling stations.
- TVA sampled raw water intake from Watts Bar Nuclear.
- EPA continued off-site air monitoring.
- EPA continued on-site monitoring.

January 2, 2009:

- EPA, TVA, TDEC and Troy Beets, mayor of Kingston, held a joint press conference.
- TVA began construction of weir #2 located on the slough leading to the Emory River.
- TVA sampled same 9 locations along the Emory, Clinch and Tennessee Rivers.
- TVA sampled Rockwood Intake and private residence well.
- TDEC began residential well sampling program (22 wells sampled) focusing on wells within a 4-mile radius of plant.
- EPA collected background samples for surface water and soil.
- EPA released surface water, potable water and ash and soil sample data to TVA.
- EPA received missing data from December 27-29 event.
- EPA continued off-site air monitoring.
- EPA continued on-site monitoring.

January 3, 2009:

- TVA began dust control operations including seeding and mulching.
- TVA air monitoring continued.
- TVA completed rock weir 1 (615 feet long) on the Emory River.
- EPA Toxicologist Tim Frederick on-scene to coordinate with TNDOH for risk assessment.
- TVA sampled Watts Bar Nuclear Plant raw water.
- EPA continued off-site air monitoring.
- EPA continued on-site monitoring.
- EPA received data from January 2 sampling event.

January 4, 2009:

- PIO Dawn Harris-Young on-scene to staff the JIC.
- OSC Sims demobilized.
- TVA hosted community meeting.
- EPA released summary reports for air, surface water, potable water and soil/ash results.
- TVA sampled Watts Bar Nuclear Plant raw water.
- EPA continued off-site air monitoring.
- EPA continued on-site monitoring.

January 5, 2009:

- OSC Steve Spurlin replaced OSC Sims as EPA Incident Commander.
- Joint press conference with EPA, TVA, TDEC and REMA.





- TVA sampled same 9 locations along Emory, Clinch and Tennessee Rivers.
- TVA sampled Watts Bar Nuclear Plant raw water.
- TVA received air sampling results for December 31 on-site samplers and January 1 off-site samplers.
- TDEC sampled 7 residential wells and raw and finished water at Kingston and Rockwood.
- EPA received final results from December 27-29 sampling events.
- EPA continued off-site air monitoring.
- EPA continued on-site monitoring.

January 6, 2009:

- TVA opened community outreach office.
- TVA collected 12 ash samples from 9 sites around the spill area.
- TVA submitted soil/ash sampling plan and air sampling plans to EPA.
- TVA, REMA, and EPA had a public meeting.
- EPA continued off-site air monitoring.
- EPA continued on-site monitoring.
- EPA received final results from January 2 sampling event.
- EPA received preliminary results from January 5 sampling event.

January 7, 2008

- OSC Benjamin Franco arrived on-site to assist OSC Spurlin.
- EPA coordinated a meeting with TDEC to discuss on and off-site air monitoring.
- EPA continued off-site air monitoring.
- EPA continued on-site air monitoring.

January 8, 2009

- EPA met with TDEC to discuss on and off-site air monitoring.
- EPA implemented its demobilization plan and began demobilization of all nonessential personnel and equipment.
- EPA continued off-site air monitoring.
- EPA continued on-site air monitoring.

January 9, 2009

- EPA continued demobilization of all nonessential personnel and equipment.
- EPA continued off-site air monitoring.
- EPA continued on-site air monitoring.

January 10, 2009

- EPA issued a Memorandum of Concurrence to TVA in regard to TVA's Sampling and Analysis Plan Outline with the recommendation that TVA proceed with development of the plan in close collaboration with TDEC.
- EPA submitted a Transfer of Federal Lead Agency Authority Memorandum, effective January 11, 2009, transitioning the Lead Federal Agency role from EPA to TVA.
- EPA continued demobilization of all nonessential personnel and equipment.

January 11, 2009

- All Joint Information Center (JIC) operations conducted at the Roane County EMA were discontinued.



- Following the transition meeting, all remaining EPA personnel and equipment were demobilized from the site.
- TVA's operation center is scheduled to remain fully operational throughout the long-term recovery period to address any future cleanup or community outreach-related issues.
- TDEC will continue to conduct independent sampling throughout the project and provide oversight of all TVA cleanup-related activities.





**APPENDIX E**  
**LOGBOOK NOTES**  
(82 Pages)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)



*"Rite in the Rain"*  
ALL-WEATHER  
**JOURNAL**  
No. 391

TVA

Kingston ER

TDD - 05-001-0084

Book 1





2  
12/22/08 Monday

1800 START C. Jones arrives onsite

@ 0100 in morning a train came around the bend and hit the fly-ash.

- They dyke gave way sometime in the middle of the night.

1900 Meet up w/ Les Sims in main building.

- Currently in meeting.

- Chemical comp of ash and effect on env.

- Sample results will be in tomorrow.

- For chemical comp, turbidity, of <sup>①</sup> toxicity of ash in water.

- No evidence of <sup>②</sup> fish kill.

- Gas and power is being restored by <sup>1230</sup>

- Residents have been evacuated, 3 homes were destroyed.

- No injuries reported.

Roger Thompson w/ ETEMA

Howie Rose Roane Co. EMA. 260-7347

Timeline:

0040 - 911 call came in to Roane Co.

0206 - Finished notification matrix

0230 - ICC activated



3  
12/22/08 Monday

0345 - Duty specialist notified (EPA)

0415 - " " ~~to~~ const Guard

0450 - Roane Co. Emergency in OCC for status report.

0635 - OCC Notified of train derailment.

- Issues -

• Skimmer well damaged

• Ash stacking

• Down stream effects of ash, water intakes.

• Aerial survey

• Waste characterization

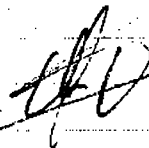
• Ash containment

• Inspects of other sites.

Command Center Phone - 423-751-1747.

• Dike was last inspected Sept. 2008

2030 Offsite to hotel for night.





4  
12/23/08

Tuesday

0614 START Jones arrives on site  
w/ OSC Sims.

Weather: Currently 23°F, high of 42°F;  
chance of showers this afternoon.

0625 START Jones and OSC Sims  
arrive @ OCC.

- Robert Pedberg - TVA 865-755-3344
- Jeffrey Whitt - TVA, Engineering Mgr  
865-717-2538 (O) 865-755-9055 (C)

- 0700 Briefing

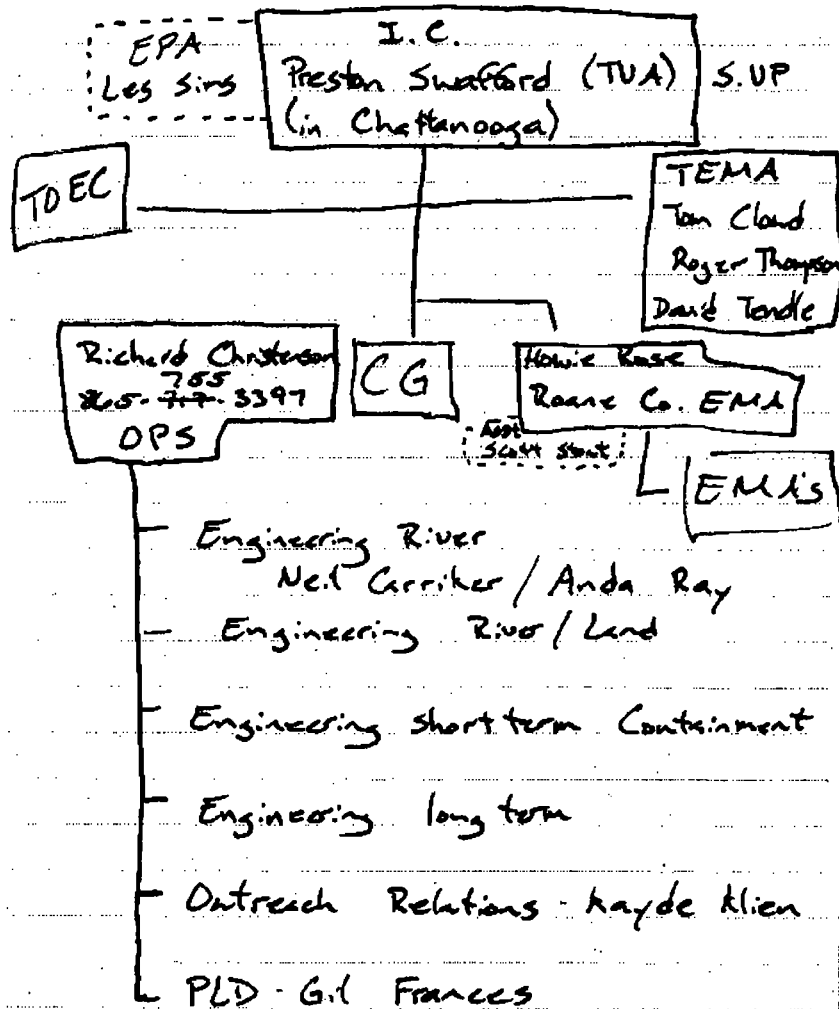
- TVA working on finalizing fact sheet for press release.
- Plan is put together to clear road and railroad.
- Env says yesterday's results should be in shortly.
  - No issues w/ Top/Comb.
  - Sampling team on standby pending results.
- Engineering issues will be (for rain) will be delt w/ after meeting.
- Turbidity continues to fall (115)  
Plant ops not affected.

*[Signature]*

12/23/08

5  
Tuesday

### Chain of Command



*[Signature]*

12/22/08

Tuesday

(0700 Briefing Cont)

- Home inspectors will be in this morning to inspect damaged homes.
- River Eng - Someone will be appointed to usually manage flow / back flow.
- ER - boats (on night watch) will be taken off duty.
- Rip rap will be placed in channel (noon) to help block flow.
  - Surface skimmers will be on site this morning.
- Next briefing will be @ 0830.

Water 820 ft

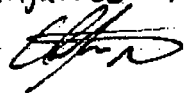
Road 765

1 ft = 3,000,000 cu ft.

- Majority of fly ash not released.
- Scott Stout informs EPA / START that the media has found evidence of fish kill.

0810 Data from Fact sheet dated 12/22/08

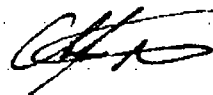
- The ash slide is estimated to be 4-6 ft deep over a 250 to 400 acres.
- No injuries reported.



12/23/08

Tuesday

- 22 homes have reported issues, 15 home owners displaced 3 homes inhabitable
- A trailer park has had the water cut off (due to a gravity fed spring line).
- As of 12-23-08 0700, 20 people see w/o Nat. gas, should be on soon.
- Barriers are being placed to prevent ash movement
- The river flow @ Kingston is being reduced to a minimum to keep ash from moving down stream.
- Flows are also being reduced @ Watts Bar Dam
- Operations @ the TVA Kingston plant continue as normal, a 26 day supply of coal is on site.
- Ash Containment Area
  - The plant has 3 containment areas
  - The one for which the retention wall failed covers 80 acres.





12/23/08

Tuesday

(Ash Containment Cont.)

- This area is estimated to contain 2.6 million yds<sup>3</sup> of ash. (w/in guidelines for area).
- Containments are inspected by TVA annually. (last inspected Sept 08).
- Water intake for the city of Kingston  
Turbidity - 9.09. (drinking water).
- 0900 Briefing
  - Spoke w/ 22 families, 13 needed temp. housing, 3-4 needed long term.
  - Army Corp of Eng. will be coming in to help w/ riprap placement.
    - Working on Eng. solution for boom.
  - Env. analyzing sampling results.
    - Booms are being placed to handle 'cynospheres? Cinospheres'
    - Water sampling teams are ready to go for additional sampling locations down stream (Kingston public water intake).
  - Turbidity continues to fall (95).
  - Home inspectors are on site.
  - Road ways being cleared.

*[Signature]*

12/23/08

Tuesday

(0900 Briefing Cont.)

- Release starts @ 1300 <sup>from Melvin Hills.</sup>
- May take 15-20 hrs to reach site. Additional water will help dilute water.
- Helicopter will be in contact w/ each other.
- Next Brief will be @ noon.
- Tom Cloud (TEMA) is putting together a weather model for this area (done by Morrison weather).
- TEMA will have a conference call @ 1500.
- 1050 • Water to some residents on Swan Pond rd. has stopped flowing. Efforts are being made to re-establish water flow, bottle water is being given to effected residents.
- Tenn Wildlife will inspect Eco. damage.
- 1200 Prepare to collect water samples
- 1225 Depart TVA Kingston to meet up w/ Coast Guard.

*[Signature]*

12/23/08

Tuesday

1235 Arrive @ meeting point (w/ CG).  
Meet up w/ TVA Kingston associates  
to collect surface water samples

1325 - They just previously collected  
a sample from the Kingston  
water treatment plant intake which  
will be transferred to START  
for sample analysis.

1500 In boat w/ Phyllis Hilton and  
Brandi Ruth to collect stream  
water samples.

• 1510 @ Clinch river mile marker 5.5  
sample collected @ 15 ft.

• 1525 @ Clinch river mm 4.0,  
sample collected @ 15 ft.

1532 @ Emory 0.1 collect  
Surface sample.

1545 @ Emory 1.75 sample collected  
@ 6 ft. No sample for START

1615 @ Emory 2.0 sample  
collected @ 15 ft. ~~no START~~  
~~sample.~~ ☺

1630 @ Emory MM 4.0 collected  
@ 15 ft (MS/MSD)

*[Signature]*

12/23/08

Tuesday

1455 Collect sample @ Emory 2.0  
DAP, Surface sample, Solid  
collected here as well.

1715 Water sampling complete,  
back @ marina.

1735 Pack samples

Sample ID	Time	Time	Date
KIF-KWTPI		1147 (central)	12/23/08
KIF-CRM 4.0		1423 "	12/23/08
KIF-ERM 0.1		1432 "	12/23/08
KIF-CRM 5.5		1410 "	12/23/08
KIF-ERM 2.1		1515 "	12/23/08
KIF-ERM 4.0		1530 "	12/23/08
↳ MS/MSD		1530 "	12/23/08
TT-ERM 1.9		1455 (eastern)	12/23/08
DAP		1657 "	12/23/08
KIF-TRM 568.5		1133 (central)	}
KIF-CRM 0.0		1158 "	
KIF-CRM 2.0		1216 "	
TT-SS01		1655 (eastern)	

1910 Depart Kingston for FedEx in  
Knoxville.

2045 Samples have been packed and  
dropped off @ FedEx.

*[Signature]*



12/23/08

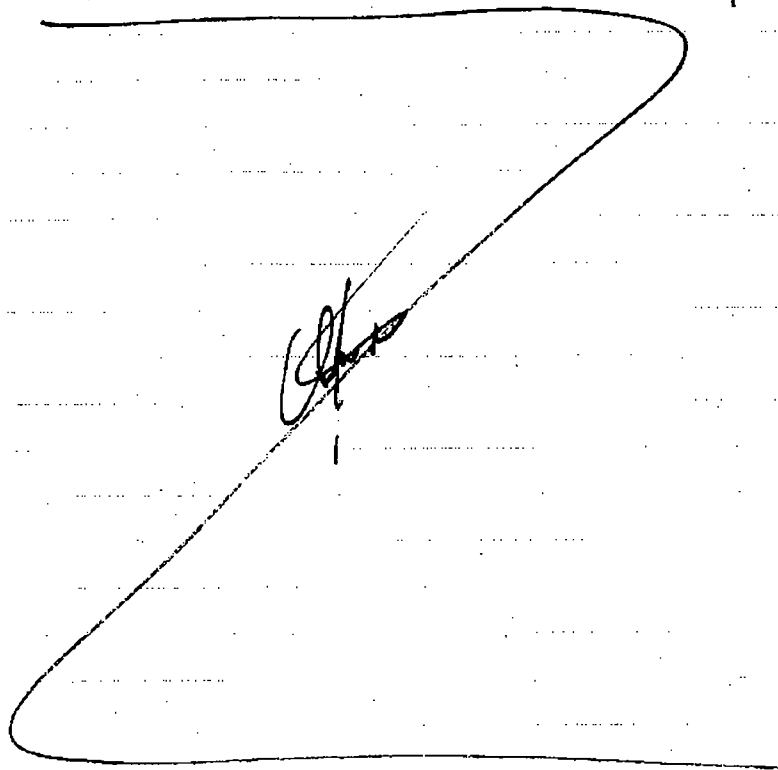
Tuesday

- START Jones speaks w/ OSC Sims, we are no longer needed @ the site today. We will sit in the 0900 Briefing @ tomorrow morning.

20050 START Jones departs

Fed Ex for Kingston.

2120 Arrive @ hotel. End of day



12/24/08

Wednesday

Weather: Overcast, chance of rain, high of 47°F

0810 START Jones arrives on site

- Take photos of progress on NE portion of site and survey damage.

• According to Ron Majiros SWS is on site deploying booms.

SWS arrived @ 0800 on 12/23/08

• The booms will be used to capture Cynospheres.

• Booms are currently deployed in the TVA Water Intake channel.

• TVA is attempting to place additional booms just south of I-40, (Ferguson Lane) The area where the Tenn. River and Clinch River meet (Bluff Point) and the Kingston Water treatment Plant Intake.

• 0900 The 0900 briefing has been moved to 1100

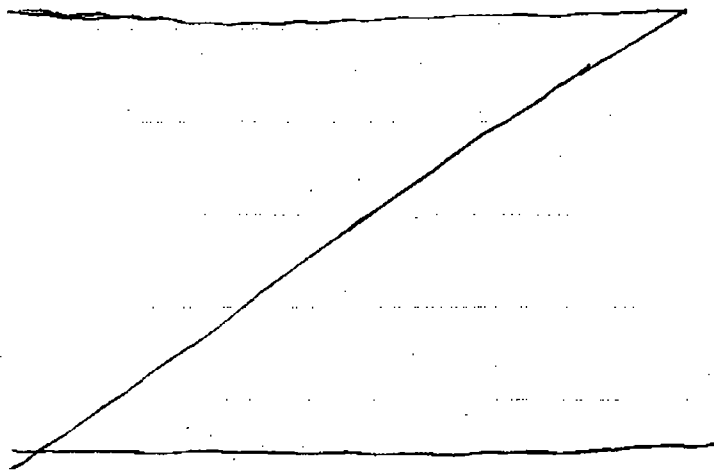
• Joe Burke will meet w/ START Jones for photos so the he may escort START Jones around for photos.

12/24/08

Wednesday

~~1205 START Jones departs site  
for Atlanta.~~

- 1000 Take photographs of progress.  
Booms are being deployed in the TVA Kingston Water intake cove.
- A barge has arrived to help w/ the construction of the rip rap.
- Crews continue to clear debris from Swan Pond rd.
- 1205 START Jones departs for Atlanta.
- 1600 Arrive @ START office in Atlanta.



12/25/08

Thursday

- 1420 START PAUL PLYS on-site. AND PROCEED TO MAIN BUILDING
- 1450 MET WITH ANDA RAY AND RON MATIKOS OF TVA. SAT IN AN ENVIRONMENTAL UPDATE TO READING MEETING. WATER AT TREATMENT PLANT WAS STILL TURBID. Approx. 25 ft of rock wall installed in channel. THERE WERE CONCERNS ABOUT ASH NEAR AND/OR IN YARDS OF RESIDENCES DRYING OUT. PLANNED TO WATER IT DOWN TO KEEP IT FROM BECOMING AIRBORNE. TVA planning to dredge ash from AREA NEAR WEIR 2. This is TVA land. Ash on roads and railroads being pushed back into Ash cell near high wall on SW side. NEWS CONFERENCE SET FOR 1400 tomorrow for data and press release. NEEDED to monitor debris collecting at the 2 dams (by WEIR 2 and downstream dam).
- 1615 Ms. Ray gave START PLYS FACT SHEETS COVERING 22-25 DEC 08 EVENTS AND 2 topographical maps showing RIVER flow, sampling pts and ROCK WEIR locations.  
Paul PLYS



12/25/08

Thursday

1700 OSC Terry ~~Stilman~~ <sup>Stilman</sup> ARRIVED ON-SITE.  
START PRYS WAS REVIEWING talking points  
FROM THE 1530 ENVIRONMENTAL UPDATE  
MEETING.

1800 OSC Stilman AND START PRYS ATTENDED

TVA update meeting.

- Visually inspecting 5 cracks in DIKE C.

DIKE C WAS THE AREA THAT FAILED.

Working on a corrective action plan.

- Turbidity in Clinch River usually  
higher today due to rain last  
night.

- TVA considering upstream river  
sampling around residential areas  
that were affected.

- Railway cloning uncovered damaged  
rail. Two barges off loaded 400 tons  
of big rock for WEIR 1. Approx. 160 ft  
of wall for WEIR 1. 200 ft of south  
road cleared. 130 ft of north road  
cleared.

- Plant ops reported a turbidity  
level of 34.1.

- Will try to figure out actual #  
of acres affected.

CSL

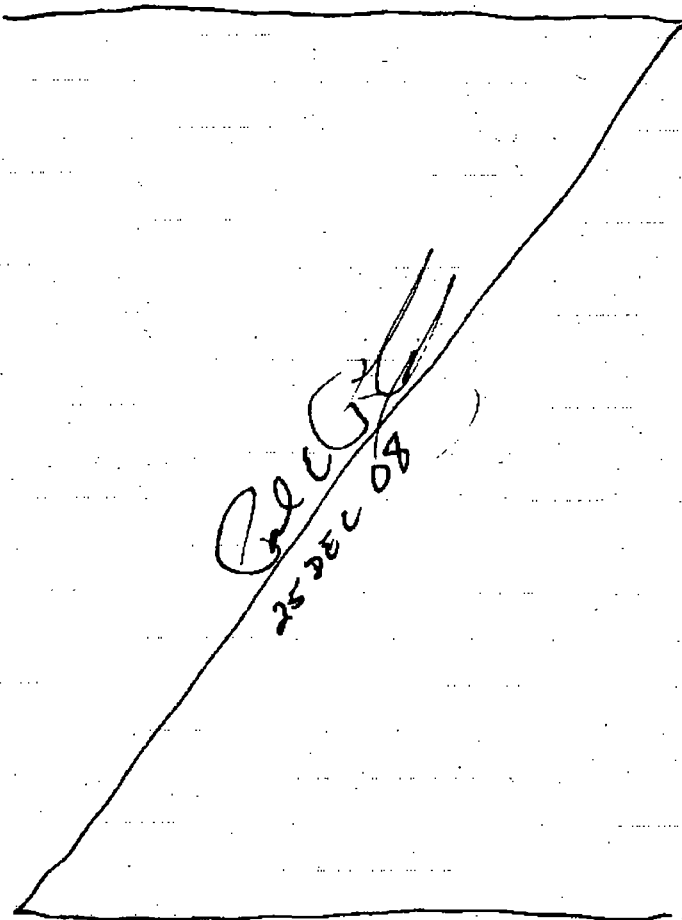
12/25/08

Thursday

- To date, 3600 tons of big rock has  
been placed in WEIR 1.

- mtg completed at 1915.

2115 Terry Tech START PRYS AND OSC  
Stilman WERE OFF-SITE.



12/26/08

Friday

WEATHER: Light Rain to mostly cloudy High of 61°F

SCOP: TVA Kingston

0700 START PRYS ON-SITE.

0720 START PRYS AND OSC STILMAN REVIEWED THE STREET DRAFT SOLID WASTE AND WATER SAMPLING PLAN.

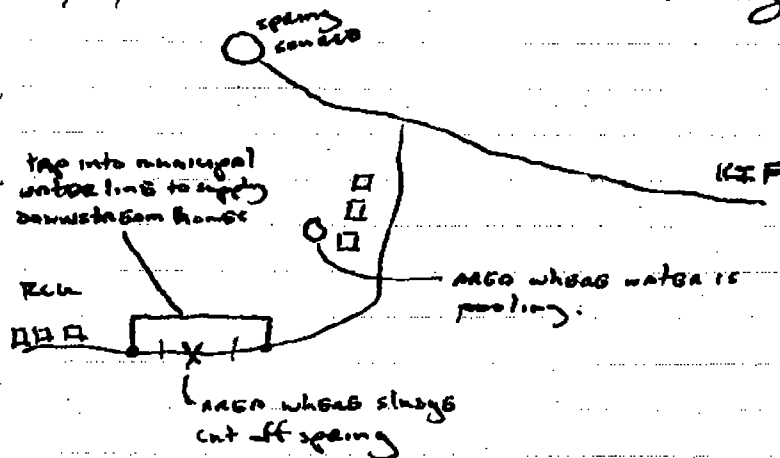
0845 START PRYS MET W/ RON WALL (PLANT MANAGER) CONCERNING RESIDENTS WHOSE PROPERTIES WERE FED BY SPRING WATER. THE SLUDGE CUT OFF THE SPRING AFTER BREAKING THRU THE DIKE. RESIDENTS DOWNSTREAM WERE CUT OFF. TVA TO GOED INTO THE MUNICIPAL WATER SUPPLY TO GET AFFECTED RESIDENTS BACK ON LINE. WATER COMING FROM ROANE COUNTY UTILITIES. WATER UPSTREAM WAS NOT AFFECTED ALTHOUGH THE DISRUPTION IN THE FLOW HAS CAUSED WATER TO POOL BEHIND ONE OF THE HOMES. Sumps WERE INSTALLED TO REMOVE THE WATER. OSC STILMAN WANTS TO SAMPLE THE SPRING FOR WATER QUALITY.

- municipal line was broken during digging and it is presently being repaired. RCU is waiting for water

*Bill*

12/26/08

Friday



samples results before it can be used by residents. Home should be supplied water within 48 hours. TVA has put residents up in hotels until utilities can be restored.

1030 OSC STILMAN AND START PRYS MET WITH Roane County Emergency Management. HOWIE ROSE (DIRECTOR) AND SCOTT STOUT (DEP. DIR) AND ROANE COUNTY EXECUTIVE MIKE FARMER. WANTED TO DISCUSS STATUS OF PROJECT TO INCLUDE WATER SAMPLING AT THE KINGSTON WTP INTAKE FOR BESTINGS AND POSSIBLE CUW INTERVIEW.

*Bill*



12/26/08

Friday

11:20 START PRYS and OSC Stillman met w/  
NICK FIELDER of TDEC. Rowan County  
has requested that the EPA supply  
the following:

- ① Periodic water sampling at KUTE intake.
- ② Take baseline water samples at Rockwood  
WTP intakes.
- ③ Ground water testing for PCBs on  
well water.

④ Air quality monitor for particulate.

1430 ~~me~~ START PRYS met w/ NEIL COLLIER  
to try to determine the number of  
residential homes with fly ash on the  
properties.

1500 OSC Stillman and START PRYS had a  
telconf. w/ ATSDR concerning sampling  
of ash and water. Info will be  
incorporated into sampling plan.

1530 START CHRIS JONES is on-site.

1800 START Jones attends 6:00 Briefing.

• Items discussed:

- Media - Interviews went well, TVA tried  
to get their points across.
- 300 acres are estimated to be  
affected.

12/26/08

Friday

• All forms of media are still inquiring  
to what happened and details of  
the event.

• Outreach - 4 home inspected, 3 of  
which severely damaged.

• Working to get items out of home.

• One family remains in hotel,  
still looking for temp. housing.

• Information has been given to  
residents as to when water will  
be restored.

• Engineering - Designing scheme to  
knock down high walls in staging  
area 3.

• Dredging plans will be finalized  
on Mon.

Env. - Sampling on residential properties  
will start tomorrow.

• Air Monitoring will begin tomorrow.

• Sampling plan will be worked out  
for dredging.

• TEHA is no longer on site, TDEC  
will stay, EPA will collect samples  
then evaluate next step.

*[Signature]*

12/26/08 Friday

End (cont) Rockwood would like  
water samples collected from  
their Water Intake Point.

- A meeting will be conducted  
in Nashville (w/ TDEC) as to  
what will be done w/ the ash  
disposal.

- Recovery - Pumps are able to keep  
up w/ Spring.

• Additional equipment will be  
on site tomorrow.

• Road on South side has been  
cleared 675 ft (to date), RR  
on South side cleared 690 ft

• Road on North side cleared 625 ft  
and RR cleared 690 ft.

• Riprap is approx 85 ft out on  
west bank.

Site Ops - River turbidity is down to 18

Safety - No incident

Procurement -

River Ops - No major rainfall expected

Security ③ tomorrow.

ET: Road block will be moved back  
to allow for Church. crowd.

*[Signature]*

12/26/08 Friday

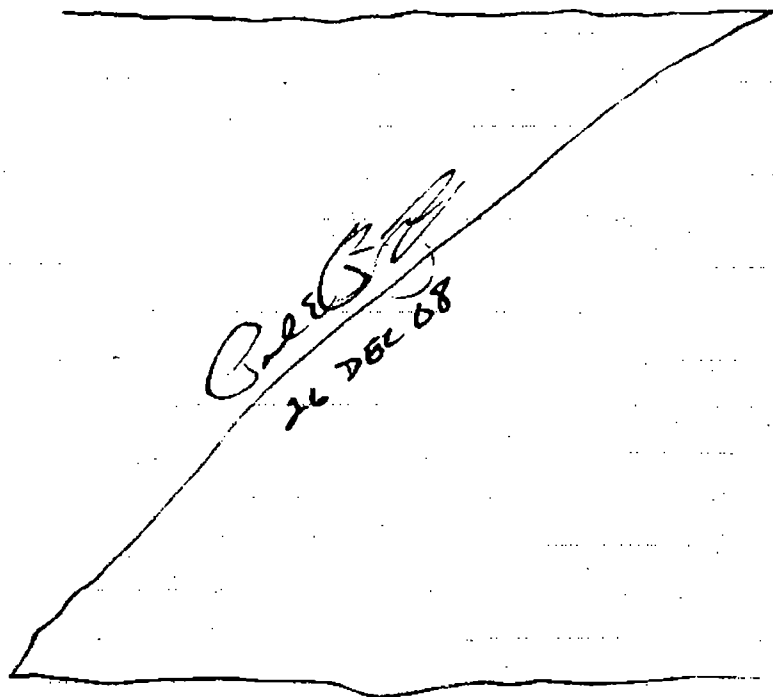
Approx 255 acres are affected  
by ash coverage.

- Only 50 acres are private property
- Next briefing will be @ 0700  
tomorrow.

1850 End of Meeting.

Note: START PERS CONTINUED WRITING  
DRAFT SAMPLING PLAN for OSC  
Stilman.

2045 START AND OSC Stilman off-site.





12/29/08

Saturday

WEATHER: Cloudy, foggy High of 68°F

~~Scenic~~ Cloudy, foggy PP

SURGE: TVA Kingston - Sampling and Site Visit

0710: START PRYS AND OSC Stillman on site

0730: START JONES on-site.

0900: START PRYS off site to pick up sampling cucc from TDEC FieldGR. print out maps and get supplies.

1030: START PRYS AND START WATTS on-site.

1120: START PRYS AND JONES ARRIVED AT DINK C. to COLLECTED SURFACE SOIL SAMPLE.

1145: START PRYS AND JONES COLLECTED SAMPLE 081227-DKCL-SS-01. 10 pt composite.  
N 35° 54.510'  
W 84° 30.866'1230: START COLLECTED SAMPLE 081227-DKCL-SS-02. 10 pt composite  
N 35° 54.625' W 84° 31.026'1450: START PRYS & JONES ARRIVED AT THE NORTH ROAD OF KFP. WALKED SOUTH ALONG THE ROAD. SLUDGE FILLED THE COVS ON THE NORTH AND EAST SIDES of the north KFP ROAD. SUMP LOCATED on SW SIDE of the ROAD. Possibly pumping spring water  
Cal [Signature]

12/27/08

Saturday

DATE	TIME	SAMPLE ID	LOCATION
12/27/08	1145	081227-DKCL-SS-01	KFP-DINKC Upper DINK
12/27/08	1230	081227-DKCL-SS-02	KFP-DINKC Lower DINK

that was backing up on one RESIDENT'S property

1450: START ARRIVED AT LAKEVIEW DR. TO SURVEY RESIDENTIAL <sup>PP</sup> PROPERTIES affected by the fly ash. Fly ash filled the slue up to 162 Lakeshore Dr. Shoreline was covered by fly ash sludge. The slue from that point to Swan Pond Road was filled with water and fly ash had not migrated that far. During a discussion w/ one RESIDENT, START was told that TVA OWNED the property along the slue, and possibly along the river, up to the 750 ft elevation pt. Will check w/ TVA and see how that affects ACCESS AGREEMENTS.

1600: START DRIVING ALONG WESTERN portion of Lakeshore of Swan Pond Circle RD. START counted 3 properties in need of sampling. 188 Swan Pond Circle Rd.  
Cal [Signature]

12/27/08

Photo #	Time	Location	SD	P
1 (1014)	1141	Kingston FP-Dike C upper	ENE	PP
2 (1015)	1141		NE	
3 (1016)	1141		N	
4 (1017)	1142		N	
5 (1018)	1142		NNW	
6 (1019)	1142		WNW	
7 (1020)	1224	Kingston FP-Dike C Lower	N	PP
8 (1021)	1226		N	
9 (1022)	1226		NNE	
10 (1023)	1226		E	
11 (1024)	1234		N	
12 (1025)	1235		NNE	
13 (1026)	1235		NE	
14 (1027)	1235		EW	
15 (1028)	1235		SE	
16 (1029)	1235		S	
17 (1030)	1236		NNE	
18 (1031)	1236		N	
19 (1032)	1237		E	
20 (1033)	1242		SE	
21 (1034)	1242		SE	
22 (1035)	1410	North Rd to KFP	NE	PP
23 (1036)	1413		E	
24 (1037)	1413		SE	

Saturday

12/27/08

Photo #	Time	Location	SD	P
25 (1038)	1413	North Rd to KFP	SE	PP
26 (1039)	1414		SE	
27 (1040)	1414		E	
28 (1041)	1424		S	
29 (1042)	1425		NE	
30 (1043)	1425		N	
31 (1044)	1430		W	
32 (1045)	1430		E	
33 (1046)	1431		S	
34 (1047)	1526	Lakeshore Dr.	NW	
35 (1048)	1526		NW	
36 (1049)	1526		W	
37 (1050)	1527		NW	
38 (1051)	1527		W	
39 (1052)	1523		NW	
40 (1053)	1523		S	
41 (1054)	1523		SW	
42 (1055)	1523		W	
43 (1056)	1530		SSE	
44 (1057)	1534		NW	
45 (1058)	1535		SW	
46 (1059)	1535		SW	
47 (1060)	1538		WSW	
48 (1061)	1539		SW	



12/27/08

Saturday

12/27/08

Saturday

Photo #	Time	Location	O	R
49 (1062)	1540		W	
50 (1063)	1540		SW	
51 (1060)	1540		SW	
52 (1065)	1541		S	
53 (1066)	1541		WSW	
54 (1068)	1542		SSW	
55 (1067)	1542		ESE	
56 (1069)	1543		E	
57 (1070)	1543		S	
58 (1071)	1544		W	
59 (1072)	1544		SE	
60 (1073)	1604	Swan Pond Circle Rd	E	
61 (1074)	1604		ESW	
62 (1075)	1604		SE	
63 (1076)	1604		S	
64 (1077)	1605		NE	
65 (1078)	1606		SE	
66 (1079)	1618	Swan Pond Circle Rd	SSW	
67 (1080)	1619		W	
68 (1080)	1620		S	
69 (1082)	1620		SE	
70 (1083)	1621		SE	
71 (1090)	1621		W	
72 (1095)	1636		SE	

*Bob [Signature]*

WAS DAMAGED by the sludge.  
 1615 START ARRIVED AT A PROPERTY UNW of 151 Swan Pond Circle Rd. The fly ash sludge DAMAGED A large section of Swan Pond Circle Rd. TVA was installing a temporary road made of rip-rap rip-rap covered with gravel that connected with Swan Pond Circle Rd bypassing the damage. A home WSW of 151 Swan Pond Circle Rd was badly damaged.

1715 START PAUS AND JONG ARRIVED AT KCP site. checked on the progress of the rip-rap dam located on the south side of the settling pond.

1800 START PAUS ATTENDED THE 6:00pm update meeting.

Issues Discussed:

- TVA had discussions w/media. Ash wet and moving down RIVER vs Ash dry and becoming airborne. TVA to set up info center.

- Water out on Swan Pond Rd across from the Plant. additional families in hotels. Families want trash and

*Bob [Signature]*

12/27/08

Photo #	Time	Location
73 (1686)	1638	
74 (1687)	1638	
75 (1688)	1639	
76 (1689)	1729	Dam by Settling Pond
77 (1690)	1729	NEAR mile marker 2
78 (1691)	1731	
79 (1692)	1731	

Saturday

D P  
N  
N  
S  
SE  
SE  
SE  
SE

DEAD fish removed from their propagation. TVA should have water to residents by Monday afternoon except for the tenison pack.

- Environmental: Sampling on Swan Pond Circle Rd. Bringing in skimmers for centrifuges and extra bins. TVA sampling ash. May want to sample some standing water. Some residents have animals drinking water and they want to know if it's safe. NDBS addresses.

- Recovery - South <sup>Swan</sup> Pond Road, N. Swan Pond Rd, N. Rail line work continuing. 2 amphibious backhoes arrived today. They will start clearing channels tomorrow.

Paul [Signature]

12/27/08

Saturday

- Operations: Give water report.
- Safety: Install 1600gal water tank for employees to wash hands & boots to control ash from being tracked home.
- Corps of Engineers to be on-site by 1000 on 29 DEC 08.
- Expecting 0.3 in of rain tomorrow. Safety will address rain & sewer thru ducts.
- Security: RIVER officially closed. Patrolling will increase.
- TVA met w/ IG and discussed integrity of sites. IG wants to know if inspections have been made across the system.
- TVA to meet w/ 7-8 key local leaders tonight.

1830 meeting concluded.

- +1800 START makes final changes to sampling plan and developed a progress report for TVA and START
- START works offsite
  - START Jones and Prys offsite.

[Signature]



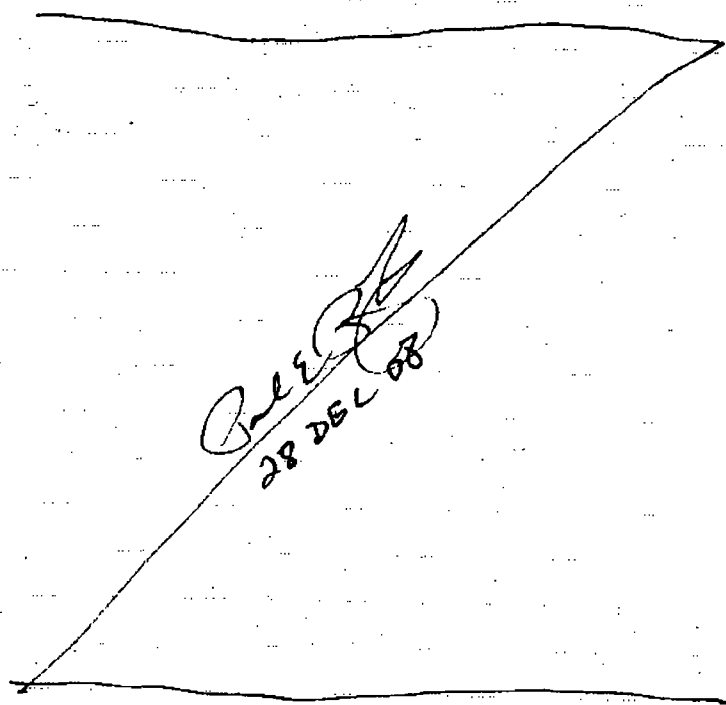
12/28/08 Sunday  
0730 START Jones, Watts, and Prys  
arrive on site.

0810 START Watts will monitor TVA progress  
in field while START Jones and  
Prys collect samples.

1830 ~~3:30~~ Packed samples for  
shipment w/ice.

1855 Depart for TVA facility to meet asc  
Stilman.

1930 start off-site.



12/28/08 Sunday

Sample ID	Time	Location
081228- <sup>RP</sup> RW-01	0900	500 ft N. of TVA
N-35°54.622		Checkpoint on E. shoulder
W-84°31.090		of Sunn Pond rd.
081228-SPRRW-02	0956	On western shoulder
N 35°55.034		of Sunn Pond rd, near
W 84°30.920		spring drainage pathway
081228-SPCRW-03	1042	On eastern shoulder of
N 35°55.042		Sunn Pond Cir. Approx
W 84°30.683		200ft N. of damaged home.
081228-EEABS-SS04	1218	East of dike C on
N-35°54.475		east Emory River Bank
W-84°30.066		Southern Tip.
081228-ERPL-WS01	1310	Underneath powerlines
N-35°54.218		on NE Bank of Emory
W-84°29.708		River
081228-ERPL-SS05	1315	SAA.
081228-ERPR-SS06	1435	Collected sample
N-35°53.936		on Eastern bank of
W 84°29.212		Emory river. 346 Pennsylvania
081228-ERER-WS02	1503	East bank of Emory
N-35°54.635		river located @ 496
W-84°29.757		Emory River rd.
081228-ERER-SS07	1507	SAA
* Dip collected @ this location		
→ sampled @ 1510 (soil, water) <i>[Signature]</i>		

Sample ID	Time	Location
081228-ERER-5508	1553	444 Emory River rd East bank
N-35° 54.800 W-84° 29.672 * MS/MSD Sample (soil)		
081228-SGUBR-5509	1645	<sup>above</sup> Sugar Valley rd. Boat dock (Public area)
N-35° 53.128 W-84° 29.530		
081228-SGUBR-W503	1650	SAA
* MS/MSD Sample (water)		
081228-KCPS-5510	1720	Kingston City Park South Boat ramp
N-35° 52.041 W-84° 31.288		
081228-KCPS-W504	1725	SAA
081228-KCP-5511	1757	Kingston City Park Boat Ramp
N-35° 52.682 W-84° 31.540		

*Paul E. [Signature]*  
23 DEC 08

12/29/08 Monday  
 Weather: Sunny High F 56°F  
 Scope: Project oversight and soil/water/air sampling

0730 START JONES AND PRYS ON SITE. START WATTS WENT TO KNOXVILLE TO PICK UP TRIMBLE UNITS.

0830 START JONES AT SITES TO TAKE WATER SAMPLES ON EMORY RIVER, CLINCH RIVER, KINGSTON WTP AND ROCKWOOD WTP. Sampling done in conjunction w/ TVA. START PRYS COORDINATED WITH OTHER ORGANIZATIONS CONCERNING SAMPLING ACTIVITIES (TVA, CTS&H ETC). Spoke w/ TDEC Paula Plouff. She requested to be taken to the various affected sites. START PRYS spoke with OSC Sims concerning additional START staffing. OSC Sims requested 2 additional START personnel (Data management and 1 FIELD w/ IC EXPERIENCE). START PRYS CONTACTED START BEERY TO REQUEST ADDITIONAL STAFF.

1400 START PRYS AND TDEC Plouff went to DIKE C TO SNAUGH THE DAMAGE.  
*Paul E. [Signature]*



12/29/08

Ma

1440 START PLYS AND TDEL PLANT off-site to survey damage.

1730 START PLYS AND TDEL PLANT returned to site. START PLYS FILLED OUT CHAIN OF CUSTODIES FOR WATER, SOIL AND ASH. SAMPLES TAKEN ON DEC 28 + 29, 2008.

START PLYS AND WATTS PREPARED THE SAMPLES FOR DELIVERY to AES FOR ANALYSIS. SOIL AND ASH SAMPLES WERE ANALYZED FOR TOTAL METALS, TCLP, BTEX AND SILICA. WATER WAS SAMPLED FOR TOTAL METALS, Total ~~Dissolved~~ <sup>SUSPENDED</sup> Solids <sup>(P)</sup>, Dissolved metals, and Dissolved Silica.

2015 START WATTS LEFT FOR TDELX to DELIVER SAMPLES FOR SHIPPING TO AES.

2100 START PLYS WAS off-site.

Paul [Signature]  
29 DEC 08

12/29/08

Monday

Photo #	Time	Location	Q	P
1 (1093)	1420	KFB-KFP Area C Docks Cell	N	PP
2 (1094)	1421	↓	NW	
3 (1095)	1421		NNE	
4 (1096)	1421		E	
5 (1097)	1501		KFP - N. Swan Pond Rd	S
6 (1098)	1503	↓	WSW	
7 (1099)	1506		(CSTX Air monitoring station)	NW
8 (1100)	1523	Lakeshore Drive Area	N/A	
9 (1101)	1524	↓	N/A	
10 (1102)	1526		W	
11 (1103)	1526		W	
12 (1104)	1537		NW	
13 (1105)	1550		NW	
14 (1106)	1555		NNE	
15 (1107)	1557		SW	
16 (1108)	1558		SE	
17 (1109)	1559	SE		

Paul [Signature]  
29 DEC 08

12/30/08 Tuesday  
 Weather: Sunny High of 59°F  
 Scope: Project oversight  
 0700 START PRNG on-site and ATTENDED  
 0700 Operations Briefing.  
 ops - Congressman Lincoln Davis on-site for tone.  
 Eng - working out log sheet on dragging and inclinometers installed  
 Env - conducted ash sampling; banging in geogads to do sampling & dikes in afternoon; conducted radiological sampling; finalized WTP monitoring on WTP today; river water sampling on going; EPA mobile data center onsite; requests increasing for well sampling to TDEC / determining criteria for who what to sample; Don Houston - hand held air monitoring shows low levels; work w/ 7 residents to do monitoring.  
 security - Emergency river closed 0-4 mile reaches.  
 Plants ops - Turbidity at plant 26; 2 groups doing radiological survey/sampling.  
 security - Additional 60' on Swan Pond Rd 2632' total 105' on N. Swan Pond Rd 1270' total.  
 one more amphibious backhoes to come in to cut trench in East Slough.  
 Bill [Signature]

12/30/08 Tuesday

Photo #	Time	Location	Dir	P
1 (1110)	0920	1007 Swan Pond Rd	ENE	PP
2 (1111)	0923	↓	NW	
3 (1112)	1027	953 Swan Pond Rd	NE	
4 (1113)	1032	↓	E	
5 (1114)	1040	937 Swan Pond Rd	NW	
6 (1115)	1040	↓	NW	
7 (1116)	1045	↓	NA	
8 (1118)	1047	↓	WNW	
9 (1119)	1119	1015 Swan Pond Rd	N	
10 (1119)	1120	↓	NNE	
11 (1120)	1121	↓	N/A	
12 (1121)	1122	↓	NNE	
13 (1122)	1436	Kingston Water Treatment Plant	W	
14 (1123)	1437	↓	N/A	
15 (1124)	1555	Cumberland WTP	WNW	
16 (1125)	1606	↓	N/A	
17 (1126)	1606	↓		
18 (1127)	1607	↓		
19 (1128)	1609	↓		
20 (1129)	1658	Rockwood WTP	NNW	
21 (1130)	1658	↓	SW	
22 (1131)	1701	Rockwood WTP	N/A	
23 (1132)	1704	↓		
24 (1133)	1710	↓		

Bill [Signature]



12/30/08

TUESDAY

Photo #	Time	Location	A	P
25 (1130)	1711	Rockwood WTP	NA	PP
26 (1135)	1722	↓	↓	↓
27 (1136)	1725			(PP)

REWORK - IC Form 233 to be used.

0830 START PAYS, OSC CARBONERO AND SEED off-site to conduct well water monitoring and to collect samples at 3<sup>rd</sup> WTP.

0843 DROVED AT 1015 SWAN POND RD. TO DO WELL water sampling. SEED CALIBRATED equipment early this morning. water was running slow due to RESIDENT having taken a shower (30 gal tank). SEED DECIDED TO COME BACK LATER.

N 35° 54.274' W 84° 31.562'

0904 ARRIVED AT 1003 SWAN POND RD.

N 35° 54.222 W 84° 31.506

RESIDENT: Tom Ryan. SEED PURGED THE ~~TOP~~ SPIGOT FOR 10 MIN. DUE TO A RESIDENT HAVING TAKEN A SHOWER. SEED WAS ABLE TO TAKE THE SAMPLES.

NOTE: SEED ANALYZED THE SAMPLES FOR Total Metals, Dissolved Metals AND Total Suspended Solids.

Pat [Signature]

12/30/08

TUESDAY

1000 ARRIVED AT 993 SWAN POND RD.

N 35° 54.201' W 84° 31.635'

SEED PURGED THE SPIGOT FOR 15 MINUTES. SAMPLE WAS TAKEN FROM SPIGOT UNDER THE HOUSE. SAMPLE WAS NOT TAKEN FROM HOSE. NOTE: RETURNED LABEL TO TAKE GPS COORDINATES.

1035 ARRIVED AT 937 SWAN POND RD.

N. 35° 53.969 W 84° 31.780

SEED PURGED LINE FOR 15 MIN AND TOOK SAMPLE AT SPIGOT. SEED ALSO TESTED pH, turbidity, conductivity and temperature. SEED ALSO INFORMED STAFF PAYS THAT THEIR LAB WANTED THEM TO FILTER THE SAMPLES WATER IN THE FIELD PRIOR TO SHIPPING IT TO THE LAB. PROTOCOL FROM BLUE BOOK - WATER QUALITY ANALYSIS.

1115 <sup>PP</sup>NOTE ARRIVED AT 1015 SWAN POND RD.

TIM SIMPSON (706-247-6607) OF SEED INFORMED STAFF PAYS THAT DUE TO THE SMALL AMOUNT OF WATER, THEY WOULD TAKE AN IMMEDIATE SAMPLE TO MEASURE pH, turbidity, conductivity and temperature. SEED THEN TOOK SAMPLES FOR ANALYSIS.

1130 NEWS 6 ARRIVED ON-SITE. AFTER RECEIVING

Pat [Signature]

12/30/08

TUESDAY

- permission from the homeowners to be on the property, they interviewed SEED Simpson and took some action footage.
- 1200 START Pays and OSC Carbonaceous on-site.
- 1330 START Pays <sup>PP</sup> returned to <sup>PP</sup> 993 Swan Pond Rd to take GPS coordinates. met with Phyllis Ellis. She informed START that SEED sampled the municipal water line and not the well water. They were hooked up to the municipal line the previous night. She also <sup>PP</sup> informed START that the contractor damaged the electrical connections to the well pump while installing the line. START informed her that he would check with SEED about sampling the well later.
- 1405 Arrived at Kingston WTP.  
 N 35° 51.413' W 84° 21.676'  
 Ed Roberts - Plant Manager  
 SEED sampled the raw water and the treated water. Did not have to pump lines, because WTP keeps them running at all times. Sample analysis was to the same as the well monitoring. <sup>PP</sup>  
 Call <sup>PP</sup>

(C) 865-887-3572  
 (W) 865-374-5722  
 STEVE ELLIS

12/30/08

TUESDAY

- 1550 Arrived at Cumberland WTP.  
 N 35° 53.230' W 84° 28.077'  
 Sam Cross - Plant Manager  
 (865) 882-0395 SEED collected samples and followed <sup>PP</sup> same protocol as Kingston WTP.
- 1655 Arrived at Rockwood WTP.  
 N 35° 50.149' W 84° 41.539'  
 Jimmy Carless - Plant Operator.  
 Followed <sup>PP</sup> same protocol as other WTPs.
- 1930 Arrived on-site and went to command post. Down loaded photos from the day. Worked with START members and EPA OSCs on daily activities and coordination.
- 2000 START off-site.

Call <sup>PP</sup>  
 30 266 08



12/31/09

Wednesday

Weather: Sunny High of 47°F

Seqs: TVA Kingston ER

0645 START PRGS on site.

0700 ATTENDED Ops Mtg

Safety - no incidents; operators concerned w/ dust in cabs; have amphibious ATVs to get to swampy ash areas.

Outreach - mtg w/ 14 homeowners last night to address questions + concerns.

Media - TV coverage to time area (11:30-12:30).

Press conference after.

Env - 0900 mtg to discuss dredge cell plan.

Env - TDEC + TVA working on well monitoring and ambient plans; radiological <sup>at</sup> background levels; air monitoring from Sunday - levels okay; working w/ state on well water sample; finalize coordination w/ TDEC on drinking water sample; trying to finalize air monitoring at 7 homes.

Plant Ops - 0500 intake turbidity 31.5

Recovery - cleared Swan Pond Rd; working on rail and start removing rail; 6 additional clean-up barges on-site. Swamp buggy to dig trench to relieve water along north Swan Pond Rd;  
Paul E. [Signature]

W6 [Signature] 45  
Wednesday

12/31/09

Recovery - Trying to get more amphibious backhoes; contractors cleaning limited due to winds;

Ops mtg start JAN 1 09 now to 1600. JAP now on website.

0830 START PRGS had an update mtg w/ OSC Sims.

1000 START PRGS + WATTS AND OSC Hughes off-site to look at air monitoring points near residential areas. Noted potential sampling areas on Lakeshore Dr and Swan Pond Circle Rd for ash, soil and water.

1215 START noticed water on properties at 1307 + 1309 Swan Pond Rd has severely backed up. OSC Hughes AND START spoke w/ Sandy Guyton at 1307 Swan Pond Rd. (N 35° 55.795' W 24° 20.722') mas. Guyton has water from the creek backed up into a large section of wooded and pasture land. Fly ash blocked the waterway that the creek drained into; thus, causing the backing up. TVA built up the road on the property so they could get in.  
Paul E. [Signature]

12/21/08

WEDNESDAY

TVA took surface water samples on Monday and she is waiting for the results. OSC Hughes said she would follow up with TVA. Animals on both properties could be affected, but are presently stationed away from the water.

1515 START PAYS off-site to take photos of water at 1207 Swan Pond Rd. Other properties affected are 1309 Swan Pond Rd (N 25° 55.847' W 84° 30.722'), 1435 Swan Pond Rd (N 25° 55.571' W 84° 31.838') and property at N 25° 55.512' W 84° 31.958'.

1420 START PAYS back on-site. Assisted OSC Dorian with info for POLREP. Spoke w/ OSC Watts concerning maps for sampling locations.

1730 START JONES off-site to leave for Atlanta.

1830 OSC Dorian requested an Excel spreadsheet to show what types of samples had been taken and where and when.

1930 START PAYS spoke w/ START WATTS & FUND concerning air monitoring  
Cal ERS

12/31/08

WEDNESDAY

Locations on and off-site. Data RAM measuring PM 2.5. Sampling will be conducted at each location for 5-10 minutes on a rotational basis.

2000 START FUND AND WATTS off-site.

2130 START PAYS off-site at 2130.

Photo #	Time	Location	R	P
1 (1137)	1530	Property at N 25° 55.513'	S	
2 (1137)	1531	W 84° 31.058'	E	
3 (1139)	1532	1435 Swan Pond Rd	E	
4 (1140)	1532	↓	ESE	
5 (1141)	1534	1309 Swan Pond Rd	ESE	
6 (1142)	1536	↓	NE	
7 (1143)	1536	1207 Swan Pond Rd	ESE	
8 (1144)	1537		SE	
9 (1145)	1537		SSE	
10 (1146)	1538		SW	
11 (1147)	1538		WNW	
12 (1148)	1538		NW	
13 (1149)	1539		N	
14 (1150)	1539		NNE	

Cal ERS  
31 DELOB



N. 35° 51.69' > Boat ramp on W.  
W. 84° 33.01' river (ahead of flow)

678-983-6655

RCRA metals

Oak Ridge 1289 Oak ridge turn-pike 37830  
7:30 p.m.  
(10601 Merdoch Dr)  
9:00 p.m.

Make sure RL @ MCL

Total Metal  
TSS / Dissolved

Dissolved metals - Filter and preserve  
Total metals - Needs preservation

675 road > south  
690 RR

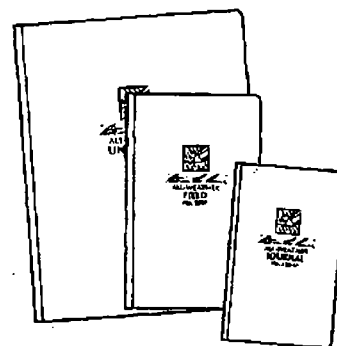
Wet 2 - ASD up to 764  
85-ft on W. bank

675 road > N  
628 RD

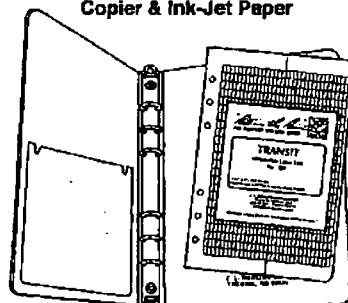
"Rite in the Rain"  
ALL-WEATHER WRITING PAPER



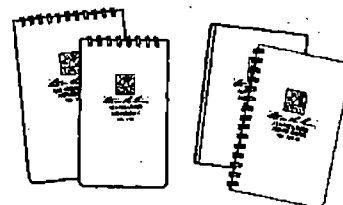
Copier & Ink-Jet Paper



Bound Books



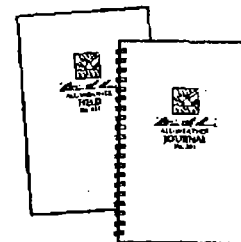
Loose Leaf / Ring Binder



Memo Books



All-Weather Pens



Notebooks

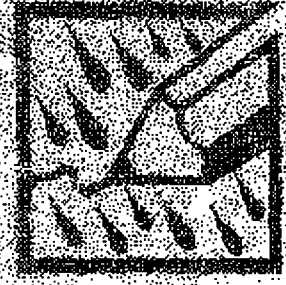
[www.RiteintheRain.com](http://www.RiteintheRain.com)

CM



TDD 05-001-0084

VIA Kingston



*"Life in the Rain"*®

ALL-WEATHER

**JOURNAL**

No. 391

**Book 2**



INCH

"*Rite in the Rain*"<sup>®</sup>

ALL-WEATHER WRITING PAPER



Name

*Kirt Watts*

Address

Phone

*(502) 303-2809*

Project

*TVA Ash Spill*

CONTENTS

PAGE

REFERENCE

DATE

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook.  
Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

2

12/27/2008 Watts

0500 Start mobilizes

0800 Start on site

1134 at Break site.

1136 photo work Being Done on Dam Break. Removal of sludge.

Time location status orientation

1137 TVA Dam. excavation From South.

1137 TVA Dam excavation From west.

1138 TVA Dam excavation From SW  
AT From tracks.

1146 TVA Dam excavation From SW at Break.

1146 TVA Dam excavation From SE at Break.

1148 TVA Dam excavation From S at Break.

1150 TVA Dam <sup>crack</sup> Excavation From NE at Break.

1152 TVA Dam crack From SW at Break.

1200 TVA Dam water by truck From SE at Track.

1200 TVA Dam water by truck From SW at Track.

1205 all Bull Dozers make their way  
out of Fall out zone. Contractors  
Break for lunch.

1215 load of gravel Dumped into ponds  
water east of Tracks

1215 photo gravel TVA Dam From NW at Tracks

127 photo drain pipes in waste. at  
Dam Break. From west.

12/27/2008

3

12/27/2008 Watts.

1229 photo drain pipe close up.  
at dam Break. From west.

~~1230~~ <sup>KW</sup> photo Area of inside dam

1234 <sup>KW</sup> From at Break From West.

1235 photo Area inside dam at Break From S

1235 photo Excavation at Break From SE

1235 close up on excavation at Break From S

1236 photo of northern part of dam & Break From S

1239 Remains of dam wall that Broke From SE

1242 Water Being Pumped out of Ditch by  
Trucks into Field across Road by TVA  
Kingston sign. From North East.

1245 Contractors Return to work.

1342 personal Data Ram set to  
log once every 60 seconds.

1343 set PDR to Run mode.

1732 contractors set up big pump  
and hose to pump water From  
excavation area that is not connected  
to ponded area by road which is all  
Ready being pumped.

1735 contractors turn on light generators  
to work in dark as sun is setting.

1754 photo at Break Dam night construction From

1809 personal Data Ram went of I think back  
Butterflies. *Rutgers*

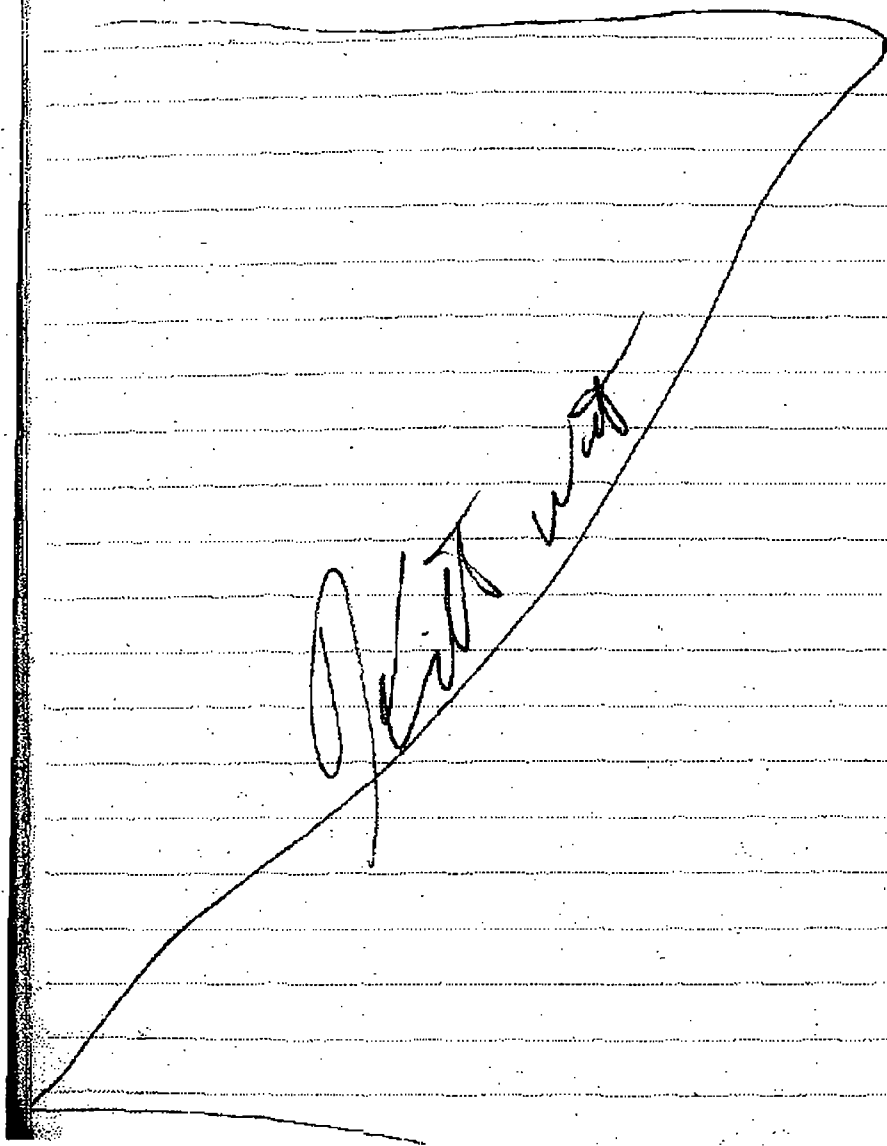


12/27/08

Watts

1834 large excavators moved out of excavation along with dozers  
Break for Refueling equipment.

1845 Shift Change  
2000 off site.



12/28/08

Watts

0730 Start on site.

0745 meeting with eqn

0830 Download PDR Data to  
Laptop for partial Tracking

0840 Check in at Entrance to excavat  
contractors are steadily making  
progress on getting a Road to  
the lake next to tracks.

1000 Construction of Riprap dam is  
about 3/8 completed.

1039 Talked w/ truck operator  
said sludge on lake is of sandy  
consistence is pumping slow  
in 3 hours only 1/4 tank full.  
having problems with DePre  
clogging hoses.

1100 start up PDR and set up.

1142 TWA - 0.000 mg/m<sup>3</sup> conc - 0.000 mg/m<sup>3</sup>  
Temp roughly 55°F cloudy.

1235 TWA - 0.000 mg/m<sup>3</sup> conc - 0.000 mg/m<sup>3</sup>  
Temp roughly 55°F sunny.  
sitting by Rail Road tracks on and  
TWC sign where excavation is going.

1340 TWA - 0.000 mg/m<sup>3</sup> conc - 0.000 mg/m<sup>3</sup>  
Temp roughly 54°F sunny  
first wind

5  
Photo log 12/28/08

Watts

- Time location orientation Status.
- 0934 E side Dam From E pre excavation.
- 0934 E Side Dam From ~~BE~~ Pre excavation
- 0940 NE side Dam From N pre excavation
- 0940 NE side Dam From NE pre excavation
- 0945 NE corner Dam From S lake/sludge.
- 0945 NE corner Dam From SW lake/sludge.
- 0945 NE corner Dam From SE lake/sludge.
- 0956 E side sediment pond From NW Rip Rap dam
- 1000 E side sediment pond From W Rip Rap dam.
- 1005 S E corner sediment pond From NW Boom Dam
- 1020 W side River N of plant From W Booms
- 1038 W side lake N of plant From W vacuum
- 1042 W side lake N of plant From W sludge
- 1045 N side of plant From N sludge being pumped
- 1046 N side of plant From W sludge below pump
- 1344 S side of Dam From N Sludge Dump
- 1413 SE corner of sediment pond from W Rip Rap Dam

*[Signature]*

12/28/08

Watts

- 1412 Second dredge or crane on  
Barge has arrived at dam  
for construction.
- 1500 vac truck operator tell spec.  
that they plan to go empty  
the trucks at 1600 and leave  
for the day at dark.
- 1535 Two 0.000 mg/m<sup>3</sup> CONC-0.000 mg/m<sup>3</sup>
- 1630 Two 0.000 mg/m<sup>3</sup> CONC-0.000 mg/m<sup>3</sup>  
Temp about 45°F cloudy
- 1658 - one crane operational buildings  
Half Dam second crane seems  
to be set up to build second  
half of dam.
- 1716 All But 2 of the vac trucks  
have left for the day.
- 1730 contractors are laying vinyl  
on base ball field for office  
building to sit.
- 1745 Two 0.000 mg/m<sup>3</sup> CONC-0.000 mg/m<sup>3</sup>  
Temp about 45°F cloudy
- 1900 contractors shut down for shift  
change. Shut down PPK
- 1930 off site.

*[Signature]*

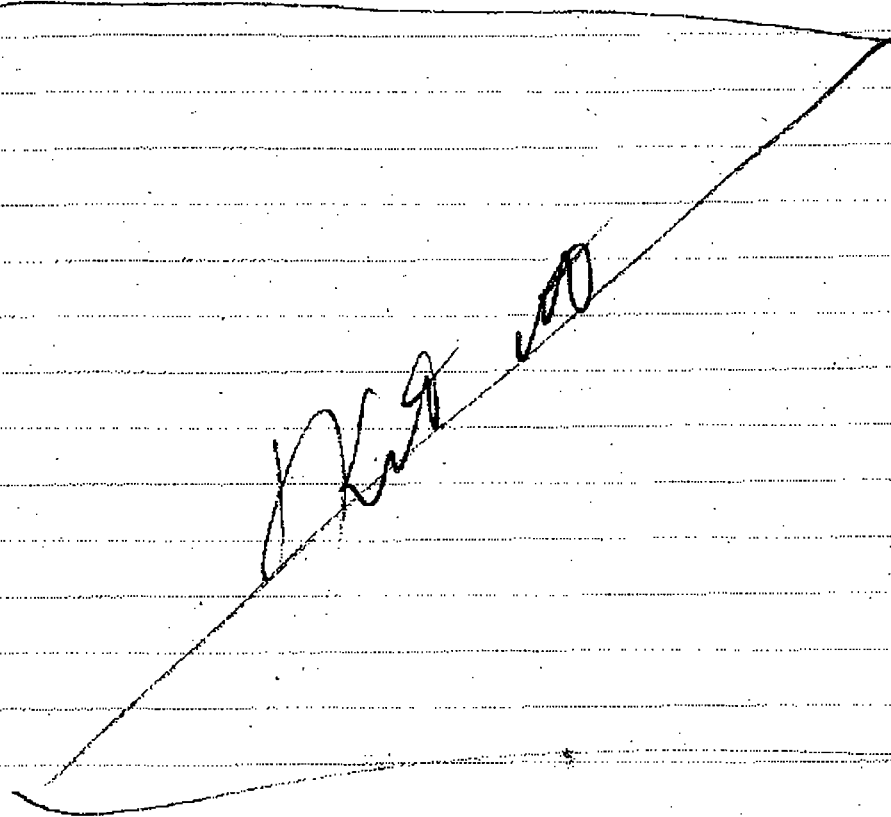


- 12/29/08 warts
- 0730 Start heads to Knoxville  
to pick up triaxle units  
at Fedex.
- 0800 ~~Start~~ arrive Fedex
- 0810 Depart Fedex for site.
- 0845 Arrive Fedex Job site, PDR-0.000mg/m<sup>3</sup>
- 0915 Ammonia spill hazard training
- 1100 Set PDR on (End TWA) Sign  
Temp 35°F Sunny clear skies  
TWA-0.001 mg/m<sup>3</sup> Conc-0.000 mg/m<sup>3</sup>
- 1154 Dam is 1/2 completed.
- 1200 Three Vac trucks are operating  
today at main building to clean up  
lake. with coal sludge.
- 1230 TWA-0.005 mg/m<sup>3</sup> Conc-0.000 mg/m<sup>3</sup>
- 1345 Both Barges are operational  
one is building Dam and  
second is Removing Debris  
from lake.
- 1500 next to dam Bailey built, mixture  
Barges are being connected across  
inlet going to power plant.
- 1531 TWA-0.003 mg/m<sup>3</sup> Conc-0.001 mg/m<sup>3</sup>  
Temp-40°F clear sunny sky
- 1545 excavation begins around tracks  
at warts

12/29/08

Warts

- 1600 The Barge used to pickup  
debris is moved down from dam  
to pick up more debris.
- 1646 TWA-0.005 mg/m<sup>3</sup> Conc-0.000 mg/m<sup>3</sup>
- 1855 Turn off PDR
- 1900 Return office
- 2030 Report for Fedex to ship sample  
for lab analysis.
- 2100 Arrive Fedex.
- 2115 Depart Fedex
- 2200 Arrive Hotel



12/30/08

Watts

- 0800 start on site  
 0820 calibrate PDR -  $0.000 \text{ mg/m}^3$   
 0830 set up PDR on End TWC  
 Sign next to tracks in ~~excavation~~  
 excavation area. Temp  $29^\circ\text{F}$   
 Clear sky, sun coming up.  
 0845 train barges are operating  
 on Dam construction & Debris  
 Removal.  
 0900 TWA -  $0.007 \text{ mg/m}^3$  conc -  $0.000 \text{ mg/m}^3$   
 0922 Boom is no longer stopping  
 debris and sludge from washing  
 into inlet going to power plant.  
 0925 the crane building dam is  
 pulling rock out of lake that  
 had dropped in and is piling on  
 the remaining dam.  
 miniature barges are seems to be  
 a lock.  
 0930 lake crew trying to fix boom.  
 0940 Two Vac trucks on sight today  
 1000 connection to boom problem and  
 miniature barges booms were moved  
 so barges could build wall across  
 inlet.

~~to the west~~

12/30/08

Watts

- 1015 more barges are sorted  
 leading to site with what looks  
 like Ke. Rock on board.  
 1340 Data Rec set at TWC  
 location. GPS taken  
 1345 PDR conc -  $0.030 \text{ mg/m}^3$   
 DR conc - ~~0.0~~  $8.0 \text{ ug/m}^3$   
 PDR TWA -  $0.001 \text{ mg/m}^3$   
 DR TWA -  $3.2 \text{ ug/m}^3$   
 location is down wind of Truck  
 entrance to west side of Coal land  
 Fill next to Train tracks.  
 1500 PDA conc -  $0.000 \text{ mg/m}^3$   
 DA conc - ~~0.00~~  $3.7 \text{ ug/m}^3$   
 1501 change locations.  
 1518 DA placed next to metal pole  
 across Road From Drain Field.  
 which is Down Wind.  
 1524 DA conc -  $2.7 \text{ ug/m}^3$   
 TWA -  $3.5 \text{ ug/m}^3$   
 1600 After speaking with Di Di Fung  
 FWC will now be known as P1  
 current location is P2  
 1616 contractor from mettech told me  
 Ash being dumped up top is from  
 Drain Field - which will

- 12/30/08 Watts.  
 1703 DR Conc - 2.0 ug/m<sup>3</sup>  
 1704 Change location from  
 P2 to P3  
 1711 set in location. P3  
 1719 <sup>kw</sup> DR conc - 1.8 ug/m<sup>3</sup>  
 P3 is in cell #2 along  
~~border~~ <sup>the</sup> central ridge line.  
 1755 <sup>kw</sup> DR conc - 6.7 ug/m<sup>3</sup>  
 1802 change locations  
 1808 set up in P4 which  
 is north of cell 2 part  
 of road that is still in place  
 but at end.  
 1812 DR conc - 9.3 ug/m<sup>3</sup>  
 1815 when the barges came  
 in earlier they brought another  
 coin giving the total to 3  
 1840 DR conc - 7.0 ug/m<sup>3</sup>  
 1900 picked up DR for night.  
 1913 PDR conc - 0.000 mg/m<sup>3</sup>  
 1916 shut off PDR.  
 2000 off site.

*[Handwritten signature]*

- 12/31/08 Watts.  
 0800 on site. photo Request.  
 good stuff.  
 0800 zero PDR + DR ~~at location P1~~ <sup>DR - 2500</sup>  
 0855 PDR + DR placed at  
 location P1  
 PDR conc - 0.001 mg/m<sup>3</sup>  
 DR conc - <sup>kw</sup> 13.6 ug/m<sup>3</sup>  
 Temp. 37°F cloudy wind blow SW  
 0940 PDR conc - 0.000 mg/m<sup>3</sup>  
 DR conc - 16 ug/m<sup>3</sup>  
 0942 change locations  
 0949 set in location P2  
 conc - 14.2 ug/m<sup>3</sup>  
 1239 set DR 2 down at P7  
 next to Swan pond united  
 Methodist church.  
 conc - 6.3 ug/m<sup>3</sup>  
 Tribble used to log sps.  
 1257 conc - 9.4 ug/m<sup>3</sup> DR1 P2  
 1258 change location  
 1301 set in location P3  
 1302 conc - 12.2 ug/m<sup>3</sup>  
 wind blowing SE  
 Dust cloud from cell #1 seen  
 Traveling estimated 500 yds.  
*[Handwritten signature]*



12/31/08 Watts  
 1351 DR conc ~~6.5 ug/m<sup>3</sup>~~  
 conc - 13.5 ug/m<sup>3</sup> (P3)

1552 change locations

1401 DR1 placed at P4

1402 conc - 4.6 ug/m<sup>3</sup>

1529 conc - 5.1 ug/m<sup>3</sup>

1548 change location

1546 placed at position P5

1548 conc - 3.1 ug/m<sup>3</sup>

located on wooden steps  
 furthest from plant.

Down wind of trucks

1550 GPS taken

Lot of dust from time to  
 time as cars go by.

1600 plan change by D.ifers  
 set up at each location for  
 five minutes each sample.

1609 conc - 7.4 ug/m<sup>3</sup> (P5)

1606 change locations

1640 Arrive methodus church location  
 P6 shut down DR2. set  
 up DR1 due to unknown

conc - 8.3 ug/m<sup>3</sup>

1642 conc - 11.6 ug/m<sup>3</sup>

PLANT

12/31/08 Watts  
 1856 set DR1 at location  
 (P8)

1657 conc 4.3 ug/m<sup>3</sup>

1658 conc 4.8 ug/m<sup>3</sup>

1659 conc 7.5 ug/m<sup>3</sup>

1802 changed location to P8.  
 30 yards north of P8

conc 4.5 ug/m<sup>3</sup>

1706 conc 3.4 ug/m<sup>3</sup>

1715 change location to P7

conc - 4.7 ug/m<sup>3</sup>

1717 conc - 4.8 ug/m<sup>3</sup>

1718 conc - 4.0 ug/m<sup>3</sup>

1900 conc - 0.000 mg/m<sup>3</sup> PDR

Shut down for night  
 email contact? Raases  
 to Paul.

Data Rem 4000 - 5/m = 17710

Data Rem 1600 - 5/m = 2624

Personal Data Rem 5/m = 4041

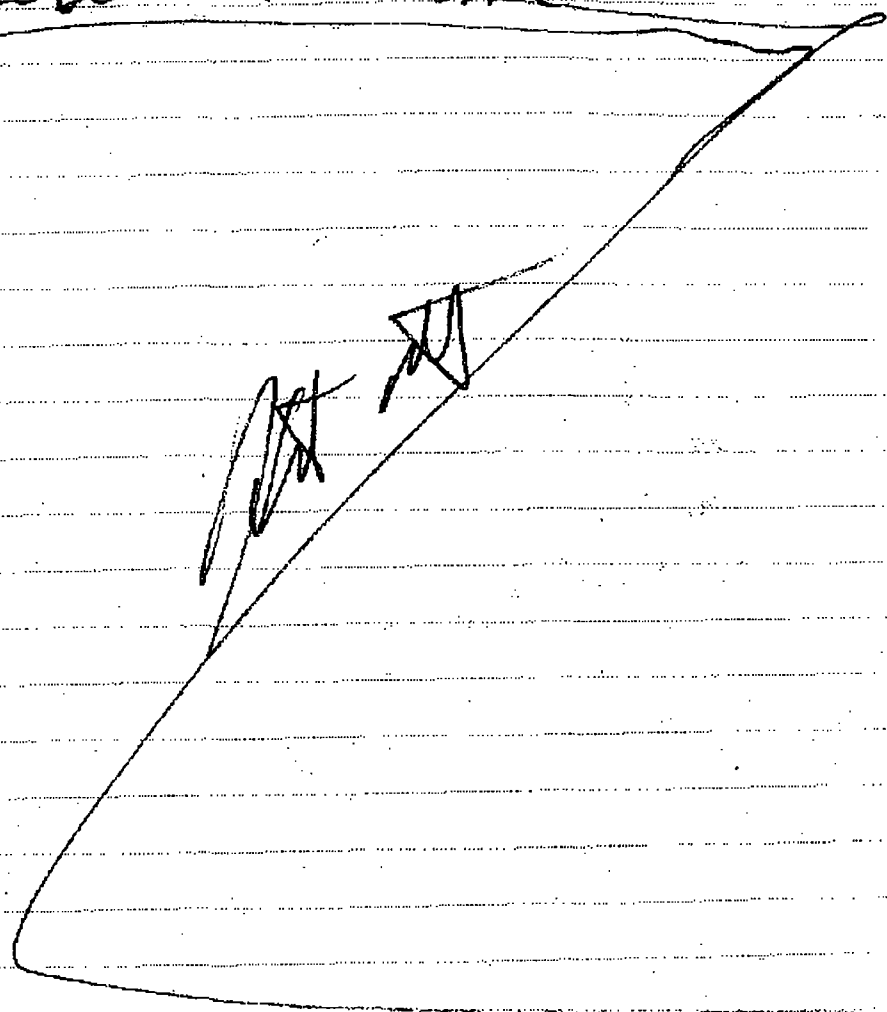
2000 off site.

Watts

1/1/2009 Watts  
 1000 start on site  
 1055 get Data Room 2 + Data Room 4 at P1 as to didifung's instructions DR4 will be fixed at this location for the day an DR1 will move with me only staying at each location for 5-10 minutes at a time. ~~DR1 - conc 0.79 ug/m<sup>3</sup> DR4 - 604.5 ug/m<sup>3</sup>~~  
 1058 DR1 - conc - 0.79 ug/m<sup>3</sup>  
 DR4 - conc 604.5 ug/m<sup>3</sup>  
 1105 change DR1's location  
 1120 Set up in location P2  
 1122 DR1 - conc 8.2 ug/m<sup>3</sup>  
 1132 DR1 set up in location P3  
 1134 DR1 ~~conc~~ conc 18.2 ug/m<sup>3</sup>  
 wind blowing west.  
 1150 DR1 set up at P4  
 1155 DR1 - conc - 7.3 ug/m<sup>3</sup>  
 1210 Set up DR1 at P5  
 1212 DR1 conc - 19.2 ug/m<sup>3</sup>  
 1224 set up DR1 at P9 which is at swim pond Baptist church At SE corner Buildings in parking lot.  
 1226 DR1 conc - 7.4 ug/m<sup>3</sup>  
 2 2

1/1/09 Watts  
 1240 set DR1 at location P3  
 1244 DR1 conc - 8.8 ug/m<sup>3</sup>  
 1259 Set up DR1 at P8  
 1306 DR1 conc 7.2 ug/m<sup>3</sup>  
 1336 Set up DR1 at location P7  
 1340 DR1 conc - 10.0 ug/m<sup>3</sup>  
 1502 Set up at P1  
~~1505~~ 1505 DR4 conc 40 ug/m<sup>3</sup>  
 DR1 conc 5.6 ug/m<sup>3</sup>  
~~1525~~ 1525 set DR1 up at P2  
 1531 DR1 conc - 23.8 ug/m<sup>3</sup>  
 1535 DR1 set up in location P3  
 1539 DR1 conc - 9.2 ug/m<sup>3</sup>  
 1547 DR1 set up at P4  
 1551 DR1 conc 6.5 ug/m<sup>3</sup>  
 1560 DR1 set up at P5  
 1564 DR1 conc 6.4 ug/m<sup>3</sup>  
 1608 Set up location P9  
 1611 conc - 8.1 ug/m<sup>3</sup>  
 1624 Set up at P7  
 1627 conc 10.3 ug/m<sup>3</sup>  
 1638 set up at location P8  
 1641 conc - 16.9 ug/m<sup>3</sup>  
 1655 set up at P7  
 1701 conc - 9.7 ug/m<sup>3</sup>  
 2 2

11/09  
 1720 company cleaning core is  
 Hepaco  
 1845 shut down DR4 and Bios  
 Equipment in for data dump  
 1930 give <sup>90% of</sup> ~~Ratler~~ all the data from  
 the day  
 2000 off site



01/02/09 Watts  
 6800 start on site.  
 Paul prys asked me to sign  
 hasp (Health and safety plan) ~~and~~  
~~Wu ~~hasp~~ ~~and~~ ~~safety~~ ~~plan~~ ~~and~~ ~~signature~~ ~~when~~~~  
~~signature was the first time I had~~  
~~signature~~ Back ground PR1-400g/m<sup>3</sup> DR4g  
 0829 set up Data Rama 1 & 4 at  
 P1 weather is on and off spec  
 6834 DR-1000 conc - 12.4 ug/m<sup>3</sup>  
 RR-4000 conc - 8.4 ug/m<sup>3</sup>  
 0855 DR1 set up at P2  
 0900 conc - 18.0 ug/m<sup>3</sup>  
 6905 set up at P3  
 0909 conc - 10.8 ug/m<sup>3</sup>  
 0925 set up at P4  
 0930 conc - 13.1 ug/m<sup>3</sup>  
 0944 set up at P5  
 0948 17.7 ug/m<sup>3</sup> ~~Wu Wu~~  
 0958 set up at ~~P6~~ ~~P7~~ P9  
 1007 conc 15.6 ug/m<sup>3</sup>  
 1015 set up at location P8  
 1020 conc 15.2 ug/m<sup>3</sup>  
 1040 set up at location P8  
 1045 conc 11.7 ug/m<sup>3</sup>  
 1055 set up at location P7  
~~Wu Wu~~



01/2/68 Watts  
 1057 P7 conc - 16.5  $\mu\text{g}/\text{m}^3$   
 1149 res asks for -  
 Date on site Range Values  
 total # of points & off  
 Site.

1223 set up at P1  
 1226 conc - P81 - 16.5  $\mu\text{g}/\text{m}^3$   
 conc DR4 - 16.4  $\mu\text{g}/\text{m}^3$   
 1240 set up in location P2  
 1243 conc - 17.6  $\mu\text{g}/\text{m}^3$   
 1247 set up in location P3  
 1249 conc 16.0  $\mu\text{g}/\text{m}^3$   
 1355 set up at location P8  
 1400 conc - 14.6  $\mu\text{g}/\text{m}^3$   
 1420 set up at location P7  
 1442 conc - 19.5  $\mu\text{g}/\text{m}^3$   
 1455 Setup at P6  
 1500 conc - 15.3  $\mu\text{g}/\text{m}^3$   
 1530 setup at P9  
 1542 conc - 14.8  $\mu\text{g}/\text{m}^3$   
 1557 place at P4  
 1601 conc - 17.6  $\mu\text{g}/\text{m}^3$   
 1611 set up at P5  
 1615 conc - 24.4  $\mu\text{g}/\text{m}^3$   
 1627 set up at P2  
~~1627~~

01/2/69 Watts  
 1831 conc - P81 - 26.7  $\mu\text{g}/\text{m}^3$   
 conc - DR4 - 25.3  $\mu\text{g}/\text{m}^3$   
 1640 set up at P2  
 1644 conc - 21.00  $\mu\text{g}/\text{m}^3$   
 1648 setup at P3  
 1652 conc - 24.6  $\mu\text{g}/\text{m}^3$   
 1704 setup at P4  
 1708 conc - 23.2  $\mu\text{g}/\text{m}^3$   
 1717 set up at P5  
 1721 conc - 24.8  $\mu\text{g}/\text{m}^3$   
 1729 set up at P9  
 1733 conc - 19.1  $\mu\text{g}/\text{m}^3$   
 1740 P84 - conc - 21.9  $\mu\text{g}/\text{m}^3$   
 1742 shut down for night  
 1800 Return to office to dump  
 Data.  
 1845 finish date dump.  
 2030 off site

*Watts*

01/03/09

Watts

0700 on site.

DR4 - conc - 2 us/m<sup>3</sup>0830 zero Data Kernis DR1 - conc - 3 us/m<sup>3</sup>0851 set up DR1 + DR4 in location  
PT were majority of work is done

on. Rail tracks have been  
removed and Rock cleared  
away to lay now down for new  
tracks. Road was cleared all the  
way through to connect the  
Roads yesterday. Dirt is being  
dumped in cell #3 now as other  
areas have been filled up.

0900 weather Foggy, misty 43°F

conc - DR1 - 85.7 us/m<sup>3</sup>conc - DR4 - 66.7 us/m<sup>3</sup>

(Eggs etc) 678 - 640 - 1155 Adam

cycle. 678 - 640 - 1069 Keith.

0930 shut down DR1 + DR4 Due  
to inter ference from mist + rain.

1506 Helicopter seeding salk.

contact for more information

Jm dot son @ TVA gov

Jame dot son

2000 off site.

01/04/09

Watts

0800 on site.

0855 Trouble with PM so

going to let Run in trailer  
for a while to see if

there is still moisture inside

0952 Ash is being dumped on east  
side of ~~the~~ cell 3 where ramp  
broke. Two truck loads of  
Tracks have come in.

1005 Sealant is being spayed on  
Remainder of cell 1 + 2.

1254 got numbers low enough on  
Data DAMS to use.

DR1 - Back ground 37.6 us/m<sup>3</sup>DR4 - Back ground 26.5 us/m<sup>3</sup>

1310 set up at location P1

DR1 - conc - 47.4 us/m<sup>3</sup>DR4 - conc - 39.4 us/m<sup>3</sup>

1330 setup DR1 at P2

1334 DR1 conc - 39.3

1338 setup at P3 DR1

1341 conc - ~~38~~ 38.2 us/m<sup>3</sup>

1347 setup at P4 DR1

1351 conc - 39.6 us/m<sup>3</sup>

1408 set up DR1 at P5

~~1408~~  
DR1 work

11/04/08

watts

- 1412 conc - DR1 - 40.7  $\mu\text{g}/\text{m}^3$   
 1507 Setup DR1 at P6  
 1511 conc - 15.2  $\mu\text{g}/\text{m}^3$   
 1524 Setup DR1 at P8  
 1529 conc - 18.2  $\mu\text{g}/\text{m}^3$   
 1530 Helicopter is seeding the  
 cone which is covered by  
 Fly ash.  
 1537 Setup DR1 at P7  
 1545 conc - 20.9  $\mu\text{g}/\text{m}^3$   
 1630 DR1 + DR2 shut down  
 due to heavy Rain -  
 2030 off site

*Handwritten signature*

watts

## Photo Log

Date	time	location	orientation
12/31/08	1400	Dam 1	SE
1/1/09	1344	P7	NE
1/2/09	0922	settling pond	NW
1/2/09	1219	Tracks	N
1/2/09	1415	House near P7	W
1/3/09	1000	water intake	N
1/3/09	1424	excavation	E
1/4/09	0911	Tracks	NE
1/4/09	0914	Tracks	N
1/4/09	0914	Tracks	N
1/4/09	0914	Tracks	N
1/4/09	1048	cone Npond side	SW
1/4/09	1504	Helicopter	SE
1/4/09	1540	water pump	S
1/5/09	0950	Helicopter	S
1/5/09	0950	Helicopter	S
1/5/09	1059	Npond circle	SE
1/5/09	1106	cone Npond circle	E
1/5/09	1241	Tracks	N
1/5/09	1243	Tracks	NE
1/5/09	1245	Tracks	NW
1/5/09	1535	House near P7	W
1/6/09	1306	N Pond Circle Rd.	S

*Handwritten signature*



01/05/09 Wed 45

0700 on site

0810 zero DRI + DR4

0830 Background -  
 DRI 4.0  $\mu\text{g}/\text{m}^3$   
 DR4 - 4.2  $\mu\text{g}/\text{m}^3$

0911 set up DRI + DR4 at P1

0913 DRI conc - 7.3  $\mu\text{g}/\text{m}^3$   
 DR4 conc - 6.2  $\mu\text{g}/\text{m}^3$

0925 setup DRI at P2.  
 temp 45°F cloudy 75% chance  
 Rain wind Blowing East.

0929 Scientist arrives for cell #1

0930 conc 6.9  $\mu\text{g}/\text{m}^3$

0933 Set up at P3  
 soil & ash are being dumped  
 into cell #3

0939 conc - 8.4  $\mu\text{g}/\text{m}^3$

0949 set up at P4

0953 conc 10.3  $\mu\text{g}/\text{m}^3$   
 Helicopter sounds over lake.

1002 set up at P5

1007 conc - 14.1  $\mu\text{g}/\text{m}^3$   
 vac trucks are pumping out of conc.

1012 set up at P9

1016 conc - 13.3  $\mu\text{g}/\text{m}^3$   
 P2 to P3

01/05/09 Wed 45

1033 set up DRI at P6

1038 CONC - 12.3  $\mu\text{g}/\text{m}^3$

1100 Set up at P8

1104 conc - ~~14.5~~ 14.5  $\mu\text{g}/\text{m}^3$

1118 set up at P7

1122 conc - 16.9  $\mu\text{g}/\text{m}^3$

1203 TVA health and safety  
 Asks that particle monitor  
 get moved from P1  
 to a position near by  
 on top of sun belt 192 post  
 light generator

1204 set up at location

1208 conc - DRI - 15.9  $\mu\text{g}/\text{m}^3$   
 conc - DR4 - 16.2  $\mu\text{g}/\text{m}^3$

1230 track is being laid

1300 set up DRI at P2

1304 CONC - 15  $\mu\text{g}/\text{m}^3$

1309 set up at P3

1314 CONC - 16.2  $\mu\text{g}/\text{m}^3$

1322 set up at P4 - conc 14.0  $\mu\text{g}/\text{m}^3$

1340 set up at P5

1345 CONC - 13.8  $\mu\text{g}/\text{m}^3$

1400 sent data from morning to diller

1438 set up DRI at P9  
 report

1/05/09 watts

1442 conc = 13.0 ug/m<sup>3</sup>

1453 set up DR1 at p8

1457 conc - 17.7 ug/m<sup>3</sup>

1511 set up at p8

1526 conc - 25.7 ug/m<sup>3</sup>

1540 set up at p7

1544 conc - 22.4 ug/m<sup>3</sup>

~~15~~ 1615 Set up DR1 at p1

1620 conc - DR1 - 26.3 ug/m<sup>3</sup>  
 conc - DR4 - 19.8 ug/m<sup>3</sup>

1630 set DR1 up at p2

1635 conc - 26.3 ug/m<sup>3</sup>

1638 set up at p3

1642 conc - 23.3 ug/m<sup>3</sup>

1649 set up at p4

1653 conc - 26.4 ug/m<sup>3</sup>

1659 set up at p5

1703 conc - 25.1 ug/m<sup>3</sup>

NO activity at location.

1708 set up at p9

1702 conc - 20.7 ug/m<sup>3</sup>

1723 set up at p6

1728 conc - 25.0 ug/m<sup>3</sup>

1746 set up at p8

1744 conc - 25.9 ug/m<sup>3</sup>

RUNNING

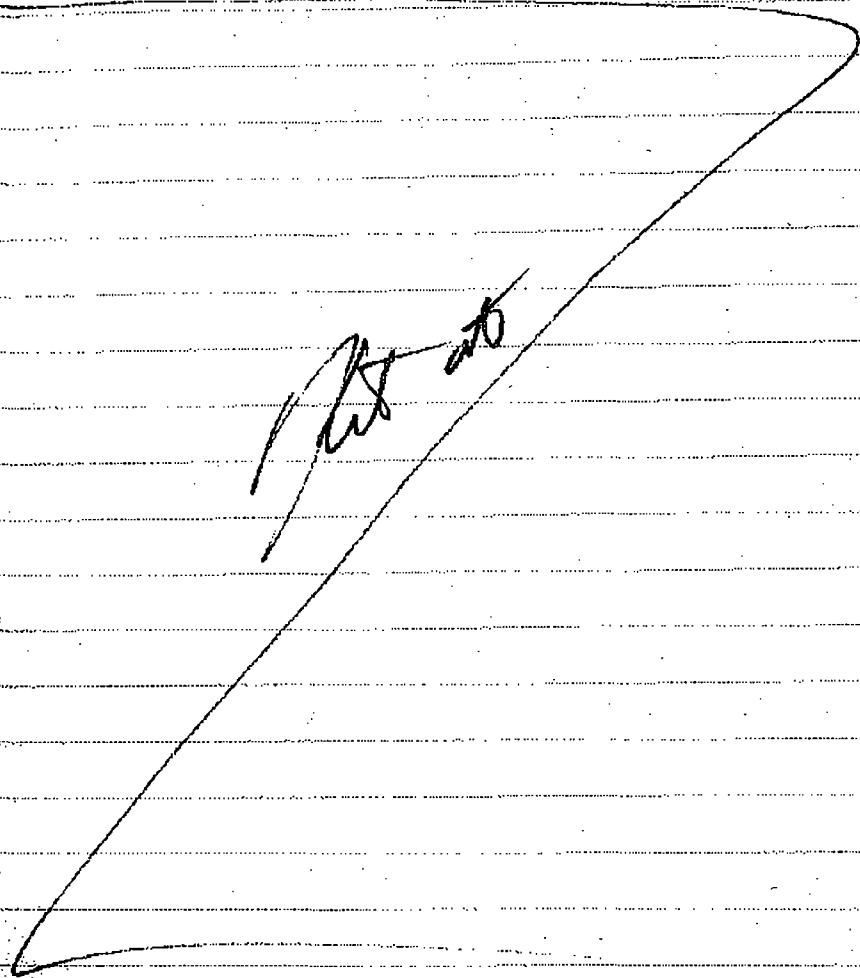
01/09/09 watts

1750 can't make it to point p7  
 Road is blocked by spilled  
 12 inch metal pipe.

1871 DR4 - conc - 36 ug/m<sup>3</sup>  
 light generator running.

1812 shut down DR4

0900 off site.



01/06/09

Watts

0800 on site

1000 zero units

Background

DR1 - conc - 9.1  $\mu\text{g}/\text{m}^3$ DR4 - conc - 5.0  $\mu\text{g}/\text{m}^3$ 

weather 45°F Foggy light Rain

1000 set up at P1 DR1 + DR4

1057 conc - DR1 - 19.4  $\mu\text{g}/\text{m}^3$ conc - DR4 - 10.7  $\mu\text{g}/\text{m}^3$ 

1113 set up DR1 at P2

1118 conc - 17.0  $\mu\text{g}/\text{m}^3$ 

1122 set up at P3

1128 conc - 19.1  $\mu\text{g}/\text{m}^3$ 

1142 set up at P4

1147 conc - 25.2  $\mu\text{g}/\text{m}^3$ 

1204 set up at P5

1208 conc - 26.1  $\mu\text{g}/\text{m}^3$ 

1217 setup at P4

1222 conc - 13.1  $\mu\text{g}/\text{m}^3$ 

1232 set up at P6

1238 conc - 16.2  $\mu\text{g}/\text{m}^3$ 

1239 set up at P2

1309 conc - 5.9  $\mu\text{g}/\text{m}^3$ 

1313 set up at P7

1317 conc - 6.9  $\mu\text{g}/\text{m}^3$ 

quit work

1/6/08

Watts

1447 set up at P1

light Rain

1452 conc - DR1 - 14.8  $\mu\text{g}/\text{m}^3$ conc - DR4 - 13.6  $\mu\text{g}/\text{m}^3$ 

1503 set up DR1 at P2

1507 conc - 8.1  $\mu\text{g}/\text{m}^3$ 

1512 set up at P3

1518 conc - 13.3  $\mu\text{g}/\text{m}^3$ 

1527 set up at P4

1532 conc - 10.1  $\mu\text{g}/\text{m}^3$ 

1539 set up at P5

1544 conc - 16.2  $\mu\text{g}/\text{m}^3$ rainings constant now. not  
heavy or light, just Avg.

1551 set up at P9

1556 conc - 18.6  $\mu\text{g}/\text{m}^3$ 

Heavy Rain

1615 DR4 conc - 8.7  $\mu\text{g}/\text{m}^3$ 

1616 shut down

1700 Data Durap.

1800 off site

Not at





1/7/09 Watts  
 1558 DR1 conc - 10.2 ug/m<sup>3</sup>  
 1517 set up at P7  
 1523 conc - 13.9 ug/m<sup>3</sup>  
 1600 set up at P1  
 1604 conc - DR1 - 13.4 ug/m<sup>3</sup>  
 conc - DR4 - 13.9 ug/m<sup>3</sup>  
 1812 set up DR1 at P2  
 light rain.  
 1816 conc - 14.4 ug/m<sup>3</sup>  
 1819 set up at P3  
 1823 conc - 19.1 ug/m<sup>3</sup>  
 1630 set up at P4  
 no longer raining  
 1634 conc - 16.3 ug/m<sup>3</sup>  
 work going on near by  
 1641 set up at P5  
 1645 conc - 16.1 ug/m<sup>3</sup>  
 1653 DR4 conc - 15.1 ug/m<sup>3</sup>  
 1800 off site

DR1  
 with

1/8/09 Watts  
 6862 on site  
 6830 call: Buck Data Room -  
 Buck grounds  
 conc - DR4 era - 4.4 ug/m<sup>3</sup>  
 DR4 TE - 9.3 ug/m<sup>3</sup>  
 6926 set up DR4 era + DR4 TE at P1  
 6930 conc - DR4 era - 5.7 ug/m<sup>3</sup>  
 - DR4 TE - 10.5 ug/m<sup>3</sup>  
 light rain  
 6940 set up DR4 TE at P2  
 6945 conc - 10.4 ug/m<sup>3</sup>  
 no work going on at P2  
 6950 set up at P3  
 6955 conc - 11.6 ug/m<sup>3</sup>  
 wind blowing steady East.  
 Helicopter seeding area  
 1006 set up at P4  
 1011 conc - 10.5 ug/m<sup>3</sup>  
 1018 set up at P5  
 1023 conc - 10.6 ug/m<sup>3</sup>  
 Two van trucks on site.  
 no rain, sunny.  
 1106 set up at P9  
 1111 conc - 6.9 ug/m<sup>3</sup>  
~~1121 set up at P1~~  
 1122 with

11/11/08 Watts  
1131 set up DR4Tt at p6  
1136 conc - 13.2 ug/m<sup>3</sup>  
Road side being worked on next  
to location. Heavy water pumps  
being used to move water from  
one side of road to other side.

1157 set up at p8  
1202 conc - 9.1 ug/m<sup>3</sup>  
1207 set up at p7  
excavation go on nearby  
1212 conc - 4.9 ug/m<sup>3</sup> <sup>per parcel</sup>  
wind is blowing perpendicular  
with excavation.

1500 Tony Knight of TVA informed  
me weir is in place 4 foot  
roughly under water and that  
its flat all the way across.  
and weir 2 is not a weir but a  
dam. Tony is over sight for  
weir construction.

1525 setup at p1  
DR4EPA + DR4Tt at location.

1533 conc  
DR4EPA - 2.8 ug/m<sup>3</sup>  
DR4Tt - 3.2 ug/m<sup>3</sup>  
K20 was

11/18/08 Watts  
1550 set up DR4Tt at p2  
1555 conc - 4.7 ug/m<sup>3</sup>  
1558 set up at p3  
1602 conc - 4.3 ug/m<sup>3</sup>  
1608 set up at p4  
excavation of the Road is  
going on where normal sit DR  
moved more 36 feet due East.  
1613 conc - 10.8 ug/m<sup>3</sup>  
1620 set up at p5  
1624 conc - 7.9 ug/m<sup>3</sup>  
1627 set up at p9  
1631 conc - 4.2 ug/m<sup>3</sup>  
1640 set at p6 off set 60' Due  
North Due to Rock being  
Laid.

1644 conc - 32.3 ug/m<sup>3</sup>  
1700 conc DR4EPA - 4.7 ug/m<sup>3</sup>  
no activity at p1

1703 shut down DR4EPA  
~~1800 off site~~

1745 cut by Paul  
1800 off site.

Watts



1/8/09 Watts  
 0800 on site  
 0830 zero Data Recs  
 0900 Back ground  
 DR4-Te - Conc - 28.1  $\mu\text{s}/\text{m}^3$   
 DR4-EPA - Conc - 23.2  $\mu\text{s}/\text{m}^3$   
 0924 set up DR4Te + DR4EPA at P1  
 0926 Conc - DR4Te - 28.0  $\mu\text{s}/\text{m}^3$   
 Conc - DR4EPA - 23.8  $\mu\text{s}/\text{m}^3$   
 0935 set up DR4Te at P2  
 No noticeable wind. Sunny  
 25°F  
 0940 Conc - 28.1  $\mu\text{s}/\text{m}^3$   
 0944 set up at P3  
 0949 Conc - 30.6  $\mu\text{s}/\text{m}^3$   
 work going on.  
 Dumping ash.  
 1001 set up DR4 at P4  
 1005 Conc - 20.5  $\mu\text{s}/\text{m}^3$   
 Excavation of wall is going on.  
 1016 set up at P5  
 3 vac Trucks operational  
 1020 Conc - 18.1  $\mu\text{s}/\text{m}^3$   
 1027 set up at P9  
 1032 Conc - 19.9  $\mu\text{s}/\text{m}^3$

*[Handwritten signature]*

1/9/09 Watts  
 1047 set up DR4Te at P6  
 1051 Conc - 27.3  $\mu\text{s}/\text{m}^3$   
 Rock being laid at sight.  
 1100 set up at P8  
 1104 Conc - 16.1  $\mu\text{s}/\text{m}^3$   
 1111 set up at P7  
 1115 Conc - 21.0  $\mu\text{s}/\text{m}^3$   
 excavation of dike up wind  
 of location.  
 1335 set up at P1  
 1340 Conc - DR4Te - 9.9  $\mu\text{s}/\text{m}^3$   
 - DR4EPA - 10.4  $\mu\text{s}/\text{m}^3$   
 1405 set up DR4Te at P4  
 Due to P2 + P3 not being  
 accessible at the time due to work  
 being done.  
 1410 Conc - 8.2  $\mu\text{s}/\text{m}^3$   
 1417 set up at P5  
 1421 Conc - 7.6  $\mu\text{s}/\text{m}^3$   
 1425 set up at P9  
 1430 Conc - 22.9  $\mu\text{s}/\text{m}^3$   
 1443 set up at P6  
 mass amounts of Rock being laid.  
 Truck load every five minutes.  
 1448 ~~Conc - 5.2  $\mu\text{s}/\text{m}^3$~~   
 RSD no

7/19/09 Watts

1458 set up at p8 DR4-Tc

1502 conc - 9.8  $\mu\text{g}/\text{m}^3$

1510 set up at p7

1544 conc 9.4  $\mu\text{g}/\text{m}^3$

1856 set up at p1

1601 conc - DR4 Tc - 7.2  $\mu\text{g}/\text{m}^3$   
 - DR4 EPA - 6.0  $\mu\text{g}/\text{m}^3$

no activity on site

1611 set up DR4 Tc at p4  
 p2 & p3 still closed to traffic

1620 conc - 6.7  $\mu\text{g}/\text{m}^3$   
 over heard conversation  
 that 12 truck loads on hour  
 12 hours a day for 5 years to  
 clean up completely, opposition  
 to conversation waste make soccer  
 fields out of it.

1632 setup at p5

1638 conc - 8.1  $\mu\text{g}/\text{m}^3$

1640 set up at p9

1644 conc - 7.9  $\mu\text{g}/\text{m}^3$

1648 set up at p1

1652 conc - 7.9  $\mu\text{g}/\text{m}^3$

1652 shutdown

1800 off site  
 768 wt

7/10/09 Watts

0800 on site.

0820 Zero DR4 Tc + DR4 EPA

0830 Back ground  
 conc - DR4 Tc - 24.4  $\mu\text{g}/\text{m}^3$   
 DR4 EPA - 22.1  $\mu\text{g}/\text{m}^3$

0900 conc DR4 Tc - 13.1  $\mu\text{g}/\text{m}^3$   
 DR4 EPA - 24.7  $\mu\text{g}/\text{m}^3$

0920 conc DR4 Tc - 19.2  $\mu\text{g}/\text{m}^3$  p2

0930 set up at p3

0935 conc - ~~36.2~~ <sup>40</sup> 38.2  $\mu\text{g}/\text{m}^3$

0952 Plconc DR4 EPA - 38.4  $\mu\text{g}/\text{m}^3$

1010 set up at p4

1017 conc DR4 Tc - 30.5  $\mu\text{g}/\text{m}^3$

1032 set up at p5

1037 conc - 44.5  $\mu\text{g}/\text{m}^3$   
 3 more trucks on site.  
 weather raining all day  
 86°F

1040 set up at p9

1045 conc - 50.2  $\mu\text{g}/\text{m}^3$

1054 set up at p6

1058 conc - 52.3

1107 set up at p8

1111 conc - 40.3  $\mu\text{g}/\text{m}^3$

1117 set up at p7  
 mt

1/10/07

2nd cut 45

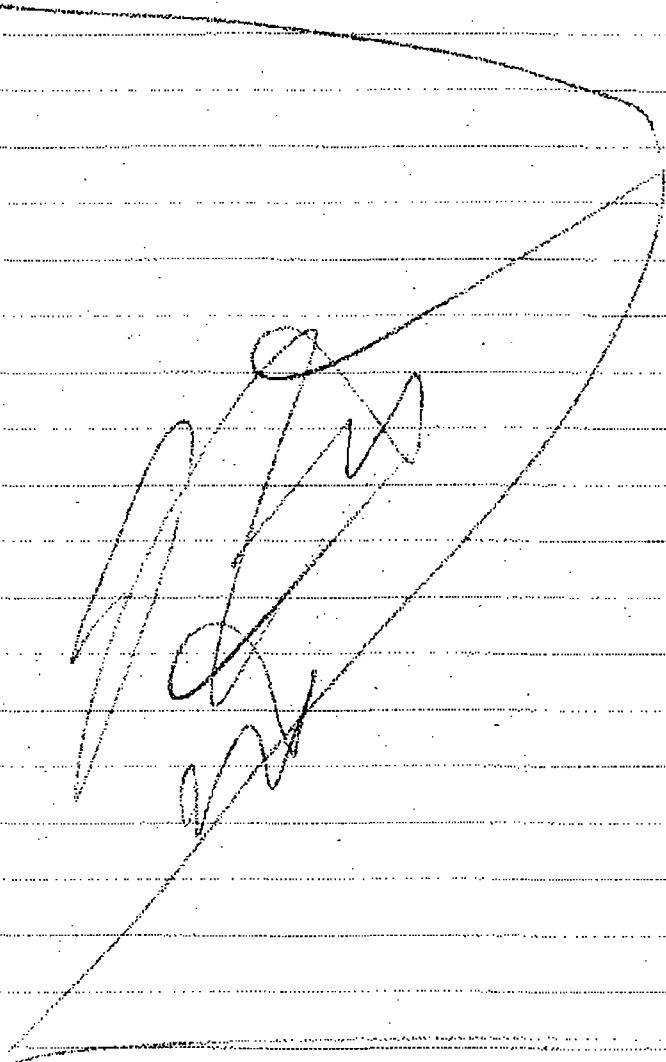
1127 CONC - DR 11 - P 7 - 54.9  $\text{ug}/\text{m}^3$ 

1146 Set up at pl

CONC - DR 45E - 44.2  $\text{ug}/\text{m}^3$ - DR 46PA - 33.7  $\text{ug}/\text{m}^3$ 

11 y 7 Short burst due to weather

1400 off 872c





TVA Kingston ER  
TDD 05-001-0084

Book 3



*"Rite in the Rain"*<sup>®</sup>  
ALL-WEATHER  
**JOURNAL**  
No. 391



12/29/08

Monday

0730 START Jones, Prys, and Watts onsite  
 • A cast estimate and <sup>Ⓢ</sup> is put together  
 for review.

0945 START Jones departs TVA Kingston  
 facility to meet w/ Joe Burke's  
 sampling team to collect water  
 samples in Emory, Clinch, and  
 Tenn. Rivers.

0950 START Jones arrives @ Kingston  
 City Park and awaits sampling  
 crew.

~~1450~~ 1450 <sup>Ⓢ</sup> River sampling complete,  
 Go to Kingston Water Plant to  
 collect samples.

1530 Depart for Rockwood water treatment  
 facility.

1620 Arrive @ Rockwood water treatment  
 facility.

1658 Depart Rockwood water treatment  
 facility to pack samples for shipment.

1730 Arrive @ TVA Kingston facility, START  
 Jones is tasked to provide a table  
 summarizing the analytical results  
 for samples collected on 12/23/08.

*[Signature]*

12/29/08

Monday

Sample ID	Time	GPS
KIF-TRMSLB.5	1116	N-35°51'18570 W-84°31'49833
KIF CRM 0.0	1140	N 35.82374144 W 84.83725938
KIF CRM 2.0	1207	N 35.8856244 W 84.82879344
<del>Ⓢ</del> TT-CRM 2.5	1230	N 35.89914681 W 84.52486084
KIF CRM 4.0	1245	N 35.88913239 W 84.49927580
KIF CRM 5.5	1300	N 35.89170918 W 84.48195203
KIF ERM 0.1	1315	N-35.88959467 W-84.48897975
KIF ERM 1.25	1330	N-35.9038849 W-84.49747058
<del>Ⓢ</del> <sup>Ⓢ</sup>		
KIF ERM 4.0 (MS/MSD)	1350	N-35.97791388 W-84.49747058
KIF-ERM 2.0 (Dup)	1415	N-35.90747660 W-84.50337267
KWTPI-WS01	1515	
KBTDW-WS02	1520	
RWWTI-WS04	1630	
RWDW-WS03	1635	

*[Signature]*

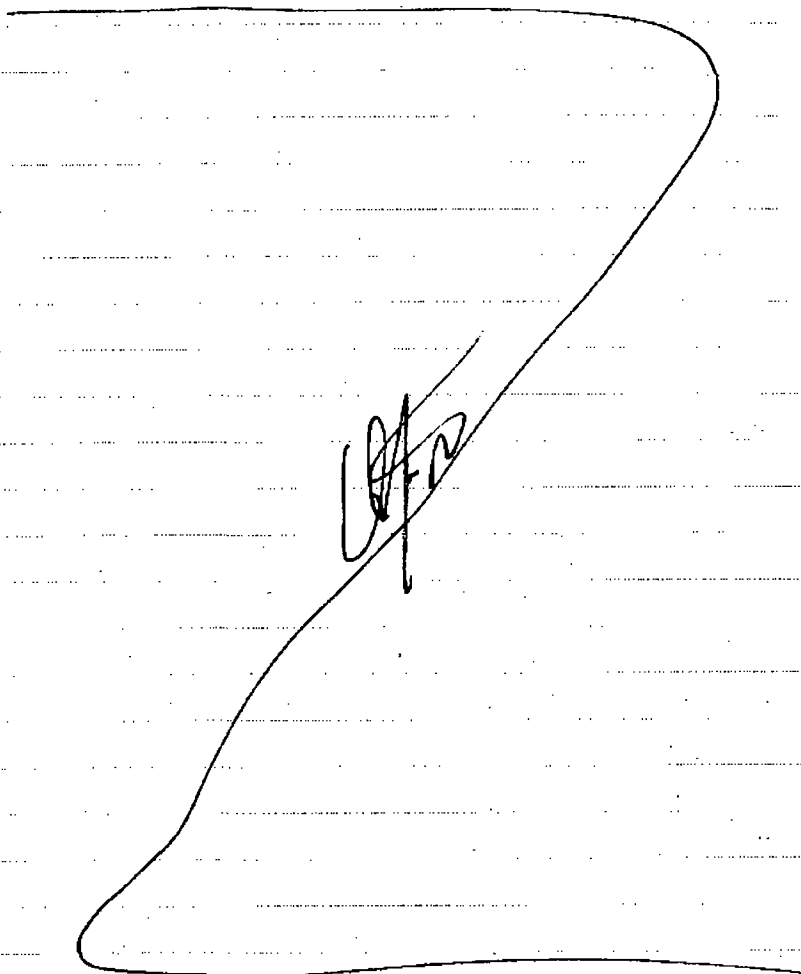


4  
12/29/08

Monday

- START Watts takes samples to  
FedEx for shipment.

2200 START Jones off site for the  
day.



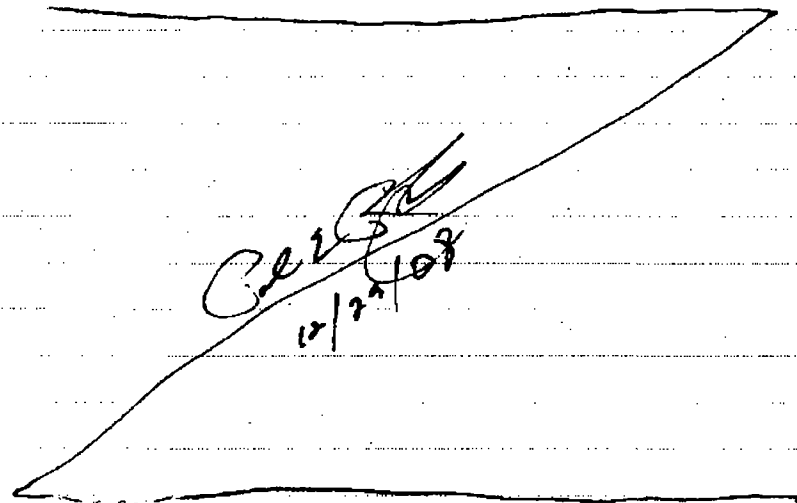
WFC

12/29/08

5  
Monday

Sample ID	Depth	Temp	Cond	DO	pH
KIF-TRM0.5	15	9.2	173	10	7.0
KIF-CRM0.0	15	9.3	179	10	7.1
KIF-CRM2.0	15	9.5	243	9.5	7.3
KIF-CRM4.0	15	9.7	278	9.1	7.3
KIF-CRM5.5	15	9.9	293	8.9	7.3
KIF-ERM0.1	7	6.9	95	11	6.8
KIF-ERM1.75	15	7.2	71	11	6.3
KIF-ERM2.0	3	8.0	70	11	6.2
KIF-ERM4.0	15	7.77	65	11.3	6.67

- Depth is recorded in feet.
- Temp is recorded in °C
- D.O. is recorded in mg/L



WFC  
12/29/08

1/1/09

Thursday

WEATHER: Sunny High of 49°F

SCOPES: TVA Kingston EA

0800 START PRYS on-site. Update logbook, REVIEWED ICS Form 213 for 1307 Swan Pond Rd. and continued to work on START + CBSD TVA Kingston Summary Sampling Table.

1000 START FUNG AND WATTS on-site. START PRYS informed OSC Sims of the 12/27-12/29 data results. START WATTS began field air monitoring.

1130 START PRYS EMAILED ICS Form 213 to TVA for their attention. START PRYS and OSC HUGHES continued to work on sample summary table. START FUNG began working on sample results table for 12/27 and 12/28 ash sampling results. Also putting together wet sampling results for Kingston & Rockwood into a table.

1420 START PRYS EMAILED <sup>PP</sup> summary table to OSC Dawson for his review.

1445 START PRYS CONTACTED DELTA DASH cargo for info concerning shipment times to Atlanta. Also, tried to locate

Carl E. [Signature]

1/1/09

Thursday

AREAS upstream to of Emory and Clark Rivers to conduct baseline sampling.

1700 START PRYS and OSC HUGHES resent ICS Form 213 for 1307 Swan Pond Rd. START PRYS also made corrections to summary table for OSC Dawson.

1930 OSC Sims requested 2 more START personnel. START PRYS contacted START BERRY with the request.

2000 START PRYS EMAILED OSC Sims with the daily air monitoring results.

2030 START PRYS and FUNG off-site.

Carl E. [Signature]  
1/5/09

1/2/09

Friday

WEATHER: Cloudy w/ Light Rain High of 8°F

SCRG: TVA Kingston ER

0900 START PRYS on-site. BEGAN COORDINATING activities for the day with OSC DARRIN.

0900 START <sup>PP</sup> PRYS Fung and WATTS on-site. START WATTS continued air monitoring on-site and at location off-site. START Fung and Prys updated sampling map and summary tables for OSC DARRIN and Sims for a 1000 meeting. START BEERY has mobilized to the site and will arrive in the afternoon. START Fung continued data management activities.

1130 START PRYS off-site to conduct baseline water and soil sampling along the Emory and Clinch Rivers.

1230 START PRYS and OSC NICHES ARRIVED at 125 OSPREY Way to take background soil samples on shoreline on Emory River.

1400 START PRYS ARRIVED at SECOND Emory RIVER baseline sampling point. Approximately 0.5 miles south of HARRIMAN WWTWP. COLLECTED baseline soil and water samples.

1515 START PRYS ARRIVED AT 302 LAKECREST DR TO TAKE SHOEDLINE SOIL SAMPLES (BASELINE).

Bob E. [Signature]

1/2/09

Friday

Sample ID

Time

Location

GPS

090102-CRB-SS-01

1300

125 Osprey Rd

N 35.92538736

W 84.48457776

090102-CRB-SS-02

1415

Bullard Ford Rd

N 35.93606257

W 84.53738554

090102-CRB-WS-01

1415

At small dock

SAME AS 090102-

CRB-SS-02

090102-CRB-SS-01

1545

302 Lakecrest Dr

N 35.28791845

W 84.4677668

090102-CRB-SS-02

1650

117 Settlers Rd

N 35.90880835

W 84.4490050

090102-CRB-WS-01

1650

" "

SAME AS 090102-

CRB-WS-01

PP

Plots #	Time	Location	Q	P
1 (1151)	1247	125 Osprey Rd	E	PP
2 (1152)	1449	Bullard Ford Rd	W	
3 (1153)	1530	302 Lakecrest Dr	S	
4 (1154)	1551	↓	ENE	
5 (1155)	1706	117 Settlers Rd	NE	
6 (1156)	1707	↓	NW	

Bob E. [Signature]  
2 JAN 09



1/2/09

Friday

Along Clinch River.

- 1630 START PRYS ARRIVED AT 117 SETTLE'S RD to take baseline soil and water sample on the Clinch River.
- 1810 START PRYS ARRIVED ON-SITE AND PROCESSED THE SAMPLES FOR ANALYSIS BY AES.
- 2025 START PRYS OFF-SITE TO TAKE SAMPLES TO FEDEX FOR SATURDAY DELIVERY TO AES. FOR ANALYSIS.
- 2050 START PRYS ARRIVED AT FEDEX TO DROP OFF SAMPLES.

Paul E. [Signature]  
2 JAN 09

1/3/09

Saturday

WEATHER: Cloudy w/ Possible Showers High of 55°F

SCOPE: TVA Kingston ER

- 0720 START PRYS ARRIVED ON-SITE.
- 0730 START HAD A PLANNING MTY FOR THE DAYS ACTIVITIES. START FUNC: DATA ANALYSIS, mgmt and tables; BEERY: SIT RGP AND REPORTS; WATTS: ON/OFF SITE AIR MONITORING AND DOCUMENTATION OF FIELD ACTIVITIES; PRYS: FIELD LOGBOOK & PHOTO DOCUMENTATION AND EGS FORM 413.
- 0800 START AND OEC Dorian CONDUCTED A BRIEF OPS MTY.
- 1150 START PRYS AND WATTS ON-SITE MONITORING WORK ACTIVITIES.
- 1155 START AT AIR SAMPLING POINT PS (WATER INTAKE AT STEAM PLANT). SWS VACUUMING CEROSPHERES AT INTAKE.
- 1220 START ON UPPER DREDGE CELL. TVA CONTRACTOR MORMAN MINITECH WAS ON THE UPPER DREDGE CELL SPRAYING THE AREA WITH A BINDING ENCAPSULANT (MINICRYL X50) TO MINIMIZE DUST EMISSIONS. CONTRACTOR SUPPLIED START WITH A MSDS FOR THE PRODUCT.
- 1330 START TOOK PHOTOS OF CONTRACTOR SPRAYING MINICRYL X50 ON UPPER DREDGE CELL.
- Paul E. [Signature]

1/3/09

Saturday

Photo #	Time	Location	O	P
1 (1157)	1155	KFP - Steam Plant Intake	SE	PP
2 (1158)	1301	KFP - settling pond w/boom	NNE	PP
3 (1159)	1319	KFP - dredge cell (upper)	SW	
4 (1160)	1321	contractor spraying evaporant	W	
5 (1161)	1321		W	
6 (1162)	1322		N	
7 (1163)	1322		SW	
8 (1164)	1330	SWS releasing water/condensates	E	
8 (1165)	1331	into catch pond	E	
10 (1166)	1356	KFP SWAN Pond Rd.	NE	
11 (1167)	1401		ESG	
12 (1168)	1402		ESE	
13 (1169)	1402		ESE	
14 (1170)	1406		NE	
15 (1171)	1411		SE	
16 (1172)	1412		SE	
17 (1173)	1413		SE	
18 (1174)	1414		NW	
19 (1175)	1414		W	
20 (1176)	1414		W	
21 (1177)	1417		N	
22 (1178)	1417		NNE	
23 (1179)	1419		PP NE	
24 (1180)	1419		SW	
			NE	

Paul C. [Signature]

1330 SWS releasing vacuumed water/condensates into catch pond near settling ponds.

1350 START WALKED ALONG SWAN POND RD (on-site) to check to work progress. The roadway has been cleared and the damaged rail line has been removed. TVA contractors working along NORTH SWAN POND RD were clearing an area through the disturbed fly ash to install a road running northeast toward the waterway. This road will be used to dump the excavated fly ash.

1555 START ARRIVED AT SWAN POND CIRCLE RD AT POINT WHERE FLY ASH WASHED OUT THE ROAD NEAR THE SLOUGH/WATERWAY. Work occurred at intersection of Swan Pond Circle Rd and <sup>PP</sup>Booke's Backshing Ln. Contractor installing pipeline to pump water backing up at end of waterway and into Swan Pond Rd properties. Amphibious backhoe cutting trench in slough to allow water to flow toward Emory River.

1620 START ARRIVED AT END OF SLOUGH NEAR INTERSECTION OF SWAN POND RD AND LAKESHORE DR. NEPACO had placed booms across slough to catch debris and condensates.

Paul C. [Signature]

14

1/3/09

Saturday

1/3/09

Photo #	Time	Location	D	P	Photo #	Time	Location	D	P
25 (1181)	1424	KOP - Swan Pond Road	NNW	PP	49 (1205)	1600	Swan Pond Circle Rd. and	W	PP
26 (1182)	1424		NNE		50 (1206)	1601	Beekling Ln Intersection	NNW	PP
27 (1183)	1425		WSW		51 (1207)	1602		NNW	
28 (1184)	1441		SSE		52 (1208)	1603		WNW	
29 (1185)	1544	Swan Pond Circle Rd and	WSW		53 (1209)	1604		ESE	
30 (1186)	1545	Beekling Ln Intersection	SE		54 (1210)	1605		WNW	
31 (1187)	1545		N		55 (1211)	1605		WNW	
32 (1188)	1546		E		56 (1212)	1606		W	
33 (1189)	1546		SW		57 (1213)	1625	Swan Pond Circle Rd NEAR	WSW	
34 (1190)	1546		SW		58 (1214)	1626	Lakeshore Dr. intersection	WSW	
35 (1191)	1549		NNW		59 (1215)	1626		W	
36 (1192)	1549		NNW		60 (1216)	1635		S	
37 (1193)	1549		SSE		61 (1217)	1635		S	
38 (1194)	1550		SSE		62 (1218)	1635		SSE	
39 (1195)	1550		SSB		63 (1219)	1636		SSE	
40 (1196)	1550		SSB		64 (1220)	1637		SE	
41 (1197)	1551		SSB		65 (1221)	1638		ESE	
42 (1198)	1553		SSE		66 (1222)	1646	138 Lakeshore Dr.	WSW	
43 (1199)	1554		E		67 (1223)	1647		WSW	
44 (1200)	1554		E		68 (1224)	1647	138 Lakeshore Dr.	WNW	
45 (1201)	1555		E		69 (1225)	1648		WNW	
46 (1202)	1557		SW		70 (1226)	1648		WNW	
47 (1203)	1558		SW		71 (1227)	1648		WNW	
48 (1204)	1558		SW		72 (1228)	1650		WNW	

Paul E. [Signature]

Paul E. [Signature]



10  
1/3/09

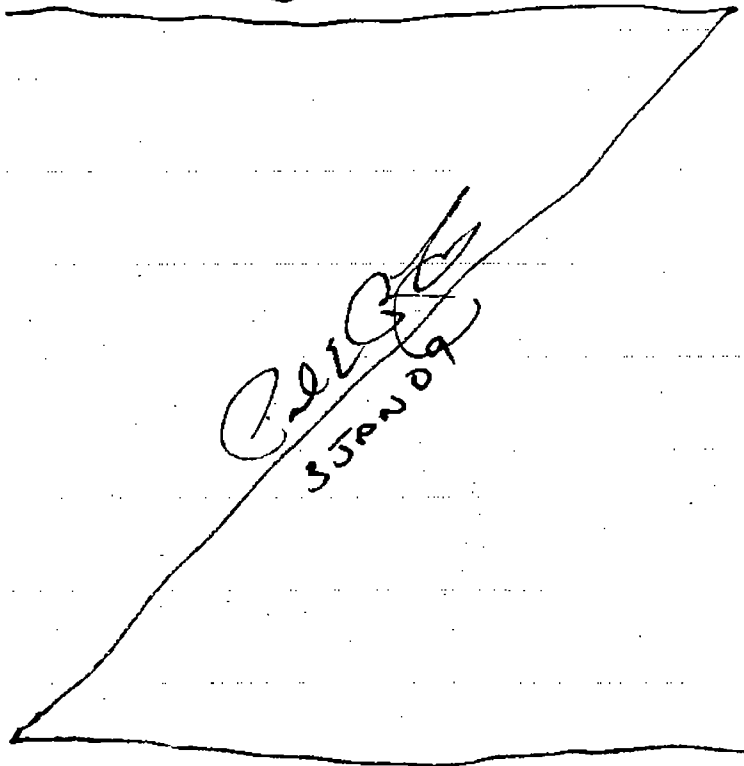
Saturday

HEPACO WAS USING A VACUUM TRUCK TO PICK UP THE CEROSPHERES. PERSONNEL USED BOATS TO PICK UP DEBRIS IN WATER.

1435 START ARRIVED AT 1438 LAKECHWAB DA.

HEPACO WAS LOCKING UP THEIR EQUIPMENT FOR THE NIGHT. HEPACO ALSO PLACED A BOOM ON AND ACROSS THE SLough FROM THIS PROJECT.

2030 START PRYS OFF-SITE.



1/4/09

Sunday

WEATHER: Cloudy chances of Rain High of 45°F

SCOPE: TVA Kingston EA

0815 START PRYS WAS ON-SITE.

0830 START PRYS UPDATED OSC WEBSITE PHOTOS.

0900 BEGAN REVIEWING SAMPLES TAKEN DURING RESPONSE TO DETERMINE NUMBER OF QC SAMPLES TAKEN VERSUS WHAT MAY STILL BE NEEDED.

1100 ASSISTED START FURUB WITH SUMMARY SAMPLING DATA TABLES AND WORKED ON PROJECT COST TRACKING.

1430 WORKED ON ICS FORM 213 FOR 993 SWAN POND PDS.

1530 COMPLETED AND EMAILED ICS FORM 213 TO KATHI KLING, OUTREACH COORDINATOR, BOB ALEXANDER, TDEC'S AND SHAWN FOX ROANE COUNTY.

1600 OSC DERRIAU PACKED START PRYS WITH COMPILED TABLE FOR LAMAR NOTES FOR RESIDENTIAL SOIL AND WELL WATER RESULTS AND INFORMATION.

2000 REVIEWED NEW PHOTOS AND POSTED THEM TO THE OSC WEBSITE.

2100 START PRYS WAS OFF-SITE.

Paul E. [Signature]

(PSP)

1/4/09

Photo #	Time	Location
1 (1224)	1438	Command Post
2 (1232)	1440	Activities
3 (1233)	1440	
4 (1232)	1440	
5 (1233)	1441	
6 (1234)	1441	
7 (1235)	1441	
8 (1236)	1442	
9 (1237)	1500	
10 (1238)	1500	
11 (1239)	1501	
12 (1240)	1501	
13 (1241)	1512 1501 (PP)	
14 (1242)	1812	
15 (1243)	1813	

Sunday

N/A KW

PP

Collette  
4 JAN 09

1/5/09

Monday

WEATHER: POSSIBLE RAIN High of 48°F

SCOPE: TVA Kingston EA

0700 START PHYS AND WATTS ON-SITE.

0730 START PHYS BEGAN REVIEWING THE COST TRACKING PROGRAM.

0800 START PHYS REVIEW ALL START SAMPLING TO DATE. <sup>PP</sup> ~~WATTS~~ WORK WITH JESSICA VICKERS TO REVIEW QC SAMPLING AND PROTOCOLS. START WATT BEGAN CALIBRATING DATA RAMS FOR FIELD PARTICULATE AIR MONITORING.

1100 DELIVERED WINGS TO JIC FOR PRESS CONFERENCE.

1130 SPOKE W/ JESSICA VICKERS CONCERNING QC SAMPLING CRITERIA FOR PROJECT.

1300 START PHYS AND BEALY BEGAN TAKING ADDITIONAL QC SAMPLES.

1320 START COLLECTED ASH ROADWAY SAMPLE @ KFP SWAN Pond RD. (ALSO HAVE DUP + MS/MSB).

1440 START AT KINGSTON WTP TO TAKE RAW + FINISHED WATER SAMPLES INCLUDING DUP AND MS/MSB. SAMPLES TAKEN AT 1352.

1510 START ARRIVED SAMPLING POINT B/W  
Collette <sup>PP</sup> NEAR LAKEWOOD DR.

1/5/09

Monday

Sample #	Time	Location	GPS
090105-KFPEW-SS12	1320	KFP Swan Pond Rd	N 35.91193718
090105-KFPEW-SS12-DUP	1320		W 84.51693382
090105-KFPEW-SS12-MS/MSD	1320		
KWTP-FWW-01	1357	Kingston WTP	N 35.856188
KWTP-FWW-01-DUP	1352	Kingston WTP	W 84.527493
KWTP-FWW-01	1352	Kingston WTP	
KWTP-FWW-01-MS/MSD	1352		
090105-CRM-SS12	1520	CLINCH RIVER	N 35.82812666
090105-CRM-SS12-DUP	1520	NW I-40 + SR 70	W 84.52382740
090105-CRM-SS12-MS/MSD	1520		
090105-RINSE-01	1805	RINSEATE	N/A

Photo ID	Time	Location	Q	P
1 (1244)	1450	Kingston WTP	N/A	PP
2 (1245)	1450			
3 (1246)	1517	Kingston near Longshore	NW	

*Be*  
1/5/09

1/5/09

Monday

I-40 AND SR 70 to take soil sample w/ dup  
AND MS/MSD. Sample taken at 1520.

1600 START PAYS AND BARRY RETURN TO SITE.

START PAYS BEGAN PROCESSING SAMPLES.

1805 <sup>PP</sup> START PAYS COLLECTED RINSEATE SAMPLE TO  
BE ANALYZED FOR <sup>PP</sup>.

1955 START PAYS OFF-SITE TO DELIVER <sup>PP</sup>  
QC SAMPLES TO FEDEX FOR SHIPMENT TO  
NES FOR ANALYSIS.

*Be*  
1/5/09



22

1/6/08

Tuesday

Weather: Rain High of 59°F

Scope: TVA Kingston EC

0750 START PRYS on-site.

0800 STARTS WRITE, FANG AND BEERY <sup>(PP)</sup> on-site. Continued site air monitoring and data management.

1000 Completed updating photo documentation.

1130 Completed updating cost tracking for project and began scanning TDBL and TVA websites <sup>(P)</sup> for UDEO info and project info. Assisted with <sup>(P)</sup> determining sample locations to follow a sampling time line for mags requested by EPA OSCs.

1750 OSC Dorian requested START PRYS to give him a site tour tomorrow of areas affected by ash. Also give possible tour to TDBL personnel concerning air monitoring.

1800 START off-site.

Paul E. Beery  
6 JAN 08

1/7/08

WEDNESDAY

Weather: chance of Rain High of 46°F.

Scope: TVA Kingston EC

0740 START PRYS on-site.

0805 Reviewed and set up GPS for OSC Dorian site tour.

0845 RECEIVED Ludlum 19 MICRO R METER <sup>101657</sup> (S/N 945294) <sup>(P)</sup>. START PRYS PERFORMED a battery check. Battery check was okay. Cal & DUB DATE 18 SEP 2009. RECEIVED Ludlum form0850 <sup>(PP)</sup> met with OSC Spaulin.0850 <sup>(PP)</sup> received met with OSCs Dorian and FRANCO. ~~Once OSC Dorian checked START PRYS <sup>(P)</sup> that he spoke with EPA and comment <sup>(P)</sup> emanation levels associated w/ <sup>(PP)</sup>~~

0930 Sat in with OSC Hughes during in-brief of OSC FRANCO.

1025 START PRYS BEGAN FILLING IR FORMS on START WRTS for 27 DBC 08 incident. <sup>(P)</sup>

1130 OSC Dorian and START PRYS went off to collect background and off-site radiation levels of RESIDUALS and ash.

1330 OSC Dorian and START PRYS return to site.

1405 START PRYS TOOK RADIATION READINGS WITH LUDLUM AT NASA C DEEDGE CELL in undisturbed ash section.

Paul E. Beery

1/7/09

Location ID	Location	Rooming (W/E/NE)
BKG-01	NEMA Sycamore Ln.	6-8 (3A)
BKG-02	NEAR Access Rd Farm Hwy 70 @ 2100 Hwy 70	#7 (3A)
BKG-03	Hwy 70 behind JIC	5 (3A)
LSB-04	N. of 199 Lakeshore Dr.	5 (3A)
LSB-05	W of 199 Lakeshore Dr. of Ash	7 (3A)
	↓	8 (1in)
KFP-06	KFP Area C undisturbed Ash.	24 (3A)
		24 (1in)

Location ID	Long	Lat
BKG-01	N 25.29284689	W-84.56228756
BKG-02	N 25.87527370	W-84.56953526
BKG-03	N 35.88008271	W-84.56188580
LSB-04	N 35.91654075	W-84.50338230
LSB-05	N 35.91653941	W-84.50406542
KFP-06	N 35.96880936	W-84.51506146

Paul E. [Signature]  
7 JAN 09

1/7/09

WEDNESDAY

1530 START PRYS WORKED WITH DANNEVA to  
download data from TEMBLE. of the radiation  
sample location.

1700 START PRYS SPOKE WITH BOB ALEXANDER (TDEC)  
to see if Robert BRAWNER (TDEC-Air) WAS  
on-site. TDEC BRAWNER WAS IN THE FIELD.  
START PRYS WILL MEET WITH TDEC BRAWNER  
in the morning to show him where <sup>(PR)</sup>  
START AIR MONITORING STATIONS ARE LOCATED

1720 OSC SQUAD had end of the day work  
briefing.

1755 SPOKE WITH ROBERT BRAWNER. Will meet  
him at 0830 on 8 JAN 09 to discuss  
START AIR MONITORING.

1805 START PRYS off-site.

Paul E. [Signature]  
7 JAN 09

1/8/09

Thursday

Weather: Partly Sunny High 43°F

Scope: TVA Kingston ER

- 0800 START PRYS AND WATTS ON-SITE.
- 0810 START BERRY AND FINE ON-SITE.
- 0820 START WATTS REVIEWED INCIDENT REPORTS FOR CUTTING HIS FINGER ON 12/22/08.
- 0830 START PRYS AND WATTS MET WITH TDEC BROWNE. HE WAS GETTING FILES READY FOR THE NASHVILLE OFFICE. WILL MEET WITH HIM AGAIN AT 0900.
- 0905 START PRYS MET WITH TDEC BROWNE TO DISCUSS EPA AIR MONITORING AND TDEC'S FUTURE ROLE.
- 1000 START PRYS AND TDEC BROWNE WENT OUT ON KFP SITE TO LOOK AT MONITORING POINTS.
- 1010 ARRIVED AT P1 LOCATED ON E. SWAN ROAD. INFORMED TDEC THAT START IS USING CYCLONE WITH PM10 MONITORING. P1 IS A FIXED STATION ON-SITE AND IS CHECKED DURING THE DAY WITH THE MOBILE MONITORING.
- 1035 ARRIVED ON TOP OF DRODGE CELL OF AREA C TO SHOW TDEC ANOTHER MONITORING POINT. START WATTS ANSWERED ADDITIONAL QUESTIONS CONCERNING MOBILE MONITORING.
- 1115 ARRIVED CTEN MOBILE AIR MONITORING STATION.

Paul [Signature]

1/8/09

Thursday

AIR MONITORING USING PM10 AND PM2.5 CONDUCTED ON TOP OF ROOF OF STATION. REAL TIME DATA RECORDED INSIDE STATION. A SECOND PM2.5 STATION LOCATED APPROX. 50 FT EAST OF STATION. IT IS LINKED TO STATION TO RECORD REAL TIME DATA.

- 1145 START PRYS AND TDEC BROWNE AT COMMAND POST. TDEC BROWNE SAID THAT TDEC IS REQUESTING AIR MONITORING CONTINUES ON-SITE UNTIL THEY INSTALL THEIR AIR MONITORS. REQUEST IS TO EPA REGION 4. TVA/CTEN INFORMATION MAY BE AVAILABLE THROUGH TVA RAY VALENTE (256-386-3649) IN MUSCIEG SHOALS, AL. ROBERT BROWNE (615-390-3162) TDEC AIR MONITORING
- 1300 ON-SITE TO TAKE GPS PT FOR QC SAMPLE # 090105-~~090105~~<sup>09</sup> KFP00-5612 w/Trimble unit. LOCATED IN FILE 090105 SAMPLE PC ON TRIMBLE.
- 1335 OFF-SITE TO TAKE GPS PT FOR QC SAMPLE # 090105-CRM-5513 w/Trimble ~~unit~~<sup>unit</sup>. Eagle Construction and Environmental Services LP. ON-SITE CLEANING UP DEBRIS AND CESSPOLES FROM CLINCH RIVER. GPS PT. LOCATED IN FILE 090105 SAMPLE PC ON TRIMBLE.
- 1350 START PRYS RETURNED TO SITE.

Paul [Signature]



4/3/09

Thursday

- 1400 RETRIEVED data pts from Trimble unit w/  
DORNER (TNOA).
- 1500 UPDATED project cost tracking for OSC  
Squalin.
- 1530 START PAYS, BEERY AND FUNG. SPEAKS WITH  
OSC SQUALIN ABOUT CURRENT  
START STAFFING. START FUNG WILL LEAVE  
ON 1/9/09 IN MORNING AND START BEERY IN  
AFTERNOON. START WATTS AND PAYS ON  
1/10/09 OR 1/11/09.
- 1715 OSC SQUALIN TASK START PAYS WITH  
WRITING SHORT RADIATION SURVEY REPORT  
BASED ON DATA COLLECTED BY START PAYS  
AND OSC DORNER.
- 1800 START PAYS OFF-SITE.

Paul [Signature]  
8 JAN 09.

1/9/09

Friday

- WEATHER: Sunny High F 80°F
- SCOPE: TVA Kingston ER
- 0800 START PAYS AND WATTS ON-SITE.
- 0830 START PAYS BEGAN WRITING REPORT FOR  
ROD SURVEY CONDUCTED WITH OSC DORNER  
ON 1/7/09.
- 1100 ASSEMBLED ASSEMBLED EQUIPMENT FOR RETURN  
TO ATLANTA.
- 1230 START FUNG ON-SITE <sup>(P)</sup> TO DOWNLOAD FILES  
AND TO PICKING EQUIPMENT TO TAKE BACK TO  
ATLANTA. START WATTS SENT <sup>(P)</sup> AIR SAMPLING  
DATA TO START PAYS TO UPDATE FILES.
- 1445 START PAYS COMPLETED COMPILING AIR  
MONITORING DATA AND DELIVERED IT TO  
OSC FRANCO FOR THE SITUATION REPORT.
- 1530 COMPLETED LIMITED RADIATION REPORT FROM  
SURVEY COMPLETED ON 1/7/09. OSC  
SQUALIN REVIEW IT AND REQUESTED IT BE  
FORWARDED TO OSC DORNER AND JOHN  
RICHARDS FOR THEIR REVIEW.
- 1610 OSC FRANCO AND START PAYS SPEAK WITH  
OSC DORNER CONCERNING THE ROD REPORT.  
OSC DORNER WAS CONCERNED WITH THE  
READING ON TOP OF THE DRESSING WELL. OSC  
DORNER REQUESTED START PAYS TO TAKE  
Paul [Signature]

1/9/09

Friday

2 more readings of the ash in areas where workers was exposed to disturbed ash. Start Pats and OSC Franco will take 2 more rad readings on 1/10/09 on-site.

1745 Start Watts released

1750 Start Pats copied report "Background" section for OSC Squelina so he could write a letter.

1845 Released Ludlum from OSC Squelina for rad survey.

1900 Start Pats off-site.

Paul C. [Signature]  
9 JAN 09

1/10/09

Saturday

Weather: Rain showers High of 34°F.

SCOP: TVA Kingston ER

0800 Start Pats and Watts on-site.

0830 Start Pats below updating particulate air monitoring file.

0945 Start Pats and OSC Franco out on-site to take additional rad readings.

Location ID	Location	Reading (pR/hr)
KFP-07	S. F. Sewing and East E Dredge Cell.	18-21 (3ft)
KFP-07	KFP - Swan Pond Rd	19-22 (1in)
	" "	26 (3ft)
		26-28 (1in)
KFP-09	N 35-90478416 W-84.51106374	
KFP-08	N 35-91104695 W-84.51734568	

NOTE: Prior to going into the field, start Pats spoke with safety rep. David Devers. Mr. Devers had no problems with us being around the on-site work as long as we followed the appropriate safety procedures.

1250 Start Pats and OSC Franco returned from the field.

1300 Start Pats completed reviewing the

Paul C. [Signature]

1/10/09

Saturday

PARTICULATE AIR monitoring results for  
the day and sent them to OSC  
FRANCO.

1400 START PHYS COMPLETED RAD SWAMP  
letter for OSC FRANCO to REVIEW  
prior to Demobilization.

1445 START PHYS COMPLETED RAD SWAMP  
to OSC FRANCO AND DANAU FOR THEIR  
REVIEW.

1500 START PHYS OFF-SITE.

Paul  
10 JAN 09

END OF  
ENTRIES



Tetra Tech



"Rite in the Rain"

ALL-WEATHER  
JOURNAL

No. 391

KINGSTON FOSSIL

PLANT FLY ASH

RESPONSE

DEC 2008 - JAN 2009

BOOK 4



WEDNESDAY 12/31/08  
0800 Briefing w/ Environmental Branch update.

Attendees: David Dorian, Alysaa Hughes,  
(TVA) Paul <sup>(CWA)</sup> Neal Cariker

RIVER SAMPLING (Surface water)  
Sampling Mon 12/22/08

River water samples from Clinch & Emory  
(0, 1, 2, 3, 4, 5.5) (0, 1, 1.75, 2.1)

River sample intake Kingston Water Plant  
Sample at Wattsbar ~~needed~~ at Supplemental

Hydrolamp data at the depth the sample was  
collected. River was well mixed. Sample collected  
at 15' depth or 1' of the bottom is too shallow.  
Samples sent to micro bacteria. Sample returned  
back Tuesday.

Sampling 12/23/08 <sup>Tuesday</sup> repeated water sampling  
on Clinch, 1 & 3 was dropped. Emory river  
add river <sup>when</sup> mile 4.0 & 568.5 Tennessee river  
up stream from the Kingston intake. Recovers  
results as ideal. TDEC has some historical  
sampling data. Paul Davis, Paul Crain visit  
site and Davis sent <sup>historical</sup> data to Neal. 2001-2003  
historical data seems in line with new samples collected.

Doris FO

WEDNESDAY 12/31/08

Emory River is unregulated, soft water, has low  
pH. Clinch is regulated is draining limestone  
area, hard water. Tennessee River is  
moderately hard water. ~~Base~~ Base on  
conductivity it is possible to tell what river  
source.

Sampling 12/24/08 Wed

Kingston water intake was only sample collected.  
(in the river)

Sample 12/25/08 Thursday day-off

Sample 12/26/08 Friday repeat of Tuesday

Sampling 12/27/08 Sat - Kingston Kingston intake  
only

Sampling 12/28/08 Sun Only Kingston intake

Actino iten <sup>better</sup> <sup>part TVA</sup> under stand maintains positive flow  
by the Kingston intake via Clinch & Tennessee  
regulation.

Sampling 12/29/08 Monday. Repeated at least Tuesday  
locations. Maybe switch to getting water at the  
Kingston finish & treated water from plant

Sampling 12/30/08 Tuesday repeat of yesterday.

Doris FO



4  
12/31/08

WEDNESDAY

Sampling Ponds. Immediate response - separate  
Now in toll Dredges, M, W, F  
(establish a trigger criteria based on flow in  
Emory or rainfall event)  $\frac{1}{2}$  inch rain full to 1-inch  
of rain will trigger an <sup>sample</sup> event.

Air Monitoring

Speak w/ Don Houston

Residential Well Sampling  
& water utility districts.

Service Water

Kroyton, Rockwood, Harrison,  
utilities. Discussion of their collecting and sending  
samples to a lab in lab yet to be determined  
reimbursed by TVA. Danny Stone has copy of  
plan

Wells

Dennis Yankay

12/29/08 collected sample at Baptist Church

12/31/08 TVA & w/ TDEC collecting various toxicity  
total locations including a spring that feeds  
a residential area.

YARD Sample

SAT 12/27/08 began. Random sample from  
yards. TOTAL metals, TCLP metals, BTEX

Del. Fd

5

WEDNESDAY

12/31/08

A/C collected on Sat. More on Sun & Mon.  
Jonathan Walker (423) 718 1687  
Roy Quinn (423) 712 3344

Paul Smyth

Mon or Sun (28 or 29) Instruct sampling of  
ponds.

Ash Sampling

starter 12/29/08 Monday night surface samples  
for radiological.

John Colagross in Muscle shales took dose  
reading.

Doyle Pittman - contact 1st (slough area)

12/31/08 Ash sampling at spoil area and  
cores from the cell. TCLP, silic, BTEX

Dennis Yankay

0839 Meeting adjourned.

1004 Meeting Data Management Conference call

Bob Alexander (TDEC) Enlog Patri

Randy Klatis (EPA) ~~Peter~~ Cassi

Warren Balow (TVA) Lead Darin Bittle (TVA)

Robert Scholtz (EPA) Malogin

Susan Daniels

Del. Fd

12/31/08  
WARREN

WEDNESDAY

Map out Data flow process, QA, graphics.  
Maplogix - Scribble database use to manage the data collected.  
WARREN <sup>intermediate</sup> post map with sample location and data collected with results. Posts must be vetted before releasing on the net.

Data Source

Historic data (Capwater) surface water data TVA  
TDEC, Mitchell got data w/Tyler Baker  
Emory River mon 4  
Clinch River mon 8  
Tennessee 385 mm  
570 mm

Orbital Labs Wes Goddard (865) 576-5749  
Water Programs get v to <sup>ORIS</sup> ~~ORIS~~  
data manager Get data set for  
w/n this box

<sup>instead</sup> Get sediment samples also inside this area.

Ores data is public information.

Maplogix - request a sample format was sent to EPA to see if the data.

EPA sent template of the data set format Scribble.  
Sampling plans will help define the extent of area of concern.

John Dizer will get groundwater historical data

Bob will get the state groundwater historical data

idi Pao

12/31/08

WEDNESDAY

Setup email box

Data and the database will be housed on a TVA server.  
Dand <sup>David</sup> ~~David~~ suggested that the source of data needs to be identified in the database in order to be able to translate to the public know that multiple sources were used to take the samples.

Randy the data will be imported into Scribble and flagged validated or not.

Bob The sample schedule will be regular but sporadic based on the scheduling.

Randy Environment Unit leader should be publishing the sample schedule for each data.

<sup>TVA identify</sup> GIS Unit <sup>lead</sup> TVA should assign the a data management unit lead.

CTET 3 month onsite and temporary monitor stations.

TVA is operating the TAD specifying monitoring onsite.

Dan Houston receives all the <sup>air</sup> data.

Offsite monitor is running 12 hr periods. Onsite

data is running 24hr periods.

Cassie will check on the status of the Sampling Plan

Next meeting at PM today.

- 1/5/03
- 1020 EPA START head to JIC to prepare for the 10am press conference.
- 1100-1135 Press conference completed.
- Paul Schmirerbach (TDEC)
  - Steve Spurlin (EPA)
  - Tim Hope (TVA)
  - Howie Rose (Roane Co. EMA) <sup>web page</sup> ~~was~~ made up the panel. Get video from ~~the~~ <sup>the</sup> time
- 1443 Meeting with panel to discuss reviewing data and data sharing.
- TVA is sampling 3 days a week with a rain event being the trigger (what amount?)
  - TDEC & TVA's stations will be ~~similar~~ similar.
- 2) Tim Hope asked that TEMA control the
- health department
  - fish & wild life
- ie. thin out command centers and make sure organizations are integrated in ICS structure.

*[Handwritten signature]*

END OF  
ENTRIES





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**APPENDIX F**  
**VALIDATED ANALYTICAL RESULT TABLES AND DATA VALIDATION REPORTS**  
(198 Sheets)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)

**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	KIF-CRM 4.0	KIF-ERM 0.1	KIF-CRM 5.5
Sample Collection Date:		12/23/2008	12/23/2008	12/23/2008
Field Quality Control:				
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	NA	14700	NA
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	NA	NA	NA
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	NA	0.164 J	NA
Antimony	0.006	NA	0.02 U	NA
Arsenic	0.01	NA	<b>0.0116 J</b>	NA
Barium	2	NA	0.0345	NA
Beryllium	0.004	NA	0.01 U	NA
Cadmium	0.005	NA	0.005 U	NA
Calcium	NL	NA	9.38	NA
Chromium	0.1	NA	0.01 U	NA
Cobalt	NL	NA	0.02 U	NA
Copper	1.3	NA	0.00170 J	NA
Iron	NL	NA	0.187	NA
Lead	0.015	NA	0.01 U	NA
Magnesium	NL	NA	2.20	NA
Manganese	NL	NA	0.153	NA
Mercury	0.002	NA	0.0002 U	NA
Nickel	NL	NA	0.02 U	NA
Potassium	NL	NA	1.28	NA
Selenium	0.05	NA	0.00749 J	NA
Silver	NL	NA	0.01 U	NA
Sodium	NL	NA	5.65	NA
Thallium	0.002	NA	<b>0.00774 J</b>	NA
Vanadium	NL	NA	0.00341 J	NA
Zinc	NL	NA	0.00772 J	NA
<b>Total Metals (mg/L)</b>				
Aluminum	NL	1.53	121	0.986
Antimony	0.006	0.02 U	<b>0.00655 J</b>	0.02 U
Arsenic	0.01	0.00392 J	<b>1.49</b>	0.00501 J
Barium	2	0.0430	1.47	0.0385
Beryllium	0.004	0.01 U	<b>0.0119</b>	0.01 U
Cadmium	0.005	0.005 U	<b>0.0155</b>	0.005 U
Calcium	NL	30.8	38.2	35.0
Chromium	0.1	0.01 U	<b>0.127</b>	0.01 U
Cobalt	NL	0.02 U	0.0768	0.02 U
Copper	1.3	0.01 U	0.225	0.01 U
Iron	NL	1.08	67.0	0.733
Lead	0.015	0.00461 J	<b>0.0754</b>	0.01 U
Magnesium	NL	8.51	12.4	9.94
Manganese	NL	0.0938	1.89	0.0453
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.103	0.02 U
Potassium	NL	2.44	32.1	2.45
Selenium	0.05	0.02 U	0.0180 J	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	5.85	4.85	6.83
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.00243 J	0.465	0.01 U
Zinc	NL	0.00404 J	0.266	0.02 U



**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	KIF-ERM 2.1	KIF-ERM 4.0
Sample Collection Date:		12/23/2008	12/23/2008
Field Quality Control:			
<b>Total Suspended Solids (mg/L)</b>			
Total Suspended Solids	NL	NA	NA
<b>Dissolved Silica (mg/L)</b>			
Silica	NL	NA	NA
<b>Dissolved Metals (mg/L)</b>			
Aluminum	NL	NA	NA
Antimony	0.006	NA	NA
Arsenic	0.01	NA	NA
Barium	2	NA	NA
Beryllium	0.004	NA	NA
Cadmium	0.005	NA	NA
Calcium	NL	NA	NA
Chromium	0.1	NA	NA
Cobalt	NL	NA	NA
Copper	1.3	NA	NA
Iron	NL	NA	NA
Lead	0.015	NA	NA
Magnesium	NL	NA	NA
Manganese	NL	NA	NA
Mercury	0.002	NA	NA
Nickel	NL	NA	NA
Potassium	NL	NA	NA
Selenium	0.05	NA	NA
Silver	NL	NA	NA
Sodium	NL	NA	NA
Thallium	0.002	NA	NA
Vanadium	NL	NA	NA
Zinc	NL	NA	NA
<b>Total Metals (mg/L)</b>			
Aluminum	NL	1.13	0.338
Antimony	0.006	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U
Barium	2	0.0405	0.0304
Beryllium	0.004	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U
Calcium	NL	8.04	7.81
Chromium	0.1	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U
Iron	NL	0.660	0.262
Lead	0.015	0.01 U	0.01 U
Magnesium	NL	2.14	1.78
Manganese	NL	0.0738	0.0368
Mercury	0.002	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U
Potassium	NL	1.52	1.35
Selenium	0.05	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U
Sodium	NL	2.56	2.53
Thallium	0.002	0.02 U	0.02 U
Vanadium	NL	0.00255 J	0.01 U
Zinc	NL	0.00461 J	0.02 U

**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	TT-ERM 1.9	DUPLICATE	KIF-TRM568.5
Sample Collection Date:		12/23/2008	12/23/2008	12/23/2008
Field Quality Control:		Field Duplicate		
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	NA	NA	10
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	NA	NA	NA
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	NA	NA	0.2 U
Antimony	0.006	NA	NA	0.02 U
Arsenic	0.01	NA	NA	0.05 U
Barium	2	NA	NA	0.0176 J
Beryllium	0.004	NA	NA	0.01 U
Cadmium	0.005	NA	NA	0.005 U
Calcium	NL	NA	NA	13.8
Chromium	0.1	NA	NA	0.01 U
Cobalt	NL	NA	NA	0.02 U
Copper	1.3	NA	NA	0.01 U
Iron	NL	NA	NA	0.1 U
Lead	0.015	NA	NA	0.01 U
Magnesium	NL	NA	NA	3.52
Manganese	NL	NA	NA	0.00464 J
Mercury	0.002	NA	NA	0.0002 U
Nickel	NL	NA	NA	0.02 U
Potassium	NL	NA	NA	1.57
Selenium	0.05	NA	NA	0.02 U
Silver	NL	NA	NA	0.01 U
Sodium	NL	NA	NA	7.48
Thallium	0.002	NA	NA	0.02 U
Vanadium	NL	NA	NA	0.01 U
Zinc	NL	NA	NA	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	2.20	2.58	0.291
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	<b>0.0208 J</b>	<b>0.0337 J</b>	0.05 U
Barium	2	0.0565	0.0643	0.0218
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	9.11	9.26	16.2
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.00406 J	0.00508 J	0.01 U
Iron	NL	1.37	1.77	0.255
Lead	0.015	0.00625 J	0.00492 J	0.01 U
Magnesium	NL	2.20	2.27	4.17
Manganese	NL	0.0898	0.0970	0.0288
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.71	1.80	1.97
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	2.63	2.68	8.90
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.00741 J	0.0108	0.01 U
Zinc	NL	0.0371	0.0350	0.02 U



**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	KIF-CRM 0.0	KIF-CRM 2.0	081228-ERPL-WS01
Sample Collection Date:		12/23/2008	12/23/2008	12/28/2008
Field Quality Control:				
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	15	80	58
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	NA	NA	1.99
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.0268 J	0.0302 J	0.152 J
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0189 J	0.0311	0.0171 J
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	14.8	22.9	6.83
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.1 U	0.0481 J	0.155
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	3.80	6.30	2.20
Manganese	NL	0.00944 J	0.0149 J	0.0155
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.78	1.58	0.993
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	8.04	4.50	1.88
Thallium	0.002	<b>0.00463 J</b>	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	0.265	0.905	5.84
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.00351 J	0.00310 J	0.00629 J
Barium	2	0.0215	0.0436	0.0389
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	15.9	27.3	8.55
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.00536 J
Iron	NL	0.234	0.607	6.22
Lead	0.015	0.01 U	0.01 U	0.00886 J
Magnesium	NL	4.09	7.57	3.11
Manganese	NL	0.0248	0.0512	0.0921
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.92	2.14	1.81
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	8.67	5.43	2.05
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.00237 J	0.0150
Zinc	NL	0.02 U	0.02 U	0.0125 J



**TABLE 2**  
**VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	081228-ERER-WS02	081228-ERER-WS02-DUP	081228-SGUBR-WS03
Sample Collection Date:		12/28/2008	12/28/2008	12/28/2008
Field Quality Control:		Field Duplicate		
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	161	186	68
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	1.92	1.91	2.01
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.0680 J	0.0643 J	0.2 U
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0197 J	0.0205	0.0319
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	6.42	6.40	30.3
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.0827 J	0.0832 J	0.1 U
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	1.76	1.76	9.44
Manganese	NL	0.0129 J	0.0120 J	0.015 U
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.07	1.06	1.56
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	1.90	1.90	5.84
Thallium	0.002	0.02 U	<b>0.0047 J</b>	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	1.85	1.85	2.27
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	<b>0.0127 J</b>	<b>0.0106 J</b>	0.00773 J
Barium	2	0.0468	0.0434	0.0514
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	9.00	7.35	34.2
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.00524 J	0.00331 J	0.00282 J
Iron	NL	1.48	1.49	2.51
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	2.38	2.28	11.5
Manganese	NL	0.0629	0.0585	0.0715
Mercury	0.002	0.0002 U	0.0002 U	0.00188
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.83	1.73	2.18
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	2.27	2.04	6.71
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.00593 J	0.00505 J	0.00625 J
Zinc	NL	0.0473	0.00719 J	0.00777 J



**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	081228-KCPS-WS04	KIF-TRM568.5	KIF-CRM0.0
Sample Collection Date:		12/28/2008	12/29/2008	12/29/2008
Field Quality Control:				
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	969	10	46
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	1.97	1.81	1.87
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.0361 J	0.2 U	0.2 U
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0276	0.0184 J	0.0172 J
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	23.3	14.1	14.2
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.0398 J	0.1 U	0.1 U
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	6.78	3.71	3.72
Manganese	NL	0.015 U	0.015 U	0.015 U
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.45	1.62	1.62
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	4.68	8.62	8.63
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	8.20	0.257	0.751
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	<b>0.0480 J</b>	0.05 U	0.05 U
Barium	2	0.142	0.0260	0.0311
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	25.1	16.6	16.4
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.00219 J	0.02 U	0.02 U
Copper	1.3	0.0141	0.01 U	0.00168 J
Iron	NL	3.99	0.305	1.12
Lead	0.015	0.00589 J	0.01 U	0.01 U
Magnesium	NL	7.98	4.69	4.71
Manganese	NL	0.0816	0.0508	0.159
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.00604 J	0.02 U	0.02 U
Potassium	NL	3.59	2.05	2.10
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	4.95	10.8	10.5
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.0261	0.01 U	0.01 U
Zinc	NL	0.0333	0.02 U	0.00634 J

**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	KIF-CRM2.0	TI-CRM2.5	KIF-CRM4.0
Sample Collection Date:		12/29/2008	12/29/2008	12/29/2008
Field Quality Control:				
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	15	13	10
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	1.94	1.89	1.96
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.2 U	0.2 U	0.2 U
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0288	0.0280	0.0286
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	24.7	27.8	28.5
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.1 U	0.1 U	0.1 U
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	7.40	8.41	8.61
Manganese	NL	0.015 U	0.015 U	0.015 U
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.45	1.51	1.51
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	5.15	5.67	5.78
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	0.516	0.355	0.355
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0411	0.0384	0.0374
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	28.6	31.2	31.7
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.466	0.328	0.335
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	9.21	10.1	10.3
Manganese	NL	0.0507	0.0495	0.0473
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.87	1.86	1.84
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.00038 U	0.01 U
Sodium	NL	6.08	6.58	6.63
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U

**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	KIF-CRM5.5	KIF-ERM0.1	KIF-ERM-1.75
Sample Collection Date:		12/29/2008	12/29/2008	12/29/2008
Field Quality Control:				
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	9	9	13
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	1.95	1.94	1.85
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.2 U	0.0265 J	0.0439 J
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0292	0.0240	0.0223
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	30.2	13.3	6.12
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.1 U	0.0376 J	0.0569 J
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	9.14	3.92	1.54
Manganese	NL	0.015 U	0.0126 J	0.0221
Mercury	0.002	0.00023	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	15.6	1.18	1.03
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	6.14	3.18	1.95
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	0.308	0.400	0.587
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0379	0.0320	0.0328
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	34.1	14.7	6.83
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.294	0.323	0.414
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	11.1	4.63	1.87
Manganese	NL	0.0518	0.0427	0.0408
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.90	1.47	1.34
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	7.08	3.35	2.03
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.02 U



**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	TWQC	KIF-ERM4.0	KIF-ERM2.0	KIF-ERM2.0-DUP
Sample Collection Date:		12/29/2008	12/29/2008	12/29/2008
Field Quality Control:				Field Duplicate
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	10	22	17
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	2.07	1.86	1.84
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.0441 J	0.0411 J	0.0420 J
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0226	0.0218	0.0219
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	6.42	5.87	6.29
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.01 U
Iron	NL	0.0621 J	0.0598 J	0.0583 J
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	1.64	1.47	1.47
Manganese	NL	0.0275	0.0227	0.0238
Mercury	0.002	0.00021	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.16	1.02	1.03
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	2.02	1.91	1.91
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.01 U	0.01 U
Zinc	NL	0.02 U	0.02 U	0.0067 J
<b>Total Metals (mg/L)</b>				
Aluminum	NL	0.582	0.995	0.998
Antimony	0.006	0.02 U	0.02 U	0.02 U
Arsenic	0.01	0.05 U	0.05 U	0.05 U
Barium	2	0.0325	0.0377	0.0375
Beryllium	0.004	0.01 U	0.01 U	0.01 U
Cadmium	0.005	0.005 U	0.005 U	0.005 U
Calcium	NL	6.92	6.81	6.71
Chromium	0.1	0.01 U	0.01 U	0.01 U
Cobalt	NL	0.02 U	0.02 U	0.02 U
Copper	1.3	0.01 U	0.01 U	0.00198 J
Iron	NL	0.397	0.643	0.625
Lead	0.015	0.01 U	0.01 U	0.01 U
Magnesium	NL	1.92	1.87	1.83
Manganese	NL	0.0442	0.0446	0.0437
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.02 U
Potassium	NL	1.41	1.44	1.42
Selenium	0.05	0.02 U	0.02 U	0.02 U
Silver	NL	0.01 U	0.01 U	0.01 U
Sodium	NL	2.09	2.06	2.02
Thallium	0.002	0.02 U	0.02 U	0.02 U
Vanadium	NL	0.01 U	0.00230 J	0.00218 J
Zinc	NL	0.00408 J	0.00467 J	0.00409 J

**TABLE 2  
VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:		090102-CRB-WS-01	090102-ERB-WS-01
Sample Collection Date:	TWQC	1/2/2009	1/2/2009
Field Quality Control:			
<b>Total Suspended Solids (mg/L)</b>			
Total Suspended Solids	NL	7 J	6 J
<b>Dissolved Silica (mg/L)</b>			
Silica	NL	1.33	2.03
<b>Dissolved Metals (mg/L)</b>			
Aluminum	NL	0.0306	0.0336
Antimony	0.006	0.005 U	0.005 U
Arsenic	0.01	0.005 U	0.005 U
Barium	2	0.0322	0.0252
Beryllium	0.004	0.001 U	0.001 U
Cadmium	0.005	0.0007 U	0.0007 U
Calcium	NL	35.5	7.97
Chromium	0.1	0.01 U	0.005 U
Cobalt	NL	0.005 U	0.005 U
Copper	1.3	0.00204	0.002 U
Iron	NL	18.7 J	39.8 J
Lead	0.015	0.001 U	0.001 U
Magnesium	NL	9.84	1.94
Manganese	NL	0.005 U	0.00569
Mercury	0.002	0.0002 U	0.0002 U
Nickel	NL	0.0011 J	0.00109 J
Potassium	NL	1.74 J-	1.15 J-
Selenium	0.05	0.005 U	0.005 U
Silver	NL	0.001 U	0.001 U
Sodium	NL	7.26	2.49
Thallium	0.002	0.000107 J	0.001 U
Vanadium	NL	0.005 U	0.005 U
Zinc	NL	0.00739 J+	0.00252 J+
<b>Total Metals (mg/L)</b>			
Aluminum	NL	0.12	0.132
Antimony	0.006	0.005 U	0.005 U
Arsenic	0.01	0.005 U	0.005 U
Barium	2	0.0348	0.0293
Beryllium	0.004	0.001 U	0.001 U
Cadmium	0.005	0.0007 U	0.0007 U
Calcium	NL	36.8	8.9
Chromium	0.1	0.005 U	0.005 U
Cobalt	NL	0.005 U	0.005 U
Copper	1.3	0.00118 J	0.000819 J
Iron	NL	0.121	0.195
Lead	0.015	0.000262 J	0.000237 J
Magnesium	NL	10.3	2.33
Manganese	NL	0.0307	0.0345
Mercury	0.002	0.0002 U	0.0002 U
Nickel	NL	0.00128 J	0.00134 J
Potassium	NL	1.7	1.22
Selenium	0.05	0.005 U	0.005 U
Silver	NL	0.001 U	0.001 U
Sodium	NL	7.49	2.68
Thallium	0.002	0.001 U	0.001 U
Vanadium	NL	0.005 U	0.005 U
Zinc	NL	0.018	0.0136



**TABLE 2**  
**VALIDATED SURFACE WATER LABORATORY ANALYTICAL RESULTS**

Notes:

Results exceed the TWQC

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.

mg/L = Milligrams per liter

NA = The sample was not analyzed for this analyte.

NL = Not listed

TWQC = Tennessee Water Quality Criteria

U = The analyte was analyzed for, but was not detected at or above the associated value.



**TABLE 3  
VALIDATED POTABLE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	MCL	KIF-KWTPI	KWTPI-WS01	KWTDW-WS02
Sample Collection Date:		12/23/2008	12/29/2008	12/29/2008
Field Quality Control:		(Kingston Raw)	(Kingston Raw)	(Kingston Finished)
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	NA	10	5 U
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	NA	1.94	2.12
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	NA	0.2 U	0.2 U
Antimony	0.006	NA	0.02 U	0.02 U
Arsenic	0.01	NA	0.05 U	0.05 U
Barium	2	NA	0.0192 J	0.0179 J
Beryllium	0.004	NA	0.01 U	0.01 U
Cadmium	0.005	NA	0.005 U	0.005 U
Calcium	NL	NA	14.2	14.0
Chromium	0.1	NA	0.01 U	0.01 U
Cobalt	NL	NA	0.02 U	0.02 U
Copper	1.3	NA	0.01 U	0.0037 J
Iron	NL	NA	0.1 U	0.1 U
Lead	0.015	NA	0.01 U	0.01 U
Magnesium	NL	NA	3.67	3.66
Manganese	NL	NA	0.015 U	0.015 U
Mercury	0.002	NA	0.0002 U	0.0002 U
Nickel	NL	NA	0.02 U	0.02 U
Potassium	NL	NA	1.60	1.64
Selenium	0.05	NA	0.02 U	0.02 U
Silver	NL	NA	0.01 U	0.01 U
Sodium	NL	NA	8.36	11.6
Thallium	0.002	NA	0.02 U	0.02 U
Vanadium	NL	NA	0.01 U	0.01 U
Zinc	NL	NA	0.0337	0.02 U
<b>Total Metals (mg/L)</b>				
Aluminum	NL	0.247	0.423	0.0427 J
Antimony	0.006	0.005 U	0.02 U	0.02 U
Arsenic	0.01	0.005 U	0.05 U	0.05 U
Barium	2	0.0212	0.0258	0.0217
Beryllium	0.004	0.001 U	0.01 U	0.01 U
Cadmium	0.005	0.0007 U	0.005 U	0.005 U
Calcium	NL	16.5	15.5	15.8
Chromium	0.1	0.005 U	0.01 U	0.01 U
Cobalt	NL	0.005 U	0.02 U	0.02 U
Copper	1.3	0.000914 J	0.00441 J	0.00551 J
Iron	NL	0.249	0.512	0.1 U
Lead	0.015	0.000332 J	0.01 U	0.01 U
Magnesium	NL	3.63	4.34	4.41
Manganese	NL	0.0448	0.106	0.015 U
Mercury	0.002	0.0002 U	0.00041	0.0002 U
Nickel	NL	0.000672 J	0.02 U	0.02 U
Potassium	NL	1.89	1.90	1.89
Selenium	0.05	0.005 U	0.02 U	0.02 U
Silver	NL	0.001 U	0.01 U	0.01 U
Sodium	NL	8.49	9.45	16.1
Thallium	0.002	0.001 U	0.02 U	0.02 U
Vanadium	NL	0.005 U	0.01 U	0.01 U
Zinc	NL	0.0107	0.0712	0.02 U

**TABLE 3  
VALIDATED POTABLE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	MCL	RWDW-WS03	RWWTL-WS04	KWTP-FWU-01
Sample Collection Date:		12/29/2008	12/29/2008	1/5/2009
Field Quality Control:		(Rockwood Finished)	(Rockwood Raw)	(Kingston Finished)
<b>Total Suspended Solids (mg/L)</b>				
Total Suspended Solids	NL	5 U	8	5 U
<b>Dissolved Silica (mg/L)</b>				
Silica	NL	2.14	2.03	2.06
<b>Dissolved Metals (mg/L)</b>				
Aluminum	NL	0.0235 J	0.2 U	0.019
Antimony	0.006	0.02 U	0.02 U	0.005 U
Arsenic	0.01	0.05 U	0.05 U	0.005 U
Barium	2	0.0248	0.0251	0.0181
Beryllium	0.004	0.01 U	0.01 U	0.001 U
Cadmium	0.005	0.005 U	0.005 U	0.0007 U
Calcium	NL	17.9	17.9	15.2
Chromium	0.1	0.01 U	0.01 U	0.005 U
Cobalt	NL	0.02 U	0.02 U	0.005 U
Copper	1.3	0.01 U	0.01 U	0.0048
Iron	NL	0.1 U	0.1 U	0.1 U
Lead	0.015	0.01 U	0.01 U	0.00062 J
Magnesium	NL	5.87	5.87	3.7
Manganese	NL	0.015 U	0.015 U	0.00159 J
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.005 U
Potassium	NL	1.64	1.49	1.78
Selenium	0.05	0.02 U	0.02 U	0.005 U
Silver	NL	0.01 U	0.01 U	0.001 U
Sodium	NL	7.30	6.37	13.4
Thallium	0.002	0.02 U	0.02 U	0.001 U
Vanadium	NL	0.01 U	0.01 U	0.005 U
Zinc	NL	0.0240	0.0633	0.00758 J
<b>Total Metals (mg/L)</b>				
Aluminum	NL	0.0326 J	0.149 J	0.0367
Antimony	0.006	0.02 U	0.02 U	0.005 U
Arsenic	0.01	0.05 U	0.05 U	0.005 U
Barium	2	0.0295	0.0316	0.0191
Beryllium	0.004	0.01 U	0.01 U	0.001 U
Cadmium	0.005	0.005 U	0.005 U	0.0007 U
Calcium	NL	20.0	19.8	16.3
Chromium	0.1	0.01 U	0.01 U	0.005 U
Cobalt	NL	0.02 U	0.02 U	0.005 U
Copper	1.3	0.01 U	0.00356 J	0.00519
Iron	NL	0.1 U	0.175	0.1 U
Lead	0.015	0.01 U	0.01 U	0.001 U
Magnesium	NL	6.97	6.87	3.94
Manganese	NL	0.015 U	0.0496	0.005 U
Mercury	0.002	0.0002 U	0.0002 U	0.0002 U
Nickel	NL	0.02 U	0.02 U	0.005 U
Potassium	NL	1.92	1.77	1.9
Selenium	0.05	0.02 U	0.02 U	0.005 U
Silver	NL	0.01 U	0.01 U	0.001 U
Sodium	NL	8.31	7.27	14.3
Thallium	0.002	0.02 U	0.02 U	0.001 U
Vanadium	NL	0.01 U	0.01 U	0.005 U
Zinc	NL	0.0321	0.0991	0.00634 J

**TABLE 3  
VALIDATED POTABLE WATER LABORATORY ANALYTICAL RESULTS**

Sample Designation:	MCL	KWTP-RWU-01	KWTP-RWU-01-DUP
Sample Collection Date:		1/5/2009	1/5/2009
Field Quality Control:		(Kingston Raw)	Field Duplicate
<b>Total Suspended Solids (mg/L)</b>			
Total Suspended Solids	NL	4 J	4 J
<b>Dissolved Silica (mg/L)</b>			
Silica	NL	1.91	1.92
<b>Dissolved Metals (mg/L)</b>			
Aluminum	NL	0.0156	0.0122
Antimony	0.006	0.005 U	0.005 U
Arsenic	0.01	0.005 U	0.005 U
Barium	2	0.0189	0.0187
Beryllium	0.004	0.001 U	0.001 U
Cadmium	0.005	0.0007 U	0.0007 U
Calcium	NL	14.8	15.5
Chromium	0.1	0.005 U	0.005 U
Cobalt	NL	0.005 U	0.005 U
Copper	1.3	0.00216	0.00228
Iron	NL	0.1 U	0.1 U
Lead	0.015	0.001 U	0.001 U
Magnesium	NL	3.64	3.63
Manganese	NL	0.005 U	0.005 U
Mercury	0.002	0.0002 U	0.0002 U
Nickel	NL	0.005 U	0.005 U
Potassium	NL	1.76	1.81
Selenium	0.05	0.005 U	0.005 U
Silver	NL	0.001 U	0.001 U
Sodium	NL	9.22	9.33
Thallium	0.002	0.001 U	0.001 U
Vanadium	NL	0.005 U	0.005 U
Zinc	NL	0.0203	0.019
<b>Total Metals (mg/L)</b>			
Aluminum	NL	0.0743	0.0773
Antimony	0.006	0.005 U	0.005 U
Arsenic	0.01	0.005 U	0.005 U
Barium	2	0.0204	0.0204
Beryllium	0.004	0.001 U	0.001 U
Cadmium	0.005	0.0007 U	0.0007 U
Calcium	NL	15.7	16.0
Chromium	0.1	0.005 U	0.005 U
Cobalt	NL	0.005 U	0.005 U
Copper	1.3	0.00286	0.00406
Iron	NL	0.0704 J	0.0792 J
Lead	0.015	0.000188 J	0.000181 J
Magnesium	NL	3.81	3.83
Manganese	NL	0.0277	0.0284
Mercury	0.002	0.0002 U	0.0002 U
Nickel	NL	0.005 U	0.005 U
Potassium	NL	1.85	1.89
Selenium	0.05	0.005 U	0.005 U
Silver	NL	0.001 U	0.001 U
Sodium	NL	9.53	9.73
Thallium	0.002	0.001 U	0.001 U
Vanadium	NL	0.005 U	0.005 U
Zinc	NL	0.0245	0.0245



**TABLE 3**  
**VALIDATED POTABLE WATER LABORATORY ANALYTICAL RESULTS**

**Notes:**

Results exceed the MCL

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

MCL = Maximum Contaminant Level set by the National Primary Drinking Water Regulation

mg/L = Milligrams per liter

NA = The sample was not analyzed for this analyte.

NL = Not listed

U = The analyte was analyzed for, but was not detected at or above the associated value.

**TABLE 4  
VALIDATED ASH LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	TT-SS01	081227-DKC-SS-01	081227-DKCL-SS-02
Sample Collection Date:	Residential	Industrial	12/23/2008	12/27/2008	12/27/2008
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	27.7	31.0	21.3
<b>BTEX (µg/kg)</b>					
Benzene	113	626	R	1.3 U	1.1 U
Ethylbenzene	574	3180	R	1.3 U	1.1 U
m,p-Xylenes	13800	64400	R	1.3 U	1.1 U
o-Xylene	16300	76100	R	1.3 U	1.1 U
Toluene	35400	155000	R	1.3 U	1.1 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	NA	40.1 J+	1060 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	26400	28900	10500
Antimony	329	1360	1.27 J	1.16 J-	1.06 J-
Arsenic	39	177	44.8	45.8	59.9
Barium	164000	681000	864	825 J	204 J
Beryllium	1610	6700	6.25	1.89 J	0.460 J
Cadmium	729	2700	0.577 J	0.800 J	0.765 J
Calcium	NL	NL	18300	19500	2710
Chromium	27600	154000	41.3	38.1	20.0
Cobalt	244	1010	17.7	18.7	8.50
Copper	NL	NL	59.9	69.4	29.9
Iron	575000	2380000	12000	14100	19300
Lead	400	800	20.3	24.9	20.0
Magnesium	NL	NL	3900	4300	873
Manganese	NL	NL	66.9	67.5 J+	231 J+
Mercury	20	93	0.0879 J	0.111 J	0.0755 J
Nickel	16400	68100	29.4	32.3	17.1
Potassium	NL	NL	3280	2840	1340
Selenium	4110	17000	3.13 J	6.63 J	5.15 J
Silver	4110	17000	2.81 U	3.38 U	2.91 U
Sodium	NL	NL	672	725	147
Thallium	53	221	4.36 J	67.7 U	5.82 U
Vanadium	4140	17200	107	121	45.6
Zinc	246000	1020000	55.6	54.9	28.7
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic	5.0		NA	0.25 U	0.25 U
Barium	100.0		NA	4.71	0.766
Cadmium	1.0		NA	0.025 U	0.025 U
Chromium	5.0		NA	0.0540	0.05 U
Lead	5.0		NA	0.05 U	0.05 U
Mercury	0.2		NA	0.004 U	0.004 U
Selenium	1.0		NA	0.1 U	0.1 U
Silver	5.0		NA	0.025 U	0.025 U



**TABLE 4  
VALIDATED ASH LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	081228-KFPRW-01	081228-SPRRW-02	081228-SPCRW-03
Sample Collection Date:	Residential	Industrial	12/28/2008	12/28/2008	12/28/2008
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	22.2	26.1	29.9
<b>BTEX (µg/kg)</b>					
Benzene	113	626	R	1.3 U	1.2 U
Ethylbenzene	574	3180	R	1.3 U	1.2 U
m,p-Xylenes	13800	64400	1.6 J	1.3 U	1.2 U
o-Xylene	16300	76100	R	1.3 U	1.2 U
Toluene	35400	155000	R	1.3 U	1.2 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	1050 J+	184 J+	81.5 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	11000	18600	14900
Antimony	329	1360	1.06 J-	1.63 J-	1.38 J-
Arsenic	39	177	54.2	81.3	69.8
Barium	164000	681000	188 J	248 J	208 J
Beryllium	1610	6700	0.553 J	0.782 J	1.04 J
Cadmium	729	2700	0.737 J	1.23 J	1.06 J
Calcium	NL	NL	2190	3070	2570
Chromium	27600	154000	18.2	30.4	27.4
Cobalt	244	1010	8.58	11.4	11.7
Copper	NL	NL	34.5	49.2	58.5
Iron	575000	2380000	11800	13900	9590
Lead	400	800	15.3	23.2	56.9
Magnesium	NL	NL	713	1210	979
Manganese	NL	NL	48.3 J+	56.8 J+	45.7 J+
Mercury	20	93	0.0563 J	0.0973 J	0.0664 J
Nickel	16400	68100	19.3	25.3	27.0
Potassium	NL	NL	1770	3050	2250
Selenium	4110	17000	6.36	6.37 J	7.15
Silver	4110	17000	3.00 U	3.20 U	3.38 U
Sodium	NL	NL	174	298	224
Thallium	53	221	5.99 U	6.40 U	6.75 U
Vanadium	4140	17200	44.6	71.0	72.9
Zinc	246000	1020000	24.3	42.7	36.9
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic	5.0		0.25 U	0.0862 J	0.0984 J
Barium	100.0		0.801	1.06	0.747
Cadmium	1.0		0.025 U	0.025 U	0.025 U
Chromium	5.0		0.05 U	0.05 U	0.05 U
Lead	5.0		0.05 U	0.05 U	0.05 U
Mercury	0.2		0.004 U	0.004 U	0.004 U
Selenium	1.0		0.1 U	0.1 U	0.1 U
Silver	5.0		0.025 U	0.025 U	0.025 U



**TABLE 4  
VALIDATED ASH LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	090105-KFPRW-SS12	090105-KFPRW-SS12-DUP
Sample Collection Date:	Residential	Industrial	1/5/2009	1/5/2009
Field Quality Control:				Field Duplicate
<b>Percent Moisture (percent)</b>				
Percent Moisture	NL	NL	19.9	18.9
<b>BTEX (µg/kg)</b>				
Benzene	113	626	R	R
Ethylbenzene	574	3180	R	R
m,p-Xylenes	13800	64400	R	R
o-Xylene	16300	76100	R	R
Toluene	35400	155000	R	R
<b>Total Silica (mg/kg)</b>				
Silica	NL	NL	746 J+	812 J+
<b>Total Metals (mg/kg)</b>				
Aluminum	76000	3290000	12500	10900
Antimony	329	1360	0.916 J-	0.981 J-
Arsenic	39	177	72.2	56.6
Barium	164000	681000	231	179
Beryllium	1610	6700	0.122 J	0.168 J
Cadmium	729	2700	0.858 J	0.700 J
Calcium	NL	NL	8750 J-	9010 J-
Chromium	27600	154000	22.0	19.9
Cobalt	244	1010	7.91	8.01
Copper	NL	NL	32.9	32.3
Iron	575000	2380000	15200	15800
Lead	400	800	18.3	17.5
Magnesium	NL	NL	1650 J-	1260 J-
Manganese	NL	NL	447	166
Mercury	20	93	0.116 J	0.108 J
Nickel	16400	68100	18.3	17.0
Potassium	NL	NL	1850	1590
Selenium	4110	17000	6.35	5.80 J
Silver	4110	17000	3.05 U	3.02 U
Sodium	NL	NL	169	143
Thallium	53	221	6.1 UJ	6.04 UJ
Vanadium	4140	17200	51.8	48.9
Zinc	246000	1020000	34.5	42.4
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>				
Arsenic	5.0		0.25 U	0.25 U
Barium	100.0		0.798	0.826
Cadmium	1.0		0.025 U	0.025 U
Chromium	5.0		0.05 U	0.05 U
Lead	5.0		0.0124 J	0.05 U
Mercury	0.2		0.004 U	0.004 U
Selenium	1.0		0.1 U	0.1 U
Silver	5.0		0.025 U	0.025 U



**TABLE 4**  
**VALIDATED ASH LABORATORY ANALYTICAL RESULTS**

Notes:

Results exceeded the Region 4 Residential RALs

\* = Comparison values are TCLP thresholds and not Region 4 RALs.

BTEX = Benzene, toluene, ethylbenzene, and xylenes

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

NL = Not listed

R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.

RAL = Region 4 Removal Action Level.

TCLP = Toxicity characteristic leaching procedure

U = The analyte was analyzed for, but was not detected at or above the associated value.

**TABLE 5  
VALIDATED SOIL LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	081228-EERBS-SS04	081228-ERPL-SS05	081228-ERPR-SS06
Sample Collection Date:	Residential	Industrial	12/28/2008	12/28/2008	12/28/2008
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	22.5	25.8	24.7
<b>BTEX (µg/kg)</b>					
Benzene	113	626	0.92 U	1.1 U	1.0 U
Ethylbenzene	574	3180	0.92 U	1.1 U	1.0 U
m,p-Xylenes	13800	64400	0.92 U	1.1 U	1.0 U
o-Xylene	16300	76100	0.92 U	1.1 U	1.0 U
Toluene	35400	155000	0.92 U	1.1 U	1.0 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	263 J+	192 J+	193 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	13100	12500	14400
Antimony	329	1360	0.461 J-	1.10 J-	0.567 J-
Arsenic	39	177	1.34 J	27.9	3.29 J
Barium	164000	681000	76.5 J	28.2 J	118 J
Beryllium	1610	6700	0.497 J	0.0646 J	0.685 J
Cadmium	729	2700	3.12 U	0.273 J	3.08 U
Calcium	NL	NL	1510	976	2140
Chromium	27600	154000	21.0	27.7	26.0
Cobalt	244	1010	8.49	4.04	18.0
Copper	NL	NL	12.8	21.0	15.6
Iron	575000	2380000	19100	36700	24800
Lead	400	800	10.1	45.4	18.2
Magnesium	NL	NL	2530	458	2410
Manganese	NL	NL	268 J+	228 J+	1150 J+
Mercury	20	93	0.127 U	0.127 J	0.129 U
Nickel	16400	68100	23.5	11.7	18.8
Potassium	NL	NL	1840	350	2260
Selenium	4110	17000	2.12 J	2.64 J	3.37 J
Silver	4110	17000	3.12 U	3.11 U	3.08 U
Sodium	NL	NL	125 U	124 U	123 U
Thallium	53	221	6.23 U	6.21 U	6.17 U
Vanadium	4140	17200	20.3	81.5	28.5
Zinc	246000	1020000	44.7	26.3	35.4
<b>TCPLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic	5.0		0.25 U	0.25 U	0.25 U
Barium	100.0		0.5 U	0.5 U	0.5 U
Cadmium	1.0		0.025 U	0.025 U	0.025 U
Chromium	5.0		0.05 U	0.05 U	0.05 U
Lead	5.0		0.05 U	0.0116 J	0.05 U
Mercury	0.2		0.004 U	0.004 U	0.004 U
Selenium	1.0		0.1 U	0.1 U	0.1 U
Silver	5.0		0.025 U	0.025 U	0.025 U



**TABLE 5  
VALIDATED SOIL LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL <sub>2</sub>	081228-ERER-SS07	081228-ERER-SS07-DUP	081228-ERER-SS08
Sample Collection Date:	Residential	Industrial	12/28/2008	12/28/2008	12/28/2008
Field Quality Control:				Field Duplicate	
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	18.3	22.0	22.6
<b>BTEX (µg/kg)</b>					
Benzene	113	626	0.98 U	0.88 U	0.92 U
Ethylbenzene	574	3180	0.98 U	0.88 U	0.92 U
m,p-Xylenes	13800	64400	0.98 U	0.88 U	0.92 U
o-Xylene	16300	76100	0.98 U	0.88 U	0.92 U
Toluene	35400	155000	0.98 U	0.88 U	0.92 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	320 J-	228 J+	238 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	9580	10100	13700
Antimony	329	1360	1.24 J-	1.87 J-	0.664 J-
Arsenic	39	177	19.1	19.1	3.99 J
Barium	164000	681000	68.2 J	174 J	44.3 J
Beryllium	1610	6700	0.535 J	0.618 J	0.117 J
Cadmium	729	2700	0.141 J	0.211 J-	2.94 U
Calcium	NL	NL	1030	1120	1420
Chromium	27600	154000	54.4	86.7	18.7
Cobalt	244	1010	33.7	30.8	4.39
Copper	NL	NL	10.9	11.3	8.74
Iron	575000	2380000	28000	30100	23100
Lead	400	800	71.8	61.2	13.8
Magnesium	NL	NL	635	688	874
Manganese	NL	NL	1410 J+	4160 J+	180 J+
Mercury	20	93	0.0280 J	0.0293 J	0.0649 J
Nickel	16400	68100	11.6	12.9	6.68
Potassium	NL	NL	577	534	659
Selenium	4110	17000	2.86 J	4.29 J	2.60 J
Silver	4110	17000	3.02 U	0.375 J	2.94 U
Sodium	NL	NL	121 U	121 U	118 U
Thallium	53	221	6.04 U	60.4 U	5.88 U
Vanadium	4140	17200	41.0	43.0	23.2
Zinc	246000	1020000	31.8	35.6	31.1
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic	5.0		0.25 U	0.25 U	0.25 U
Barium	100.0		0.5 U	0.5 U	0.5 U
Cadmium	1.0		0.025 U	0.025 U	0.025 U
Chromium	5.0		0.05 U	0.05 U	0.05 U
Lead	5.0		0.05 U	0.05 U	0.05 U
Mercury	0.2		0.004 U	0.004 U	0.00413
Selenium	1.0		0.1 U	0.1 U	0.1 U
Silver	5.0		0.025 U	0.025 U	0.025 U

**TABLE 5  
VALIDATED SOIL LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	081228-SGUBR-SS09	081228-KCPS-SS10	081228-KCP-SS11
Sample Collection Date:	Residential	Industrial	12/28/2008	12/28/2008	12/28/2008
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	25.2	27.4	23.1
<b>BTEX (µg/kg)</b>					
Benzene	113	626	0.89 U	1.1 U	0.92 U
Ethylbenzene	574	3180	0.89 U	1.1 U	0.92 U
m,p-Xylenes	13800	64400	0.89 U	1.1 U	0.92 U
o-Xylene	16300	76100	0.89 U	1.1 U	0.92 U
Toluene	35400	155000	0.89 U	1.1 U	0.92 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	232 J+	235 J+	292 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	16200	22600	8140
Antimony	329	1360	1.06 J-	1.11 J-	0.418 J-
Arsenic	39	177	34.5	19.1	6.07 J
Barium	164000	681000	47.0 J	24.5 J	17.8 J
Beryllium	1610	6700	0.346 J	0.351 J	0.109 J
Cadmium	729	2700	0.333 J	0.178 J	0.0423 J
Calcium	NL	NL	2180	1620	647
Chromium	27600	154000	19.5	34.2	11.7
Cobalt	244	1010	6.46	2.34 J	2.69 J
Copper	NL	NL	35.6	21.8	10.7
Iron	575000	2380000	40700	40800	17900
Lead	400	800	55.5	24.7	15.3
Magnesium	NL	NL	873	1020	379
Manganese	NL	NL	313 J+	143 J+	112 J+
Mercury	20	93	0.212	0.160	0.129 U
Nickel	16400	68100	18.8	12.2	5.62 J
Potassium	NL	NL	581	840	416
Selenium	4110	17000	3.23 J	3.86 J	2.01 J
Silver	4110	17000	3.32 U	3.43 U	3.04 U
Sodium	NL	NL	133 U	137 U	122 U
Thallium	53	221	6.63 U	6.85 U	6.08 U
Vanadium	4140	17200	69.3	66.1	18.8
Zinc	246000	1020000	66.4	84.5	22.9
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic	5.0		0.25 U	0.25 U	0.25 U
Barium	100.0		0.5 U	0.5 U	0.5 U
Cadmium	1.0		0.025 U	0.025 U	0.025 U
Chromium	5.0		0.05 U	0.05 U	0.05 U
Lead	5.0		0.05 U	0.05 U	0.0188 J
Mercury	0.2		0.004 U	0.004 U	0.004 U
Selenium	1.0		0.1 U	0.1 U	0.1 U
Silver	5.0		0.025 U	0.025 U	0.025 U

**TABLE 5  
VALIDATED SOIL LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	090102-CRB-SS-01	090102-CRB-SS-02	090102-ERB-SS-01
Sample Collection Date:	Residential	Industrial	1/2/2009	1/2/2009	1/2/2009
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	18.5	21.6	26.9
<b>BTEX (µg/kg)</b>					
Benzene	113	626	1.3 U	0.99 U	1.1 U
Ethylbenzene	574	3180	1.3 U	0.99 U	1.1 U
m,p-Xylenes	13800	64400	1.3 U	0.99 U	1.1 U
o-Xylene	16300	76100	1.3 U	0.99 U	1.1 U
Toluene	35400	155000	1.3 U	0.99 U	1.1 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	243 J+	258 J+	291 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	6190	5910	2170
Antimony	329	1360	0.460 J-	0.962 J-	5.55 UJ
Arsenic	39	177	4.32 J	11.1	1.06 J
Barium	164000	681000	29.8	95.1	24.5
Beryllium	1610	6700	2.47 U	0.216 J	0.225 J
Cadmium	729	2700	0.0404 J	0.161 J	0.110 J
Calcium	NL	NL	954	916	348
Chromium	27600	154000	17.8	31.1	4.19
Cobalt	244	1010	3.88	8.04	3.23
Copper	NL	NL	5.90	6.16	4.26
Iron	575000	2380000	15900	23100	4880
Lead	400	800	14.2	27.2	6.57
Magnesium	NL	NL	411	426	240
Manganese	NL	NL	388	1230	61.1
Mercury	20	93	0.121 UJ	0.125 UJ	0.135 UJ
Nickel	16400	68100	4.94 U	6.66	6.76
Potassium	NL	NL	401	321	213
Selenium	4110	17000	1.98 J	3.04 J	1.04 J
Silver	4110	17000	2.47 U	2.74 U	2.77 U
Sodium	NL	NL	98.8 U	110 U	111 U
Thallium	53	221	4.94 U	5.49 U	5.55 U
Vanadium	4140	17200	17.8 J-	36.3 J-	5.01 J-
Zinc	246000	1020000	17.7	24.6	20.9
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic		5.0	0.25 U	0.25 U	0.25 U
Barium		100.0	0.5 U	0.695	0.5 U
Cadmium		1.0	0.025 U	0.025 U	0.025 U
Chromium		5.0	0.05 U	0.05 U	0.05 U
Lead		5.0	0.05 U	0.05 U	0.0628
Mercury		0.2	0.004 U	0.004 U	0.004 U
Selenium		1.0	0.1 U	0.1 U	0.1 U
Silver		5.0	0.025 U	0.025 U	0.025 U



**TABLE 5  
VALIDATED SOIL LABORATORY ANALYTICAL RESULTS**

Sample Designation:	RAL	RAL	090102-ERB-SS-02	090105-CRM-SS13	090105-CRM-SS13-DUP
Sample Collection Date:	Residential	Industrial	1/2/2009	1/5/2009	1/5/2009
Field Quality Control:					Field Duplicate
<b>Percent Moisture (percent)</b>					
Percent Moisture	NL	NL	28.6	18.1	19.7
<b>BTEX (µg/kg)</b>					
Benzene	113	626	1.9	0.99 U	0.9 U
Ethylbenzene	574	3180	1.2 U	0.99 U	0.9 U
m,p-Xylenes	13800	64400	1.2 U	0.99 U	0.9 U
o-Xylene	16300	76100	1.2 U	0.99 U	0.9 U
Toluene	35400	155000	2.0	0.99 U	0.9 U
<b>Total Silica (mg/kg)</b>					
Silica	NL	NL	230 J+	800 J+	935 J+
<b>Total Metals (mg/kg)</b>					
Aluminum	76000	3290000	3280	3630	3750
Antimony	329	1360	0.425 J-	0.325 J-	0.357 J-
Arsenic	39	177	15.9	7.51	5.62 J
Barium	164000	681000	39.9	24.8	24.2
Beryllium	1610	6700	0.293 J-	0.0453 J-	0.0401 J
Cadmium	729	2700	0.355 J-	0.0935 J-	0.0883 J
Calcium	NL	NL	1950	2310 J-	700 J-
Chromium	27600	154000	11.9	9.83	10.4
Cobalt	244	1010	6.71	5.54	4.81
Copper	NL	NL	23.2	11.6	10.8
Iron	575000	2380000	7620	12300	9530
Lead	400	800	18.8	16.9	14.5
Magnesium	NL	NL	514	1170 J-	301 J-
Manganese	NL	NL	225	348	295
Mercury	20	93	0.139 UJ	0.0942 J	0.112 J
Nickel	16400	68100	8.49	5.74	5.21 J
Potassium	NL	NL	226	274	268
Selenium	4110	17000	1.47 J	1.74 J	1.11 J
Silver	4110	17000	2.71 U	2.85 U	2.93 U
Sodium	NL	NL	109 U	8.30 J	117 U
Thallium	53	221	5.43 U	5.7 UJ	5.86 UJ
Vanadium	4140	17200	9.20 J-	12.4	11.8
Zinc	246000	1020000	68.5	25.2	24.8
<b>TCLP Metals (mg/L) (40CFR 261.24)*</b>					
Arsenic	5.0		0.25 U	0.25 U	0.25 U
Barium	100.0		0.5 U	0.302 J	0.384 J
Cadmium	1.0		0.025 U	0.025 U	0.025 U
Chromium	5.0		0.05 U	0.05 U	0.05 U
Lead	5.0		0.0576	0.05 U	0.05 U
Mercury	0.2		0.004 U	0.004 U	0.004 U
Selenium	1.0		0.1 U	0.1 U	0.1 U
Silver	5.0		0.025 U	0.025 U	0.025 U

**TABLE 5**  
**VALIDATED SOIL LABORATORY ANALYTICAL RESULTS**

Notes:

Results exceeded the Region 4 Residential RALs

\* = Comparison values are TCLP thresholds and not Region 4 RALs.

BTEX = Benzene, toluene, ethylbenzene, and xylenes

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

NL = Not listed

R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.

RAL = Region 4 Removal Action Level

TCLP = Toxicity characteristic leaching procedure.

U = The analyte was analyzed for, but was not detected at or above the associated value.

**TABLE 6  
EPA PARTICULATE MONITORING RESULTS**

Date	Number of Sample Points	Type	Location	Min	Units	Max	Units	Avg	Units
12/27/08	continuous 3-hr day	Totals	On site	NA	NA	0.775	mg/m <sup>3</sup>	0.000	mg/m <sup>3</sup>
12/28/08	continuous 8-hr day	Totals	On site	NA	NA	0.010	mg/m <sup>3</sup>	0.000	mg/m <sup>3</sup>
12/29/08	continuous 8-hr day	Totals	On site	NA	NA	1.586	mg/m <sup>3</sup>	0.003	mg/m <sup>3</sup>
12/30/08	3 (instantaneous)	Totals	On site	0.000	mg/m <sup>3</sup>	0.030	mg/m <sup>3</sup>	0.010	mg/m <sup>3</sup>
12/30/08	8 (instantaneous)	PM 2.5	On site	1.8	ug/m <sup>3</sup>	8.3	ug/m <sup>3</sup>	5.0	ug/m <sup>3</sup>
12/31/08	3 (instantaneous)	Totals	On site	0.000	mg/m <sup>3</sup>	0.001	mg/m <sup>3</sup>	0.000	mg/m <sup>3</sup>
12/31/08	10 (instantaneous)	PM 2.5	On site	4.6	ug/m <sup>3</sup>	15.6	ug/m <sup>3</sup>	9.9	ug/m <sup>3</sup>
12/31/08	10 (instantaneous)	PM 2.5	Off site	3.4	ug/m <sup>3</sup>	11.6	ug/m <sup>3</sup>	5.7	ug/m <sup>3</sup>
01/01/09	continuous 3-hr day	PM 10	On site	NA	NA	119.3	ug/m <sup>3</sup>	6.1	ug/m <sup>3</sup>
01/01/09	13 (instantaneous)	PM 10	On site	4.0	ug/m <sup>3</sup>	23.8	ug/m <sup>3</sup>	9.5	ug/m <sup>3</sup>
01/01/09	8 (instantaneous)	PM 10	Off site	7.2	ug/m <sup>3</sup>	16.9	ug/m <sup>3</sup>	9.8	ug/m <sup>3</sup>
01/02/09	continuous 9-hr day	PM 10	On site	NA	NA	56.8	ug/m <sup>3</sup>	18.5	ug/m <sup>3</sup>
01/02/09	19 (instantaneous)	PM 10	On site	8.4	ug/m <sup>3</sup>	26.7	ug/m <sup>3</sup>	18.8	ug/m <sup>3</sup>
01/02/09	9 (instantaneous)	PM 10	Off site	11.7	ug/m <sup>3</sup>	19.5	ug/m <sup>3</sup>	15.7	ug/m <sup>3</sup>
1/3/2009 <sup>1</sup>	2 (instantaneous)	PM 10	On site	66.7	ug/m <sup>3</sup>	85.7	ug/m <sup>3</sup>	76.2	ug/m <sup>3</sup>
1/4/2009 <sup>2</sup>	continuous 4-hr day	PM 10	On site	NA	NA	93.7	ug/m <sup>3</sup>	22.3	ug/m <sup>3</sup>
1/4/2009 <sup>2</sup>	6 (instantaneous)	PM 10	On site	38.2	ug/m <sup>3</sup>	47.4	ug/m <sup>3</sup>	40.6	ug/m <sup>3</sup>
1/4/2009 <sup>2</sup>	3 (instantaneous)	PM 10	Off site	15.2	ug/m <sup>3</sup>	20.9	ug/m <sup>3</sup>	18.1	ug/m <sup>3</sup>
01/05/09	continuous 9-hr day	PM 10	On site	NA	NA	748.1	ug/m <sup>3</sup>	20.5	ug/m <sup>3</sup>
01/05/09	19 (instantaneous)	PM 10	On site	6.2	ug/m <sup>3</sup>	36.0	ug/m <sup>3</sup>	17.2	ug/m <sup>3</sup>
01/05/09	11 (instantaneous)	PM 10	Off site	12.3	ug/m <sup>3</sup>	26.4	ug/m <sup>3</sup>	18.9	ug/m <sup>3</sup>
01/06/09	continuous 6-hr day	PM 10	On site	NA	NA	463.2	ug/m <sup>3</sup>	17.4	ug/m <sup>3</sup>
01/06/09	13 (instantaneous)	PM 10	On site	8.1	ug/m <sup>3</sup>	26.1	ug/m <sup>3</sup>	16.3	ug/m <sup>3</sup>
01/06/09	5 (instantaneous)	PM 10	Off site	5.9	ug/m <sup>3</sup>	18.6	ug/m <sup>3</sup>	12.5	ug/m <sup>3</sup>
01/07/09	continuous 8-hr day	PM 10	On site	NA	NA	423.5	ug/m <sup>3</sup>	13.8	ug/m <sup>3</sup>
01/07/09	19 (instantaneous)	PM 10	On site	5.1	ug/m <sup>3</sup>	19.1	ug/m <sup>3</sup>	13.8	ug/m <sup>3</sup>
01/07/09	8 (instantaneous)	PM 10	Off site	9.1	ug/m <sup>3</sup>	16.5	ug/m <sup>3</sup>	12.4	ug/m <sup>3</sup>
01/08/09	continuous 8-hr day	PM 10	On site	NA	NA	234.3	ug/m <sup>3</sup>	8.2	ug/m <sup>3</sup>
01/08/09	10 (instantaneous)	PM 10	On site	2.8	ug/m <sup>3</sup>	11.6	ug/m <sup>3</sup>	7.5	ug/m <sup>3</sup>
01/08/09	6 (instantaneous)	PM 10	Off site	4.9	ug/m <sup>3</sup>	13.2	ug/m <sup>3</sup>	11.8	ug/m <sup>3</sup>
01/09/09	continuous 8-hr day	PM 10	On site	NA	NA	80.2	ug/m <sup>3</sup>	7.1	ug/m <sup>3</sup>
01/09/09	15 (instantaneous)	PM 10	On site	6.0	ug/m <sup>3</sup>	30.6	ug/m <sup>3</sup>	14.7	ug/m <sup>3</sup>
01/09/09	9 (instantaneous)	PM 10	Off site	7.9	ug/m <sup>3</sup>	52.1	ug/m <sup>3</sup>	20.6	ug/m <sup>3</sup>
01/10/09	continuous 3-hr day	PM 10	On site	NA	NA	259.6	ug/m <sup>3</sup>	55.6	ug/m <sup>3</sup>
01/10/09	9 (instantaneous)	PM 10	On site	13.1	ug/m <sup>3</sup>	44.5	ug/m <sup>3</sup>	32.2	ug/m <sup>3</sup>
01/10/09	4 (instantaneous)	PM 10	Off site	40.3	ug/m <sup>3</sup>	54.9	ug/m <sup>3</sup>	49.4	ug/m <sup>3</sup>

Notes: Preliminary standard is taken from the National Ambient Air Quality Standard for Particulates Matter (24-hr) which = 150 ug/m<sup>3</sup>

1 - Air monitoring was halted at 0930 due to instrumentation interference from the continuous light precipitation.

2 - Air monitoring halted at 1630 due to heavy rain and lightning.

ug/m<sup>3</sup> = Micrograms per cubic meter

mg/m<sup>3</sup> = Milligrams per cubic meter

PM<sub>2.5</sub> = All particles within the ambient air with a diameter of 2.5 micrometers or less.

PM<sub>10</sub> = All particles within the ambient air with a diameter of 10 micrometers or less.





# TETRA TECH

February 3, 2009

Mr. Les Sims  
On-Scene Coordinator  
U.S. Environmental Protection Agency, Region 4  
61 Forsyth Street, SW, 11th Floor  
Atlanta, GA 30303

**Subject: Kingston Fossil Fly Ash Response**  
**Technical Direction Document Number TTEMI-05-001-0084**  
**Contract No. EP-W-05-054 (START III Region 4)**  
**Cursory Data Validation Report**  
**Analytical Environmental Services, Inc., Report Numbers (Nos.) 0812G73, 0812149, 0901058, and 0901111**  
**Analytical Parameters: Total metals, dissolved metals, dissolved silica, and total suspended solids (TSS)**

Laboratory Report No.	Samples	Field Duplicate Pairs	Field Blank Samples
0812G73	KIF-CRM 4.0, KIF-ERM 0.1, KIF-CRM 5.5, KIF-ERM 2.1, KIF-ERM 4.0, TT-ERM 1.9, KIF-TRM568.5, KIF-CRM 0.0, KIF-CRM 2.0, and KIF-KWTPI	TT-ERM 1.9 and DUPLICATE	None
0812149	081228-ERPL-WS01, 081228-ERER-WS02, 081228-SGUBR-WS03, 081228-KCPS-WS04, KIF-TRM368.5, KIF-CRM 0.0, KIF-CRM 2.0, TT-CRM 2.5, KIF-CRM 4.0, KIF-CRM 5.5, KIF-ERM 0.1, KIF-ERM 1.75, KIF-ERM 4.0, KIF-ERM 2.0, KWTPI-WS01, KWTDW-WS02, RWDW-WS03, and RWWT1-WS04	081228-ERER-WS02 and 081228-ERER-WS02-DUP  KIF-ERM 2.0 and KIF-ERM 2.0-DUP	None
0901058	090102-CRB-WS01 and 090102-ERB-WS01	None	None
0901111	KWTP-FWU-01 and KWTP-RWU-02	KWTP-RWU-02 and KWTP-RWU-02-DUP	None

Dear Mr. Sims:

The Tetra Tech Superfund Technical Assessment and Response Team (START) conducted data validation on the analytical results for 32 water samples and four field duplicate samples that were collected at the Kingston Fossil Fly Ash Response in Kingston, Tennessee, on December 23, 2008 through January 5, 2009. The samples were analyzed under laboratory report Nos. 0812G73, 0812149, 0901058, and 0901111 by Analytical Environmental Services, Inc. (AES) of Atlanta, Georgia.

Mr. L. Sims  
February 3, 2009

All water samples were analyzed for total metals by SW-846 Methods 6010B and 7470A. Some samples were filtered by AES and analyzed for total suspended solids (TSS, also called non-filterable residue) by EPA method 160.2 and for dissolved metals by SW-846 Methods 6010B and 7470A. On January 5, 2009, the decision was made to analyze total and dissolved metals by SW-846 Method 6020 instead of SW-846 Method 6010B to achieve lower reporting limit (RLs). In addition, sample KIF-KWTPI was reanalyzed by SW-846 Method 6020 to achieve the lower RLs. For all laboratory reports except 0812G73, samples were also analyzed for dissolved silica by SW-846 method 6010B. In laboratory report Nos. 0812149 and 0901058, dissolved silica was incorrectly identified on the results summary packages as total silica.

Analytical data were evaluated in general accordance with applicable data validation guidance documents, including the following: the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program National Functional Guidelines (NFG) for Inorganic Data Review (EPA October 2004). The analytical methods used by AES during this project provide guidance on procedures and method acceptance criteria that, in some areas, differ from the NFG. Where the methods and the NFG differ, the data validators followed the acceptance criteria in the methods. In addition, if laboratory-derived acceptance criteria were presented in the AES data package, then these criteria were used to evaluate the data, unless the criteria were considered inadequate.

Data were evaluated based on the following criteria:

- Data Completeness\*
- Sample Preservation, Sample Receipt, and Holding Times\*
- Laboratory Blanks
- Surrogates\*
- Laboratory Control Samples (LCS)/Laboratory Control Sample Duplicates (LCSD)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Field Duplicate Results\*
- Dilution and Reported Detection Limits
- Analyte Quantitation\*

\* All QC criteria were met for this evaluated parameter. Those criteria without an asterisk (\*) displayed a deficiency that is described later in this report.

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the set of data. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible quality control parameters or even of each quality control parameter that was reviewed. The review, rather, was intended to efficiently identify and focus on those problems and quality control deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

Enclosure 1 presents copies of the sample results sheets from the laboratory data packages, with hand-entered qualifications from the data validation effort. Enclosure 2 presents the same data validation-qualified analytical results in table format.



## DATA REVIEW RESULTS

The following sections discuss the data package and provide an overall assessment of the data. This discussion concentrates on the irregularities associated with the various parameters as indicated above.

### LABORATORY BLANKS

Many of the laboratory (method) blanks for the metals analyses contained concentrations below the RL for some analytes. In most cases, no qualifications were warranted because the sample results were above the corresponding RL or non-detect. However, qualifications were required for sample results below the RLs. The following results were qualified as non-detect due to blank contamination. All qualified results were raised to their respective RLs and flagged "U" as probable laboratory artifacts.

Report No.	Analyte	Affected Samples
0812G73	Total Thallium	KIF-KWTPI, KIF-CRM 5.5, KIF-ERM 4.0
0812I49	Dissolved Silver, Dissolved Mercury, and Total Mercury	081228-ERPL-WS01, 081228-KCPS-WS04, IT-CRM2.5, KIF-CRM4.0, KIF-ERM0.1, RWWTI-WS04
0812I49	Dissolved Mercury	081228-ERER-WS02, 081228-ERER-WS02-DUP, 081228-SGUBR-WS03, KIF-TRM568.5, KIF-ERM-1.75, KWTPI-WS01
0812I49	Dissolved Mercury and Total Mercury	KIF-CRM0.0, KIF-CRM2.0, KWTDW-WS02, RWDW-WS03
0812I49	Dissolved Silver and Total Mercury	KIF-CRM5.5, KIF-ERM2.0
0812I49	Total Mercury	KIF-ERM4.0, KIF-ERM2.0-DUP

### LABORATORY CONTROL SAMPLES/LABORATORY CONTROL SAMPLE DUPLICATES

The percent recoveries for the LCS/LCSD analyses were within QC limits, with the following exception. The dissolved zinc result for LCS-108437 was 116 percent, which exceeded the QC limit of 85 to 115 percent. The dissolved zinc results for samples 090102-ERB-WS01 and 090102-CRB-WS01 were qualified as estimated (flagged "J+") and may be biased high.

### MATRIX SPIKE/MATRIX SPIKE DUPLICATES

MS/MSD recoveries and relative percent differences (RPD) were within QC limits, with the following exceptions. Recoveries for several metals exceeded the QC limits in either one or both of the MS/MSD recoveries. In these cases, the sample concentration was greater than four times the spiking amount; therefore, no qualifications are warranted for these data gaps. These included total calcium for spiked sample KIF-KWTPI; dissolved calcium and magnesium for spiked sample 090102-CRB-WS01; and total and dissolved calcium and sodium for spiked sample KWTP-FWU-01.

In the dissolved metals MS/MSD analysis performed on sample 090102-CRB-WS01, recoveries of dissolved potassium were 65 and 65 percent, versus the laboratory QC limits of 70 to 130 percent; recoveries of dissolved zinc were 153 and 98 percent; and the RPD of the dissolved zinc recoveries was 41 percent, versus the laboratory QC maximum of 20 percent. Therefore, the results for dissolved potassium in that sample and the accompanying sample 090102-ERB-WS01 were flagged "J-" to indicate that they are estimated, biased low, due to matrix interference. The results for dissolved zinc were previously qualified for an LCS exceedance and required no further qualification.



Mr. L. Sims  
February 3, 2009

## DILUTION AND REPORTED DETECTION LIMITS

The total aluminum and iron results for sample KIF-ERM 0.1 required five-fold dilutions and the dissolved chromium result for sample 090102-CRB-WS01 required a two-fold dilution to place the results within the calibration range. This resulted in elevated RLs for the non-detected results.

Some positive results were above the sample detection limit but below the RL, which corresponds to the lower end of the calibration range. The laboratory correctly flagged these results "J" to indicate that they are estimated.

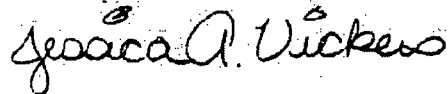
## OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. No results were rejected. A few metals results were qualified as estimated due to MS/MSD exceedances. A number of metals results below their respective RLs were qualified as non-detect due to laboratory blank contamination. All results may be used as qualified.

As previously discussed, sample KIF-KWTPI was reanalyzed by SW-846 Method 6020 to achieve the lower RLs. The SW-846 Method 6020 results were reported for this data set. In addition, samples 081228-ERER-WS02 and 081228-ERER-WS02-DUP were reanalyzed for total mercury due to poor precision between these duplicate samples. When the reanalysis yielded non-detects for total mercury in both samples, the samples were analyzed a third time to confirm the non-detects. The results of the second analysis were reported for this data set.

Please call me at (678) 775-3104 if you have any questions regarding this data validation report.

Sincerely,



Jessica Vickers  
START III Quality Assurance Manager

Enclosures (3)

cc: Katrina Jones, EPA Project Officer  
Darryl Walker, EPA Alternate Project Officer  
Angel Reed, Tetra Tech START III Document Control Coordinator



**ENCLOSURE 1**

**FIXED LABORATORY ANALYTICAL RESULTS SHEETS WITH HAND-ENTERED DATA  
VALIDATION QUALIFIERS FOR ANALYTICAL ENVIRONMENTAL SERVICES, INC.,  
REPORT NOS. 0812G73, 0812I43, 0901058, AND 0901111**

(66 Pages)



**TETRA TECH**

TDD No. TTEM1-05-001-0084 (Kingston Fossil Fly Ash Response)



February 3, 2009

Mr. Les Sims  
 On-Scene Coordinator  
 U.S. Environmental Protection Agency, Region 4  
 61 Forsyth Street, SW, 11th Floor  
 Atlanta, GA 30303

**Subject: Kingston Fossil Fly Ash Response**  
**Technical Direction Document Number TTEMI-05-001-0084**  
**Contract No. EP-W-05-054 (START III Region 4)**  
**Cursory Data Validation Report**  
**Analytical Environmental Services, Inc., Report Numbers (Nos.) 0812G73, 0812I49,**  
**0901058, and 0901111**  
**Analytical Parameters: Total metals, dissolved metals, dissolved silica, and total**  
**suspended solids (TSS)**

Laboratory Report No.	Samples	Field Duplicate Pairs	Field Blank Samples
0812G73	KIF-CRM 4.0, KIF-ERM 0.1, KIF-CRM 5.5, KIF-ERM 2.1, KIF-ERM 4.0, TT-ERM 1.9, KIF-TRM568.5, KIF-CRM 0.0, KIF-CRM 2.0, and KIF-KWTPI	TT-ERM 1.9 and DUPLICATE	None
0812I49	081228-ERPL-WS01, 081228-ERER-WS02, 081228-SGUBR-WS03, 081228-KCPS-WS04, KIF-TRM368.5, KIF-CRM 0.0, KIF-CRM 2.0, TT-CRM 2.5, KIF-CRM 4.0, KIF-CRM 5.5, KIF-ERM 0.1, KIF-ERM 1.75, KIF-ERM 4.0, KIF-ERM 2.0, KWTPI-WS01, KWTDW-WS02, RWDW-WS03, and RWWT1-WS04	081228-ERER-WS02 and 081228-ERER-WS02-DUP  KIF-ERM 2.0 and KIF-ERM 2.0-DUP	None
0901058	090102-CRB-WS01 and 090102-ERB-WS01	None	None
0901111	KWTP-FWU-01 and KWTP-RWU-02	KWTP-RWU-02 and KWTP-RWU-02-DUP	None

Dear Mr. Sims:

The Tetra Tech Superfund Technical Assessment and Response Team (START) conducted data validation on the analytical results for 32 water samples and four field duplicate samples that were collected at the Kingston Fossil Fly Ash Response in Kingston, Tennessee, on December 23, 2008 through January 5, 2009. The samples were analyzed under laboratory report Nos. 0812G73, 0812I49, 0901058, and 0901111 by Analytical Environmental Services, Inc. (AES), of Atlanta, Georgia.



Mr. L. Sims  
February 3, 2009

All water samples were analyzed for total metals by SW-846 Methods 6010B and 7470A. Some samples were filtered by AES and analyzed for total suspended solids (TSS, also called non-filterable residue) by EPA method 160.2 and for dissolved metals by SW-846 Methods 6010B and 7470A. On January 5, 2009, the decision was made to analyze total and dissolved metals by SW-846 Method 6020 instead of SW-846 Method 6010B to achieve lower reporting limit (RLs). In addition, sample KIF-KWTPI was reanalyzed by SW-846 Method 6020 to achieve the lower RLs. For all laboratory reports except 0812G73, samples were also analyzed for dissolved silica by SW-846 method 6010B. In laboratory report Nos. 0812I49 and 0901058, dissolved silica was incorrectly identified on the results summary packages as total silica.

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Mr. L. Sims  
February 3, 2009

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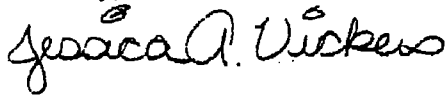
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Sincerely,



Jessica Vickers  
START III Quality Assurance Manager

Enclosures (3)

cc: Katrina Jones, EPA Project Officer  
Darryl Walker, EPA Alternate Project Officer  
Angel Reed, Tetra Tech START III Document Control Coordinator



**ENCLOSURE 1**

**FIXED LABORATORY ANALYTICAL RESULTS SHEETS WITH HAND-ENTERED DATA  
VALIDATION QUALIFIERS FOR ANALYTICAL ENVIRONMENTAL SERVICES, INC.,  
REPORT NOS. 0812G73, 0812I43, 0901058, AND 0901111**

(66 Pages)



**TETRA TECH**

TDD No. TTEMI-05-001-0084 (Kingston Fossil Fly Ash Response)



**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-002

Client Sample ID: KIF-CRM 4.0  
 Collection Date: 12/23/2008 2:23:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	1.53		0.0230	0.200 mg/L		108148	1	12/24/2008 2:18:21 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
Arsenic	0.0039	J	0.0031	0.0500 mg/L		108148	1	12/24/2008 2:18:21 PM
Barium	0.0430		0.0016	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108148	1	12/24/2008 2:18:21 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108148	1	12/24/2008 2:18:21 PM
Calcium	30.8		0.0110	0.100 mg/L		108148	1	12/24/2008 2:18:21 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108148	1	12/24/2008 2:18:21 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108148	1	12/24/2008 2:18:21 PM
Iron	1.08		0.0360	0.100 mg/L		108148	1	12/24/2008 2:18:21 PM
Lead	0.0046	J	0.0038	0.0100 mg/L		108148	1	12/24/2008 2:18:21 PM
Magnesium	8.51		0.0190	0.100 mg/L		108148	1	12/24/2008 2:18:21 PM
Manganese	0.0938		0.0019	0.0150 mg/L		108148	1	12/24/2008 4:15:17 PM
Nickel	BRL	U	0.0035	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
Potassium	2.44		0.0300	0.500 mg/L		108148	1	12/24/2008 2:18:21 PM
Selenium	BRL	U	0.0060	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
Silver	BRL	U	0.0003	0.0100 mg/L		108148	1	12/24/2008 2:18:21 PM
Sodium	5.85		0.0063	1.00 mg/L		108148	1	12/24/2008 2:18:21 PM
Thallium	BRL	U	0.0041	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
Vanadium	0.0024	J	0.0016	0.0100 mg/L		108148	1	12/24/2008 2:18:21 PM
Zinc	0.0040	J	0.0035	0.0200 mg/L		108148	1	12/24/2008 2:18:21 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020 mg/L		108151	1	12/24/2008 7:02:35 PM

*gaw*  
01/30/09

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-003

Client Sample ID: KIF-ERM 0.1  
 Collection Date: 12/23/2008 2:32:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	14700		6	29 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: DJ
Aluminum	0.164	J	0.0230	0.200 mg/L		108149	1	12/24/2008 1:32:00 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
Arsenic	0.0116	J	0.0031	0.0500 mg/L		108149	1	12/24/2008 1:32:00 PM
Barium	0.0345		0.0016	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108149	1	12/24/2008 1:32:00 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108149	1	12/24/2008 1:32:00 PM
Calcium	9.38		0.0110	0.100 mg/L		108149	1	12/24/2008 1:32:00 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108149	1	12/24/2008 3:48:05 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
Copper	0.0017	J	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:32:00 PM
Iron	0.187		0.0360	0.100 mg/L		108149	1	12/24/2008 1:32:00 PM
Lead	BRL	U	0.0038	0.0100 mg/L		108149	1	12/24/2008 1:32:00 PM
Magnesium	2.20		0.0190	0.100 mg/L		108149	1	12/24/2008 1:32:00 PM
Manganese	0.153		0.0019	0.0150 mg/L		108149	1	12/24/2008 3:48:05 PM
Nickel	BRL	U	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
Potassium	1.28		0.0300	0.500 mg/L		108149	1	12/24/2008 1:32:00 PM
Selenium	0.0075	J	0.0060	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
Silver	BRL	U	0.0003	0.0100 mg/L		108149	1	12/24/2008 1:32:00 PM
Sodium	5.65		0.0063	1.00 mg/L		108149	1	12/24/2008 1:32:00 PM
Thallium	0.0077	J	0.0041	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
Vanadium	0.0034	J	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:32:00 PM
Zinc	0.0077	J	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:32:00 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	121		0.115	1.00 mg/L		108148	5	12/24/2008 4:32:37 PM
Antimony	0.0065	J	0.0063	0.0200 mg/L		108148	1	12/24/2008 2:38:16 PM
Arsenic	1.49		0.0031	0.0500 mg/L		108148	1	12/24/2008 2:38:16 PM
Barium	1.47		0.0016	0.0200 mg/L		108148	1	12/24/2008 2:38:16 PM
Beryllium	0.0119		0.0022	0.0100 mg/L		108148	1	12/24/2008 2:38:16 PM
Cadmium	0.0155		0.0025	0.0050 mg/L		108148	1	12/24/2008 2:38:16 PM
Calcium	38.2		0.0110	0.100 mg/L		108148	1	12/24/2008 2:38:16 PM
Chromium	0.127		0.0075	0.0100 mg/L		108148	1	12/24/2008 2:38:16 PM
Cobalt	0.0768		0.0013	0.0200 mg/L		108148	1	12/24/2008 2:38:16 PM
Copper	0.225		0.0016	0.0100 mg/L		108148	1	12/24/2008 2:38:16 PM
Iron	67.0		0.180	0.500 mg/L		108148	5	12/24/2008 4:32:37 PM
Lead	0.0754		0.0038	0.0100 mg/L		108148	1	12/24/2008 2:38:16 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

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 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-003

Client Sample ID: KIF-ERM 0.1  
 Collection Date: 12/23/2008 2:32:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	12.4		0.0190	0.100	mg/L	108148	1	12/24/2008 2:38:16 PM
Manganese	1.89		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:18:52 PM
Nickel	0.103		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Potassium	32.1		0.0300	0.500	mg/L	108148	1	12/24/2008 2:38:16 PM
Selenium	0.0180	J	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Sodium	4.85		0.0063	1.00	mg/L	108148	1	12/24/2008 2:38:16 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Vanadium	0.465		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Zinc	0.266		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108150	1	12/24/2008 6:39:10 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:04:31 PM

*Jaw*  
 01/30/09

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-004

Client Sample ID: KIF-CRM 5.5  
 Collection Date: 12/23/2008 2:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.986		0.0230	0.200	mg/L	108148	1	12/24/2008 2:42:04 PM
Antimony	BRL	U	0.0063	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Arsenic	0.0050	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:42:04 PM
Barium	0.0385		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Beryllium	BRL	U	0.0022	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Cadmium	BRL	U	0.0025	0.0050	mg/L	108148	1	12/24/2008 2:42:04 PM
Calcium	35.0		0.0110	0.100	mg/L	108148	1	12/24/2008 2:42:04 PM
Chromium	BRL	U	0.0075	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Cobalt	BRL	U	0.0013	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Copper	BRL	U	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Iron	0.733		0.0360	0.100	mg/L	108148	1	12/24/2008 2:42:04 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Magnesium	9.94		0.0190	0.100	mg/L	108148	1	12/24/2008 2:42:04 PM
Manganese	0.0453		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:29:02 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Potassium	2.45		0.0300	0.500	mg/L	108148	1	12/24/2008 2:42:04 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Sodium	6.83		0.0063	1.00	mg/L	108148	1	12/24/2008 2:42:04 PM
Thallium	0.0200	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:06:26 PM

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Qualifiers:	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



Analytical Environmental Services, Inc.

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-005

Client Sample ID: KIF-ERM 2.1  
 Collection Date: 12/23/2008 3:15:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL:</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	1.13		0.0230	0.200	mg/L	108148	1	12/24/2008 2:52:19 PM
Antimony	BRL	U	0.0063	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Arsenic	BRL	U	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:52:19 PM
Barium	0.0405		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Beryllium	BRL	U	0.0022	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Cadmium	BRL	U	0.0025	0.0050	mg/L	108148	1	12/24/2008 2:52:19 PM
Calcium	8.04		0.0110	0.100	mg/L	108148	1	12/24/2008 2:52:19 PM
Chromium	BRL	U	0.0075	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Cobalt	BRL	↓	0.0013	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Copper	BRL	↓	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Iron	0.660		0.0360	0.100	mg/L	108148	1	12/24/2008 2:52:19 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Magnesium	2.14		0.0190	0.100	mg/L	108148	1	12/24/2008 2:52:19 PM
Manganese	0.0738		0.0019	0.0150	mg/L	108148	1	12/24/2008 2:52:19 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Potassium	1.52		0.0300	0.500	mg/L	108148	1	12/24/2008 2:52:19 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Sodium	2.56		0.0063	1.00	mg/L	108148	1	12/24/2008 2:52:19 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Vanadium	0.0026	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Zinc	0.0046	J	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:08:22 PM

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Qualifiers:	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-006

Client Sample ID: KIF-ERM 4.0  
 Collection Date: 12/23/2008 3:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: DJ		
Aluminum	0.338		0.0230	0.200	mg/L	108148	1	12/24/2008 2:03:11 PM
Antimony	BRL	U	0.0063	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Arsenic	BRL	U	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:03:11 PM
Barium	0.0304		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Beryllium	BRL	U	0.0022	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Cadmium	BRL	U	0.0025	0.0050	mg/L	108148	1	12/24/2008 2:03:11 PM
Calcium	7.81		0.0110	0.100	mg/L	108148	1	12/24/2008 2:03:11 PM
Chromium	BRL	U	0.0075	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Cobalt	BRL	↓	0.0013	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Copper	BRL	↓	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Iron	0.262		0.0360	0.100	mg/L	108148	1	12/24/2008 2:03:11 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Magnesium	1.78		0.0190	0.100	mg/L	108148	1	12/24/2008 2:03:11 PM
Manganese	0.0368		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:08:08 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Potassium	1.35		0.0300	0.500	mg/L	108148	1	12/24/2008 2:03:11 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Sodium	2.53		0.0063	1.00	mg/L	108148	1	12/24/2008 2:03:11 PM
Thallium	0.0200	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 6:48:50 PM

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Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-007

Client Sample ID: TT-ERM 1.9  
 Collection Date: 12/23/2008 4:55:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: DJ		
Aluminum	2.20		0.0230	0.200	mg/L	108148	1	12/24/2008 2:55:56 PM
Antimony	BRL	U	0.0063	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Arsenic	0.0208	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:55:56 PM
Barium	0.0565		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Beryllium	BRL	U	0.0022	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Cadmium	BRL	U	0.0025	0.0050	mg/L	108148	1	12/24/2008 2:55:56 PM
Calcium	9.11		0.0110	0.100	mg/L	108148	1	12/24/2008 2:55:56 PM
Chromium	BRL	U	0.0075	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Cobalt	BRL	U	0.0013	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Copper	0.0041	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Iron	1.37		0.0360	0.100	mg/L	108148	1	12/24/2008 2:55:56 PM
Lead	0.0063	J	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Magnesium	2.20		0.0190	0.100	mg/L	108148	1	12/24/2008 2:55:56 PM
Manganese	0.0898		0.0019	0.0150	mg/L	108148	1	12/24/2008 2:55:56 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Potassium	1.71		0.0300	0.500	mg/L	108148	1	12/24/2008 2:55:56 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Sodium	2.63		0.0063	1.00	mg/L	108148	1	12/24/2008 2:55:56 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Vanadium	0.0074	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Zinc	0.0371		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:10:19 PM

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<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-008

Client Sample ID: DUPLICATE  
 Collection Date: 12/23/2008 4:57:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	2.58		0.0230	0.200	mg/L	108148	1	12/24/2008 3:04:42 PM
Antimony	BRL	U	0.0063	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Arsenic	0.0337	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 3:04:42 PM
Barium	0.0643		0.0016	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Beryllium	BRL	U	0.0022	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Cadmium	BRL	U	0.0025	0.0050	mg/L	108148	1	12/24/2008 3:04:42 PM
Calcium	9.26		0.0110	0.100	mg/L	108148	1	12/24/2008 3:04:42 PM
Chromium	BRL	U	0.0075	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Cobalt	BRL	U	0.0013	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Copper	0.0051	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Iron	1.77		0.0360	0.100	mg/L	108148	1	12/24/2008 3:04:42 PM
Lead	0.0049	J	0.0038	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Magnesium	2.27		0.0190	0.100	mg/L	108148	1	12/24/2008 3:04:42 PM
Manganese	0.0970		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:04:42 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Potassium	1.80		0.0300	0.500	mg/L	108148	1	12/24/2008 3:04:42 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Sodium	2.68		0.0063	1.00	mg/L	108148	1	12/24/2008 3:04:42 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Vanadium	0.0108		0.0016	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Zinc	0.0350		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:12:15 PM

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Qualifiers:	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-009

Client Sample ID: KIF-TRM568.5  
 Collection Date: 12/23/2008 11:33:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: DJ
Aluminum	BRL	U	0.0230	0.200 mg/L		108149	1	12/24/2008 1:35:35 PM
Antimony	BRL	↓	0.0063	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Arsenic	BRL	↓	0.0031	0.0500 mg/L		108149	1	12/24/2008 1:35:35 PM
Barium	0.0176	J	0.0016	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108149	1	12/24/2008 1:35:35 PM
Calcium	13.8		0.0110	0.100 mg/L		108149	1	12/24/2008 1:35:35 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108149	1	12/24/2008 3:50:53 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Iron	BRL	↓	0.0360	0.100 mg/L		108149	1	12/24/2008 1:35:35 PM
Lead	BRL	↓	0.0038	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Magnesium	3.52		0.0190	0.100 mg/L		108149	1	12/24/2008 1:35:35 PM
Manganese	0.0046	J	0.0019	0.0150 mg/L		108149	1	12/24/2008 3:50:53 PM
Nickel	BRL	U	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Potassium	1.57		0.0300	0.500 mg/L		108149	1	12/24/2008 1:35:35 PM
Selenium	BRL	U	0.0060	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Silver	BRL	U	0.0003	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Sodium	7.48		0.0063	1.00 mg/L		108149	1	12/24/2008 1:35:35 PM
Thallium	BRL	U	0.0041	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Zinc	BRL	↓	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.291		0.0230	0.200 mg/L		108148	1	12/24/2008 3:08:57 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108148	1	12/24/2008 3:08:57 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108148	1	12/24/2008 3:08:57 PM
Barium	0.0218		0.0016	0.0200 mg/L		108148	1	12/24/2008 3:08:57 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108148	1	12/24/2008 3:08:57 PM
Calcium	16.2		0.0110	0.100 mg/L		108148	1	12/24/2008 3:08:57 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108148	1	12/24/2008 3:08:57 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM
Iron	0.255		0.0360	0.100 mg/L		108148	1	12/24/2008 3:08:57 PM
Lead	BRL	U	0.0038	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-009

Client Sample ID: KIF-TRM568.5  
 Collection Date: 12/23/2008 11:33:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	4.17		0.0190	0.100	mg/L	108148	1	12/24/2008 3:08:57 PM
Manganese	0.0288		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:08:57 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
Potassium	1.97		0.0300	0.500	mg/L	108148	1	12/24/2008 3:08:57 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 3:08:57 PM
Sodium	8.90		0.0063	1.00	mg/L	108148	1	12/24/2008 3:08:57 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108148	1	12/24/2008 3:08:57 PM
Zinc	BRL	↓	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108150	1	12/24/2008 6:41:05 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:14:11 PM

*QAW*  
 09/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-010

Client Sample ID: KIF-CRM 0.0  
 Collection Date: 12/23/2008 11:58:00 AM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	15		1	5 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: DJ
Aluminum	0.0268	J	0.0230	0.200 mg/L		108149	1	12/24/2008 1:20:45 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108149	1	12/24/2008 1:20:45 PM
Barium	0.0189	J	0.0016	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108149	1	12/24/2008 1:20:45 PM
Calcium	14.8		0.0110	0.100 mg/L		108149	1	12/24/2008 1:20:45 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108149	1	12/24/2008 3:45:16 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Copper	BRL	U	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Iron	BRL	U	0.0360	0.100 mg/L		108149	1	12/24/2008 1:20:45 PM
Lead	BRL	U	0.0038	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Magnesium	3.80		0.0190	0.100 mg/L		108149	1	12/24/2008 1:20:45 PM
Manganese	0.0094	J	0.0019	0.0150 mg/L		108149	1	12/24/2008 3:45:16 PM
Nickel	BRL	U	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Potassium	1.78		0.0300	0.500 mg/L		108149	1	12/24/2008 1:20:45 PM
Selenium	BRL	U	0.0060	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Silver	BRL	U	0.0003	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Sodium	8.04		0.0063	1.00 mg/L		108149	1	12/24/2008 1:20:45 PM
Thallium	0.0046	J	0.0041	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Vanadium	BRL	U	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Zinc	BRL	U	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.265		0.0230	0.200 mg/L		108148	1	12/24/2008 3:13:30 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108148	1	12/24/2008 3:13:30 PM
Arsenic	0.0035	J	0.0031	0.0500 mg/L		108148	1	12/24/2008 3:13:30 PM
Barium	0.0215		0.0016	0.0200 mg/L		108148	1	12/24/2008 3:13:30 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108148	1	12/24/2008 3:13:30 PM
Calcium	15.9		0.0110	0.100 mg/L		108148	1	12/24/2008 3:13:30 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108148	1	12/24/2008 3:13:30 PM
Copper	BRL	U	0.0016	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM
Iron	0.234		0.0360	0.100 mg/L		108148	1	12/24/2008 3:13:30 PM
Lead	BRL	U	0.0038	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-010

Client Sample ID: KIF-CRM 0.0  
 Collection Date: 12/23/2008 11:58:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	4.09		0.0190	0.100	mg/L	108148	1	12/24/2008 3:13:30 PM
Manganese	0.0248		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:13:30 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
Potassium	1.92		0.0300	0.500	mg/L	108148	1	12/24/2008 3:13:30 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 3:13:30 PM
Sodium	8.67		0.0063	1.00	mg/L	108148	1	12/24/2008 3:13:30 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 3:13:30 PM
Zinc	BRL	↓	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108150	1	12/24/2008 6:43:00 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:22:01 PM

*[Signature]*  
 01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



# Analytical Environmental Services, Inc.

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-011

Client Sample ID: KIF-CRM 2.0  
 Collection Date: 12/23/2008 12:16:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	80		1	5 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: DJ
Aluminum	0.0302	J	0.0230	0.200 mg/L		108149	1	12/24/2008 1:39:14 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108149	1	12/24/2008 1:39:14 PM
Barium	0.0311		0.0016	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108149	1	12/24/2008 1:39:14 PM
Calcium	22.9		0.0110	0.100 mg/L		108149	1	12/24/2008 1:39:14 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108149	1	12/24/2008 3:53:43 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Iron	0.0481	J	0.0360	0.100 mg/L		108149	1	12/24/2008 1:39:14 PM
Lead	BRL	U	0.0038	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Magnesium	6.30		0.0190	0.100 mg/L		108149	1	12/24/2008 1:39:14 PM
Manganese	0.0149	J	0.0019	0.0150 mg/L		108149	1	12/24/2008 3:53:43 PM
Nickel	BRL	U	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Potassium	1.58		0.0300	0.500 mg/L		108149	1	12/24/2008 1:39:14 PM
Selenium	BRL	U	0.0060	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Silver	BRL	U	0.0003	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Sodium	4.50		0.0063	1.00 mg/L		108149	1	12/24/2008 1:39:14 PM
Thallium	BRL	U	0.0041	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Zinc	BRL	↓	0.0035	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.905		0.0230	0.200 mg/L		108148	1	12/24/2008 3:17:06 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108148	1	12/24/2008 3:17:06 PM
Arsenic	0.0031	J	0.0031	0.0500 mg/L		108148	1	12/24/2008 3:17:06 PM
Barium	0.0436		0.0016	0.0200 mg/L		108148	1	12/24/2008 3:17:06 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108148	1	12/24/2008 3:17:06 PM
Calcium	27.3		0.0110	0.100 mg/L		108148	1	12/24/2008 3:17:06 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108148	1	12/24/2008 3:17:06 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM
Iron	0.607		0.0360	0.100 mg/L		108148	1	12/24/2008 3:17:06 PM
Lead	BRL	U	0.0038	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*glw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-011

Client Sample ID: KIF-CRM 2.0  
 Collection Date: 12/23/2008 12:16:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	7.57		0.0190	0.100	mg/L	108148	1	12/24/2008 3:17:06 PM
Manganese	0.0512		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:17:06 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
Potassium	2.14		0.0300	0.500	mg/L	108148	1	12/24/2008 3:17:06 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 3:17:06 PM
Sodium	5.43		0.0063	1.00	mg/L	108148	1	12/24/2008 3:17:06 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
Vanadium	0.0024	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 3:17:06 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108150	1	12/24/2008 6:27:28 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:23:57 PM

*Jaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-001

Client Sample ID: KIF-KWTPI  
 Collection Date: 12/23/2008 11:47:00 AM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.388		0.0230	0.200	mg/L	108148	1	12/24/2008 2:14:33 PM
Antimony	BRL	U	0.0063	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Arsenic	BRL	U	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:14:33 PM
Barium	0.0234		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Beryllium	BRL	U	0.0022	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Cadmium	BRL	U	0.0025	0.0050	mg/L	108148	1	12/24/2008 2:14:33 PM
Calcium	16.1		0.0110	0.100	mg/L	108148	1	12/24/2008 2:14:33 PM
Chromium	BRL	U	0.0075	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Cobalt	BRL	↓	0.0013	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Copper	BRL	↓	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Iron	0.386		0.0360	0.100	mg/L	108148	1	12/24/2008 2:14:33 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Magnesium	4.16		0.0190	0.100	mg/L	108148	1	12/24/2008 2:14:33 PM
Manganese	0.0487		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:11:41 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Potassium	1.95		0.0300	0.500	mg/L	108148	1	12/24/2008 2:14:33 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Sodium	8.77		0.0063	1.00	mg/L	108148	1	12/24/2008 2:14:33 PM
Thallium	0.0200	0.0062	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	247		5.12	10.0	ug/L	108443	1	1/5/2009 6:03:30 PM
Antimony	BRL	U	0.490	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Arsenic	BRL	U	0.880	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Barium	21.2		0.700	10.0	ug/L	108443	1	1/5/2009 6:03:30 PM
Beryllium	BRL	U	0.210	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Cadmium	BRL	U	0.0970	0.700	ug/L	108443	1	1/5/2009 6:03:30 PM
Calcium	16500		14.1	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Chromium	BRL	U	0.660	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Cobalt	BRL	U	0.620	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Copper	0.914	J	0.730	2.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Iron	249		9.32	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Lead	0.332	J	0.170	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Magnesium	3630		7.83	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Manganese	44.8		0.620	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Nickel	0.672	J	0.650	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-001

Client Sample ID: KIF-KWTPI  
 Collection Date: 12/23/2008 11:47:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>		Analyst: JY		
Potassium	1890		7.74	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Selenium	BRL	U	1.06	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Silver	BRL	U	0.0630	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Sodium	8490		7.81	500	ug/L	108443	1	1/5/2009 6:03:30 PM
Thallium	BRL	U	0.0620	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Zinc	10.7		2.33	10.0	ug/L	108443	1	1/5/2009 6:03:30 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL	U	0.00001	0.00020	mg/L	108151	1	12/24/2008 7:00:39 PM

*MAW*  
 01/30/09

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-005

Client Sample ID: 081228-ERPL-WS01  
 Collection Date: 12/28/2008 1:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	58		2	10 mg/L		108315	1	12/31/2008 10:15:53 A
<b>DISSOLVED TOTAL SILICON</b> <i>(gaw)</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.99		0.0110	0.100 mg/L		108312	1	12/31/2008 10:18:43 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.152	J	0.0230	0.200 mg/L		108312	1	12/31/2008 9:54:57 AM
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 9:54:57 AM
Barium	0.0171	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 9:54:57 AM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 9:54:57 AM
Calcium	6.83		0.0110	0.100 mg/L		108312	1	12/31/2008 9:54:57 AM
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 9:54:57 AM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 9:54:57 AM
Iron	0.155		0.0360	0.100 mg/L		108312	1	12/31/2008 9:54:57 AM
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 9:54:57 AM
Magnesium	2.20		0.0190	0.100 mg/L		108312	1	12/31/2008 9:54:57 AM
Manganese	0.0155		0.0019	0.0150 mg/L		108312	1	12/31/2008 9:54:57 AM
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
Potassium	0.993		0.0300	0.500 mg/L		108312	1	12/31/2008 9:54:57 AM
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
Silver	0.0100 <del>0.0004</del> ↓ U		0.0003	0.0100 mg/L		108312	1	12/31/2008 9:54:57 AM
Sodium	1.88		0.0063	1.00 mg/L		108312	1	12/31/2008 9:54:57 AM
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 9:54:57 AM
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 9:54:57 AM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	5.84		0.0230	0.200 mg/L		108314	1	12/31/2008 4:08:06 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:08:06 PM
Arsenic	0.0063	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:08:06 PM
Barium	0.0389		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:08:06 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:08:06 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:08:06 PM
Calcium	8.55		0.0110	0.100 mg/L		108314	1	12/31/2008 4:08:06 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:08:06 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:08:06 PM
Copper	0.0054	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:08:06 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*(gaw)*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-005

Client Sample ID: 081228-ERPL-WS01  
 Collection Date: 12/28/2008 1:10:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>		<b>(SW3010A)</b>			Analyst: BB
Iron	6.22		0.0360	0.100	mg/L	108314	1	12/31/2008 4:08:06 PM
Lead	0.0089	J	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Magnesium	3.11		0.0190	0.100	mg/L	108314	1	12/31/2008 4:08:06 PM
Manganese	0.0921		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:08:06 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Potassium	1.81		0.0300	0.500	mg/L	108314	1	12/31/2008 4:08:06 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Sodium	2.05		0.0063	1.00	mg/L	108314	1	12/31/2008 4:08:06 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Vanadium	0.0150		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Zinc	0.0125	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.00020	0.00004 J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:07:25 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.00020	0.00004 J	0.00001	0.00020	mg/L	108319	1	12/31/2008 5:46:43 PM

*MAW*  
01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-008

Client Sample ID: 081228-ERER-WS02  
 Collection Date: 12/28/2008 3:03:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	161		1	5 mg/L		108315	1	12/31/2008 10:17:15 A
<b>DISSOLVED TOTAL SILICON</b> <i>QAW</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.92		0.0110	0.100 mg/L		108312	1	12/31/2008 10:20:29 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0680	J	0.0230	0.200 mg/L		108312	1	12/31/2008 9:58:40 AM
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 9:58:40 AM
Barium	0.0197	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 9:58:40 AM
Calcium	6.42		0.0110	0.100 mg/L		108312	1	12/31/2008 9:58:40 AM
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Copper	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Iron	0.0827	J	0.0360	0.100 mg/L		108312	1	12/31/2008 9:58:40 AM
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Magnesium	1.76		0.0190	0.100 mg/L		108312	1	12/31/2008 9:58:40 AM
Manganese	0.0129	J	0.0019	0.0150 mg/L		108312	1	12/31/2008 9:58:40 AM
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Potassium	1.07		0.0300	0.500 mg/L		108312	1	12/31/2008 9:58:40 AM
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Sodium	1.90		0.0063	1.00 mg/L		108312	1	12/31/2008 9:58:40 AM
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Zinc	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	1.85		0.0230	0.200 mg/L		108314	1	12/31/2008 4:11:32 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:11:32 PM
Arsenic	0.0127	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:11:32 PM
Barium	0.0468		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:11:32 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:11:32 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:11:32 PM
Calcium	9.00		0.0110	0.100 mg/L		108314	1	12/31/2008 4:11:32 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:11:32 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:11:32 PM
Copper	0.0052	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:11:32 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 05-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-008

Client Sample ID: 081228-ERER-WS02  
 Collection Date: 12/28/2008 3:03:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	1.48		0.0360	0.100	mg/L	108314	1	12/31/2008 4:11:32 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:11:32 PM
Magnesium	2.38		0.0190	0.100	mg/L	108314	1	12/31/2008 4:11:32 PM
Manganese	0.0629		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:11:32 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
Potassium	1.83		0.0300	0.500	mg/L	108314	1	12/31/2008 4:11:32 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:11:32 PM
Sodium	2.27		0.0063	1.00	mg/L	108314	1	12/31/2008 4:11:32 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
Vanadium	0.0059	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:11:32 PM
Zinc	0.0473		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0.00004	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:09:25 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108433	1	1/5/2009 2:01:31 PM

*gaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-011

Client Sample ID: 081228-ERER-WS02-DUP  
 Collection Date: 12/28/2008 3:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	186		1	5 mg/L		108315	1	12/31/2008 10:17:50 A
<b>DISSOLVED TOTAL SILICON</b> <i>(Handwritten signature)</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.91		0.0110	0.100 mg/L		108312	1	12/31/2008 10:22:13 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0643	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:06:58 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:06:58 A
Barium	0.0205		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:06:58 A
Calcium	6.40		0.0110	0.100 mg/L		108312	1	12/31/2008 10:06:58 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Cobalt	BRL	J	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Copper	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Iron	0.0832	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:06:58 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Magnesium	1.76		0.0190	0.100 mg/L		108312	1	12/31/2008 10:06:58 A
Manganese	0.0120	J	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:06:58 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Potassium	1.06		0.0300	0.500 mg/L		108312	1	12/31/2008 10:06:58 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Sodium	1.90		0.0063	1.00 mg/L		108312	1	12/31/2008 10:06:58 A
Thallium	0.0047	J	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Zinc	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	1.85		0.0230	0.200 mg/L		108314	1	12/31/2008 4:15:00 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:15:00 PM
Arsenic	0.0106	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:15:00 PM
Barium	0.0434		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:15:00 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:15:00 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:15:00 PM
Calcium	7.35		0.0110	0.100 mg/L		108314	1	12/31/2008 4:15:00 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:15:00 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:15:00 PM
Copper	0.0033	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:15:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*(Handwritten signature)*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 05-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-011

Client Sample ID: 081228-ERER-WS02-DUP  
 Collection Date: 12/28/2008 3:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	1.49		0.0360	0.100	mg/L	108314	1	12/31/2008 4:15:00 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:15:00 PM
Magnesium	2.28		0.0190	0.100	mg/L	108314	1	12/31/2008 4:15:00 PM
Manganese	0.0585		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:15:00 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
Potassium	1.73		0.0300	0.500	mg/L	108314	1	12/31/2008 4:15:00 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:15:00 PM
Sodium	2.04		0.0063	1.00	mg/L	108314	1	12/31/2008 4:15:00 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
Vanadium	0.0051	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:15:00 PM
Zinc	0.0072	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	E-00003	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:11:21 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL	U	0.00001	0.00020	mg/L	108433	1	1/5/2009 2:09:18 PM

*Gaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-014

Client Sample ID: 081228-SGUBR-WS03  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	68		1	5 mg/L		108315	1	12/31/2008 10:18:27 A
<b>DISSOLVED TOTAL SILICON</b> <i>Qaw</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.01		0.0110	0.100 mg/L		108312	1	12/31/2008 10:23:57 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:10:41 A
Antimony	BRL	↓	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Arsenic	BRL	↓	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:10:41 A
Barium	0.0319		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:10:41 A
Calcium	30.3		0.0110	0.100 mg/L		108312	1	12/31/2008 10:10:41 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Iron	BRL	↓	0.0360	0.100 mg/L		108312	1	12/31/2008 10:10:41 A
Lead	BRL	↓	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Magnesium	9.44		0.0190	0.100 mg/L		108312	1	12/31/2008 10:10:41 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:10:41 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Potassium	1.56		0.0300	0.500 mg/L		108312	1	12/31/2008 10:10:41 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Sodium	5.84		0.0063	1.00 mg/L		108312	1	12/31/2008 10:10:41 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	2.27		0.0230	0.200 mg/L		108314	1	12/31/2008 4:18:28 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:18:28 PM
Arsenic	0.0077	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:18:28 PM
Barium	0.0514		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:18:28 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:18:28 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:18:28 PM
Calcium	34.2		0.0110	0.100 mg/L		108314	1	12/31/2008 4:18:28 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:18:28 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:18:28 PM
Copper	0.0028	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:18:28 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-014

Client Sample ID: 081228-SGUBR-WS03  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	2.51		0.0360	0.100	mg/L	108314	1	12/31/2008 4:18:28 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:18:28 PM
Magnesium	11.5		0.0190	0.100	mg/L	108314	1	12/31/2008 4:18:28 PM
Manganese	0.0715		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:18:28 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
Potassium	2.18		0.0300	0.500	mg/L	108314	1	12/31/2008 4:18:28 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:18:28 PM
Sodium	6.71		0.0063	1.00	mg/L	108314	1	12/31/2008 4:18:28 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
Vanadium	0.0062	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:18:28 PM
Zinc	0.0078	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	9-00003 U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:17:16 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00188		0.00001	0.00020	mg/L	108319	1	12/31/2008 5:56:33 PM

*QAW*  
01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-016

Client Sample ID: 081228-KCPS-WS04  
 Collection Date: 12/28/2008 5:25:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	969		1	5 mg/L		108315	1	12/31/2008 10:19:24 A
<b>DISSOLVED TOTAL SILICON</b> <i>gaw</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.97		0.0110	0.100 mg/L		108312	1	12/31/2008 10:25:43 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0361	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:14:31 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:14:31 A
Barium	0.0276		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:14:31 A
Calcium	23.3		0.0110	0.100 mg/L		108312	1	12/31/2008 10:14:31 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Copper	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Iron	0.0398	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:14:31 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Magnesium	6.78		0.0190	0.100 mg/L		108312	1	12/31/2008 10:14:31 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:14:31 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Potassium	1.45		0.0300	0.500 mg/L		108312	1	12/31/2008 10:14:31 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Silver	0.0100	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Sodium	4.68		0.0063	1.00 mg/L		108312	1	12/31/2008 10:14:31 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Vanadium	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Zinc	BRL	J	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	8.20		0.0230	0.200 mg/L		108314	1	12/31/2008 4:21:59 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:21:59 PM
Arsenic	0.0480	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:21:59 PM
Barium	0.142		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:21:59 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:21:59 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:21:59 PM
Calcium	25.1		0.0110	0.100 mg/L		108314	1	12/31/2008 4:21:59 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:21:59 PM
Cobalt	0.0022	J	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:21:59 PM
Copper	0.0141		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:21:59 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-016

Client Sample ID: 081228-KCPS-WS04  
 Collection Date: 12/28/2008 5:25:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	3.99		0.0360	0.100	mg/L	108314	1	12/31/2008 4:21:59 PM
Lead	0.0059	J	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:21:59 PM
Magnesium	7.98		0.0190	0.100	mg/L	108314	1	12/31/2008 4:21:59 PM
Manganese	0.0816		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:21:59 PM
Nickel	0.0060	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
Potassium	3.59		0.0300	0.500	mg/L	108314	1	12/31/2008 4:21:59 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:21:59 PM
Sodium	4.95		0.0063	1.00	mg/L	108314	1	12/31/2008 4:21:59 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
Vanadium	0.0261		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:21:59 PM
Zinc	0.0333		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	<del>0.00007</del> U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:19:12 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	<del>0.00006</del> U	0.00001	0.00020	mg/L	108319	1	12/31/2008 5:58:30 PM

*gaw*  
01/30/09

Qualifiers:	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-020

Client Sample ID: KIF-TRM568.5  
 Collection Date: 12/29/2008 11:16:00 AM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:20:00 A
<b>DISSOLVED TOTAL SILICON</b> <i>gaw</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.81		0.0110	0.100 mg/L		108312	1	12/31/2008 10:30:58 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:25:09 A
Antimony	BRL	↓	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Arsenic	BRL	↓	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:25:09 A
Barium	0.0184	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:25:09 A
Calcium	14.1		0.0110	0.100 mg/L		108312	1	12/31/2008 10:25:09 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Iron	BRL	↓	0.0360	0.100 mg/L		108312	1	12/31/2008 10:25:09 A
Lead	BRL	↓	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Magnesium	3.71		0.0190	0.100 mg/L		108312	1	12/31/2008 10:25:09 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:25:09 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Potassium	1.62		0.0300	0.500 mg/L		108312	1	12/31/2008 10:25:09 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Sodium	8.62		0.0063	1.00 mg/L		108312	1	12/31/2008 10:25:09 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.257		0.0230	0.200 mg/L		108314	1	12/31/2008 4:31:55 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:31:55 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:31:55 PM
Barium	0.0260		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:31:55 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:31:55 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:31:55 PM
Calcium	16.6		0.0110	0.100 mg/L		108314	1	12/31/2008 4:31:55 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:31:55 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:31:55 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:31:55 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-020

Client Sample ID: KIF-TRM568.5  
 Collection Date: 12/29/2008 11:16:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>		<b>(SW3010A)</b>			Analyst: BB
Iron	0.305		0.0360	0.100	mg/L	108314	1	12/31/2008 4:31:55 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:31:55 PM
Magnesium	4.69		0.0190	0.100	mg/L	108314	1	12/31/2008 4:31:55 PM
Manganese	0.0508		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:31:55 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
Potassium	2.05		0.0300	0.500	mg/L	108314	1	12/31/2008 4:31:55 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:31:55 PM
Sodium	10.8		0.0063	1.00	mg/L	108314	1	12/31/2008 4:31:55 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:31:55 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.00020	U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:21:08 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:00:26 PM

*gaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-021

Client Sample ID: KIF-CRM0.0  
 Collection Date: 12/29/2008 11:40:00 AM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	46		1	5 mg/L		108315	1	12/31/2008 10:20:30 A
<b>DISSOLVED TOTAL SILICON</b> <i>gaw</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.87		0.0110	0.100 mg/L		108312	1	12/31/2008 10:32:43 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:28:56 A
Antimony	BRL	↓	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Arsenic	BRL	↓	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:28:56 A
Barium	0.0172	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:28:56 A
Calcium	14.2		0.0110	0.100 mg/L		108312	1	12/31/2008 10:28:56 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Iron	BRL	↓	0.0360	0.100 mg/L		108312	1	12/31/2008 10:28:56 A
Lead	BRL	↓	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Magnesium	3.72		0.0190	0.100 mg/L		108312	1	12/31/2008 10:28:56 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:28:56 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Potassium	1.62		0.0300	0.500 mg/L		108312	1	12/31/2008 10:28:56 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Sodium	8.63		0.0063	1.00 mg/L		108312	1	12/31/2008 10:28:56 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.751		0.0230	0.200 mg/L		108314	1	12/31/2008 4:35:26 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:35:26 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:35:26 PM
Barium	0.0311		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:35:26 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:35:26 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:35:26 PM
Calcium	16.4		0.0110	0.100 mg/L		108314	1	12/31/2008 4:35:26 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:35:26 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:35:26 PM
Copper	0.0017	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:35:26 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-021

Client Sample ID: KIF-CRM0.0  
 Collection Date: 12/29/2008 11:40:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	1.12		0.0360	0.100	mg/L	108314	1	12/31/2008 4:35:26 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:35:26 PM
Magnesium	4.71		0.0190	0.100	mg/L	108314	1	12/31/2008 4:35:26 PM
Manganese	0.159		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:35:26 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
Potassium	2.10		0.0300	0.500	mg/L	108314	1	12/31/2008 4:35:26 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:35:26 PM
Sodium	10.5		0.0063	1.00	mg/L	108314	1	12/31/2008 4:35:26 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:35:26 PM
Zinc	0.0063	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:23:04 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:02:22 PM

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01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-022

Client Sample ID: KIF-CRM2.0  
 Collection Date: 12/29/2008 12:07:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	15		1	5 mg/L		108315	1	12/31/2008 10:21:02 A
<b>DISSOLVED TOTAL SILICON</b> <i>QAW</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.94		0.0110	0.100 mg/L		108312	1	12/31/2008 10:34:30 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:32:51 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:32:51 A
Barium	0.0288		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:32:51 A
Calcium	24.7		0.0110	0.100 mg/L		108312	1	12/31/2008 10:32:51 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Copper	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Iron	BRL	U	0.0360	0.100 mg/L		108312	1	12/31/2008 10:32:51 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Magnesium	7.40		0.0190	0.100 mg/L		108312	1	12/31/2008 10:32:51 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:32:51 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Potassium	1.45		0.0300	0.500 mg/L		108312	1	12/31/2008 10:32:51 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Sodium	5.15		0.0063	1.00 mg/L		108312	1	12/31/2008 10:32:51 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Zinc	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.516		0.0230	0.200 mg/L		108314	1	12/31/2008 4:39:49 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:39:49 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:39:49 PM
Barium	0.0411		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:39:49 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:39:49 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:39:49 PM
Calcium	28.6		0.0110	0.100 mg/L		108314	1	12/31/2008 4:39:49 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:39:49 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:39:49 PM
Copper	BRL	U	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:39:49 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-022

Client Sample ID: KIF-CRM2.0  
 Collection Date: 12/29/2008 12:07:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.466		0.0360	0.100	mg/L	108314	1	12/31/2008 4:39:49 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:39:49 PM
Magnesium	9.21		0.0190	0.100	mg/L	108314	1	12/31/2008 4:39:49 PM
Manganese	0.0507		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:39:49 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
Potassium	1.87		0.0300	0.500	mg/L	108314	1	12/31/2008 4:39:49 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:39:49 PM
Sodium	6.08		0.0063	1.00	mg/L	108314	1	12/31/2008 4:39:49 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:39:49 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0-00000	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:25:00 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0-00000	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:04:18 PM

*gan*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-023

Client Sample ID: TT-CRM2.5  
 Collection Date: 12/29/2008 12:30:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	13		1	5 mg/L		108315	1	12/31/2008 10:21:30 A
<b>DISSOLVED TOTAL SILICON</b> <i>gan</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.89		0.0110	0.100 mg/L		108312	1	12/31/2008 10:36:17 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:37:06 A
Antimony	BRL	↓	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Arsenic	BRL	↓	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:37:06 A
Barium	0.0280		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:37:06 A
Calcium	27.8		0.0110	0.100 mg/L		108312	1	12/31/2008 10:37:06 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Iron	BRL	↓	0.0360	0.100 mg/L		108312	1	12/31/2008 10:37:06 A
Lead	BRL	↓	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Magnesium	8.41		0.0190	0.100 mg/L		108312	1	12/31/2008 10:37:06 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:37:06 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Potassium	1.51		0.0300	0.500 mg/L		108312	1	12/31/2008 10:37:06 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Silver	0.0100	0.0007	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Sodium	5.67		0.0063	1.00 mg/L		108312	1	12/31/2008 10:37:06 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.355		0.0230	0.200 mg/L		108314	1	12/31/2008 4:43:29 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:43:29 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:43:29 PM
Barium	0.0384		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:43:29 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:43:29 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:43:29 PM
Calcium	31.2		0.0110	0.100 mg/L		108314	1	12/31/2008 4:43:29 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:43:29 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:43:29 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:43:29 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gan*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-023

Client Sample ID: TT-CRM2.5  
 Collection Date: 12/29/2008 12:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>		<b>(SW3010A)</b>			Analyst: BB
Iron	0.328		0.0360	0.100	mg/L	108314	1	12/31/2008 4:43:29 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:43:29 PM
Magnesium	10.1		0.0190	0.100	mg/L	108314	1	12/31/2008 4:43:29 PM
Manganese	0.0495		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:43:29 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
Potassium	1.86		0.0300	0.500	mg/L	108314	1	12/31/2008 4:43:29 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
Silver	0.0004	J	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:43:29 PM
Sodium	6.58		0.0063	1.00	mg/L	108314	1	12/31/2008 4:43:29 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
Vanadium	BRL	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:43:29 PM
Zinc	BRL	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.00020	<del>0.00010</del> JU	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:26:56 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.00020	<del>0.00008</del> JU	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:06:14 PM

*gaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-024

Client Sample ID: KIF-CRM4.0  
 Collection Date: 12/29/2008 12:45:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:22:12 A
<b>DISSOLVED TOTAL SILICON</b> <i>QAW</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.96		0.0110	0.100 mg/L		108312	1	12/31/2008 10:39:26 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:40:54 A
Antimony	BRL	↓	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Arsenic	BRL	↓	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:40:54 A
Barium	0.0286		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:40:54 A
Calcium	28.5		0.0110	0.100 mg/L		108312	1	12/31/2008 10:40:54 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Iron	BRL	↓	0.0360	0.100 mg/L		108312	1	12/31/2008 10:40:54 A
Lead	BRL	↓	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Magnesium	8.61		0.0190	0.100 mg/L		108312	1	12/31/2008 10:40:54 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:40:54 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Potassium	1.51		0.0300	0.500 mg/L		108312	1	12/31/2008 10:40:54 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Silver	0.0100 <del>0.0000</del>	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Sodium	5.78		0.0063	1.00 mg/L		108312	1	12/31/2008 10:40:54 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.355		0.0230	0.200 mg/L		108314	1	12/31/2008 4:46:59 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:46:59 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:46:59 PM
Barium	0.0374		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:46:59 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:46:59 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:46:59 PM
Calcium	31.7		0.0110	0.100 mg/L		108314	1	12/31/2008 4:46:59 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:46:59 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:46:59 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:46:59 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-024

Client Sample ID: KIF-CRM4.0  
 Collection Date: 12/29/2008 12:45:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	0.335		0.0360	0.100	mg/L	108314	1	12/31/2008 4:46:59 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:46:59 PM
Magnesium	10.3		0.0190	0.100	mg/L	108314	1	12/31/2008 4:46:59 PM
Manganese	0.0473		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:46:59 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
Potassium	1.84		0.0300	0.500	mg/L	108314	1	12/31/2008 4:46:59 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:46:59 PM
Sodium	6.63		0.0063	1.00	mg/L	108314	1	12/31/2008 4:46:59 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:46:59 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	0-00003	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:28:52 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	0-00010	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:08:10 PM

*MAW*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-025

Client Sample ID: KIF-CRM5.5  
 Collection Date: 12/29/2008 1:00:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	9		1	5 mg/L		108315	1	12/31/2008 10:22:37 A
<b>DISSOLVED TOTAL SILICON</b> <i>(Signature)</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.95		0.0110	0.100 mg/L		108312	1	12/31/2008 10:41:14 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 10:47:50 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:47:50 A
Barium	0.0292		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:47:50 A
Calcium	30.2		0.0110	0.100 mg/L		108312	1	12/31/2008 10:47:50 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Copper	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Iron	BRL	U	0.0360	0.100 mg/L		108312	1	12/31/2008 10:47:50 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Magnesium	9.14		0.0190	0.100 mg/L		108312	1	12/31/2008 10:47:50 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:47:50 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Potassium	1.56		0.0300	0.500 mg/L		108312	1	12/31/2008 10:47:50 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Silver	0.0100	0.0003	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Sodium	6.14		0.0063	1.00 mg/L		108312	1	12/31/2008 10:47:50 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Zinc	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.308		0.0230	0.200 mg/L		108314	1	12/31/2008 4:50:29 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:50:29 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:50:29 PM
Barium	0.0379		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:50:29 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:50:29 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:50:29 PM
Calcium	34.1		0.0110	0.100 mg/L		108314	1	12/31/2008 4:50:29 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:50:29 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:50:29 PM
Copper	BRL	U	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:50:29 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

*(Signature)*  
01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-025

Client Sample ID: KIF-CRM5.5  
 Collection Date: 12/29/2008 1:00:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.294		0.0360	0.100	mg/L	108314	1	12/31/2008 4:50:29 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:50:29 PM
Magnesium	11.1		0.0190	0.100	mg/L	108314	1	12/31/2008 4:50:29 PM
Manganese	0.0518		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:50:29 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
Potassium	1.90		0.0300	0.500	mg/L	108314	1	12/31/2008 4:50:29 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:50:29 PM
Sodium	7.08		0.0063	1.00	mg/L	108314	1	12/31/2008 4:50:29 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:50:29 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00023		0.00001	0.00020	mg/L	108369	1	1/2/2009 3:30:48 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0.00003- U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:10:07 PM

*(Signature)*  
 01/30/09

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-026

Client Sample ID: KIF-ERM0.1  
 Collection Date: 12/29/2008 1:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	9		1	5 mg/L		108315	1	12/31/2008 10:23:07 A
<b>DISSOLVED TOTAL SILICON</b> <i>gpl</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.94		0.0110	0.100 mg/L		108312	1	12/31/2008 10:43:01 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0265	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:51:34 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:51:34 A
Barium	0.0240		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:51:34 A
Calcium	13.3		0.0110	0.100 mg/L		108312	1	12/31/2008 10:51:34 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Iron	0.0376	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:51:34 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Magnesium	3.92		0.0190	0.100 mg/L		108312	1	12/31/2008 10:51:34 A
Manganese	0.0126	J	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:51:34 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Potassium	1.18		0.0300	0.500 mg/L		108312	1	12/31/2008 10:51:34 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Silver	0.0100 <del>0.0004</del>	J U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Sodium	3.18		0.0063	1.00 mg/L		108312	1	12/31/2008 10:51:34 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.400		0.0230	0.200 mg/L		108314	1	12/31/2008 4:53:59 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:53:59 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:53:59 PM
Barium	0.0320		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:53:59 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:53:59 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:53:59 PM
Calcium	14.7		0.0110	0.100 mg/L		108314	1	12/31/2008 4:53:59 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:53:59 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:53:59 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:53:59 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gpl*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-026

Client Sample ID: KIF-ERM0.1  
 Collection Date: 12/29/2008 1:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	0.323		0.0360	0.100	mg/L	108314	1	12/31/2008 4:53:59 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:53:59 PM
Magnesium	4.63		0.0190	0.100	mg/L	108314	1	12/31/2008 4:53:59 PM
Manganese	0.0427		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:53:59 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
Potassium	1.47		0.0300	0.500	mg/L	108314	1	12/31/2008 4:53:59 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:53:59 PM
Sodium	3.35		0.0063	1.00	mg/L	108314	1	12/31/2008 4:53:59 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:53:59 PM
Zinc	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	0-00002	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:32:44 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	0-00001	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:12:03 PM

*MAW*  
01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-027

Client Sample ID: KIF-ERM-1.75  
 Collection Date: 12/29/2008 1:30:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	13		1	5 mg/L		108315	1	12/31/2008 10:23:32 A
<b>DISSOLVED TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.85		0.0110	0.100 mg/L		108312	1	12/31/2008 10:44:47 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0439	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:55:14 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:55:14 A
Barium	0.0223		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:55:14 A
Calcium	6.12		0.0110	0.100 mg/L		108312	1	12/31/2008 10:55:14 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Iron	0.0569	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:55:14 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Magnesium	1.54		0.0190	0.100 mg/L		108312	1	12/31/2008 10:55:14 A
Manganese	0.0221		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:55:14 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Potassium	1.03		0.0300	0.500 mg/L		108312	1	12/31/2008 10:55:14 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Sodium	1.95		0.0063	1.00 mg/L		108312	1	12/31/2008 10:55:14 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.587		0.0230	0.200 mg/L		108314	1	12/31/2008 4:57:26 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 4:57:26 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:57:26 PM
Barium	0.0328		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:57:26 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 4:57:26 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 4:57:26 PM
Calcium	6.83		0.0110	0.100 mg/L		108314	1	12/31/2008 4:57:26 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 4:57:26 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:57:26 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:57:26 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAA*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-027

Client Sample ID: KIF-ERM-1.75  
 Collection Date: 12/29/2008 1:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: <b>BB</b>		
Iron	0.414		0.0360	0.100	mg/L	108314	1	12/31/2008 4:57:26 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:57:26 PM
Magnesium	1.87		0.0190	0.100	mg/L	108314	1	12/31/2008 4:57:26 PM
Manganese	0.0408		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:57:26 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
Potassium	1.34		0.0300	0.500	mg/L	108314	1	12/31/2008 4:57:26 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:57:26 PM
Sodium	2.03		0.0063	1.00	mg/L	108314	1	12/31/2008 4:57:26 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:57:26 PM
Zinc	BRL	↓	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	0.00020	0.00016- U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:34:39 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	BRL	U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:17:55 PM

*MAW*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-028

Client Sample ID: KIF-ERM4.0  
 Collection Date: 12/29/2008 1:50:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)			E160.2	(E160.2)				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:24:03 A
DISSOLVED TOTAL SILICON <i>gaw</i>			SW6010B	(SAMP_FILT)				Analyst: TAA
Silica (as Si)	2.07		0.0110	0.100 mg/L		108312	1	12/31/2008 10:13:21 A
METALS, DISSOLVED			SW6010B	(SAMP_FILT)				Analyst: BB
Aluminum	0.0441	J	0.0230	0.200 mg/L		108312	1	12/31/2008 9:43:17 AM
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 9:43:17 AM
Barium	0.0226		0.0016	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 9:43:17 AM
Calcium	6.42		0.0110	0.100 mg/L		108312	1	12/31/2008 9:43:17 AM
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Copper	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Iron	0.0621	J	0.0360	0.100 mg/L		108312	1	12/31/2008 9:43:17 AM
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Magnesium	1.64		0.0190	0.100 mg/L		108312	1	12/31/2008 9:43:17 AM
Manganese	0.0275		0.0019	0.0150 mg/L		108312	1	12/31/2008 9:43:17 AM
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Potassium	1.16		0.0300	0.500 mg/L		108312	1	12/31/2008 9:43:17 AM
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Sodium	2.02		0.0063	1.00 mg/L		108312	1	12/31/2008 9:43:17 AM
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Vanadium	BRL	↓	0.0016	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Zinc	BRL	↓	0.0035	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
METALS, TOTAL			SW6010B	(SW3010A)				Analyst: BB
Aluminum	0.582		0.0230	0.200 mg/L		108314	1	12/31/2008 3:57:19 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 3:57:19 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 3:57:19 PM
Barium	0.0325		0.0016	0.0200 mg/L		108314	1	12/31/2008 3:57:19 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 3:57:19 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 3:57:19 PM
Calcium	6.92		0.0110	0.100 mg/L		108314	1	12/31/2008 3:57:19 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 3:57:19 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 3:57:19 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 3:57:19 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-028

Client Sample ID: KIF-ERM4.0  
 Collection Date: 12/29/2008 1:50:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.397		0.0360	0.100	mg/L	108314	1	12/31/2008 3:57:19 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 3:57:19 PM
Magnesium	1.92		0.0190	0.100	mg/L	108314	1	12/31/2008 3:57:19 PM
Manganese	0.0442		0.0019	0.0150	mg/L	108314	1	12/31/2008 3:57:19 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
Potassium	1.41		0.0300	0.500	mg/L	108314	1	12/31/2008 3:57:19 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 3:57:19 PM
Sodium	2.09		0.0063	1.00	mg/L	108314	1	12/31/2008 3:57:19 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 3:57:19 PM
Zinc	0.0041	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00021		0.00001	0.00020	mg/L	108369	1	1/2/2009 2:59:37 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0.00005 U	0.00001	0.00020	mg/L	108319	1	12/31/2008 5:38:52 PM

*[Signature]*  
 01/30/09

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-029

Client Sample ID: KIF-ERM2.0  
 Collection Date: 12/29/2008 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	22		1	5 mg/L		108315	1	12/31/2008 10:24:28 A
<b>DISSOLVED TOTAL SILICON</b> <i>gaw</i>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: TAA
Silica (as Si)	1.86		0.0110	0.100 mg/L		108312	1	12/31/2008 10:46:31 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: BB
Aluminum	0.0411	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:58:54 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 10:58:54 A
Barium	0.0218		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 10:58:54 A
Calcium	5.87		0.0110	0.100 mg/L		108312	1	12/31/2008 10:58:54 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Cobalt	BRL	J	0.0013	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Copper	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Iron	0.0598	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:58:54 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Magnesium	1.47		0.0190	0.100 mg/L		108312	1	12/31/2008 10:58:54 A
Manganese	0.0227		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:58:54 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Potassium	1.02		0.0300	0.500 mg/L		108312	1	12/31/2008 10:58:54 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Silver	<del>0.0100</del> 0.0007	J U	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Sodium	1.91		0.0063	1.00 mg/L		108312	1	12/31/2008 10:58:54 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Vanadium	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Zinc	BRL	J	0.0035	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.995		0.0230	0.200 mg/L		108314	1	12/31/2008 5:00:52 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 5:00:52 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 5:00:52 PM
Barium	0.0377		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:00:52 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 5:00:52 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 5:00:52 PM
Calcium	6.81		0.0110	0.100 mg/L		108314	1	12/31/2008 5:00:52 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 5:00:52 PM
Cobalt	BRL	J	0.0013	0.0200 mg/L		108314	1	12/31/2008 5:00:52 PM
Copper	BRL	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:00:52 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-029

Client Sample ID: KIF-ERM2.0  
 Collection Date: 12/29/2008 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.643		0.0360	0.100	mg/L	108314	1	12/31/2008 5:00:52 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 5:00:52 PM
Magnesium	1.87		0.0190	0.100	mg/L	108314	1	12/31/2008 5:00:52 PM
Manganese	0.0446		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:00:52 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
Potassium	1.44		0.0300	0.500	mg/L	108314	1	12/31/2008 5:00:52 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 5:00:52 PM
Sodium	2.06		0.0063	1.00	mg/L	108314	1	12/31/2008 5:00:52 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
Vanadium	0.0023	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:00:52 PM
Zinc	0.0047	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:40:32 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:19:52 PM

*gaw*  
01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-030

Client Sample ID: KIF-ERM2.0-DUP  
 Collection Date: 12/29/2008 2:15:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	17		1	5 mg/L		108315	1	12/31/2008 10:25:00 A
<b>DISSOLVED</b>								
<b>TOTAL SILICON</b> <i>gaw</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.84		0.0110	0.100 mg/L		108312	1	12/31/2008 10:48:15 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0420	J	0.0230	0.200 mg/L		108312	1	12/31/2008 11:05:35 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 11:05:35 A
Barium	0.0219		0.0016	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 11:05:35 A
Calcium	6.29		0.0110	0.100 mg/L		108312	1	12/31/2008 11:05:35 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Copper	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Iron	0.0583	J	0.0360	0.100 mg/L		108312	1	12/31/2008 11:05:35 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Magnesium	1.47		0.0190	0.100 mg/L		108312	1	12/31/2008 11:05:35 A
Manganese	0.0238		0.0019	0.0150 mg/L		108312	1	12/31/2008 11:05:35 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Potassium	1.03		0.0300	0.500 mg/L		108312	1	12/31/2008 11:05:35 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Sodium	1.91		0.0063	1.00 mg/L		108312	1	12/31/2008 11:05:35 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Zinc	0.0067	J	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.998		0.0230	0.200 mg/L		108314	1	12/31/2008 5:04:18 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 5:04:18 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 5:04:18 PM
Barium	0.0375		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:04:18 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 5:04:18 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 5:04:18 PM
Calcium	6.71		0.0110	0.100 mg/L		108314	1	12/31/2008 5:04:18 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 5:04:18 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 5:04:18 PM
Copper	0.0020	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:04:18 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- < Less than Result value
- > Greater than Result value
- B Analyte detected in the associated Method Blank
- E Estimated value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Estimated value detected below Reporting Limit
- N Analyte not NELAC certified
- Rpt Lim Reporting Limit
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

*gaw*  
01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-030

Client Sample ID: KIF-ERM2.0-DUP  
 Collection Date: 12/29/2008 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: <b>BB</b>		
Iron	0.625		0.0360	0.100	mg/L	108314	1	12/31/2008 5:04:18 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 5:04:18 PM
Magnesium	1.83		0.0190	0.100	mg/L	108314	1	12/31/2008 5:04:18 PM
Manganese	0.0437		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:04:18 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
Potassium	1.42		0.0300	0.500	mg/L	108314	1	12/31/2008 5:04:18 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 5:04:18 PM
Sodium	2.02		0.0063	1.00	mg/L	108314	1	12/31/2008 5:04:18 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
Vanadium	0.0022	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:04:18 PM
Zinc	0.0041	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	BRL	U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:42:29 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	0.00020	U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:21:47 PM

*glw*  
01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-031

Client Sample ID: KWTP1-WS01  
 Collection Date: 12/29/2008 3:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:25:29 A
<b>DISSOLVED TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.94		0.0110	0.100 mg/L		108312	1	12/31/2008 10:53:32 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 11:16:04 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 11:16:04 A
Barium	0.0192	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 11:16:04 A
Calcium	14.2		0.0110	0.100 mg/L		108312	1	12/31/2008 11:16:04 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Copper	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Iron	BRL	U	0.0360	0.100 mg/L		108312	1	12/31/2008 11:16:04 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Magnesium	3.67		0.0190	0.100 mg/L		108312	1	12/31/2008 11:16:04 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 11:16:04 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Potassium	1.60		0.0300	0.500 mg/L		108312	1	12/31/2008 11:16:04 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Sodium	8.36		0.0063	1.00 mg/L		108312	1	12/31/2008 11:16:04 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Zinc	0.0337		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.423		0.0230	0.200 mg/L		108314	1	12/31/2008 5:14:14 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 5:14:14 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 5:14:14 PM
Barium	0.0258		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:14:14 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 5:14:14 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 5:14:14 PM
Calcium	15.5		0.0110	0.100 mg/L		108314	1	12/31/2008 5:14:14 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 5:14:14 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 5:14:14 PM
Copper	0.0044	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:14:14 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-031

Client Sample ID: KWTPI-WS01  
 Collection Date: 12/29/2008 3:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.512		0.0360	0.100	mg/L	108314	1	12/31/2008 5:14:14 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 5:14:14 PM
Magnesium	4.34		0.0190	0.100	mg/L	108314	1	12/31/2008 5:14:14 PM
Manganese	0.106		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:14:14 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
Potassium	1.90		0.0300	0.500	mg/L	108314	1	12/31/2008 5:14:14 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 5:14:14 PM
Sodium	9.45		0.0063	1.00	mg/L	108314	1	12/31/2008 5:14:14 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:14:14 PM
Zinc	0.0712		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0.00014	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:44:24 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00041		0.00001	0.00020	mg/L	108319	1	12/31/2008 6:23:47 PM

*QAW*  
01/30/09

Qualifiers:	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-032

Client Sample ID: KWTDW-WS02  
 Collection Date: 12/29/2008 3:20:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	BRL		1	5 mg/L		108315	1	12/31/2008 10:25:59 A
<b>DISSOLVED TOTAL SILICON</b> <i>QAW</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.12		0.0110	0.100 mg/L		108312	1	12/31/2008 10:55:17 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 11:20:24 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 11:20:24 A
Barium	0.0179	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 11:20:24 A
Calcium	14.0		0.0110	0.100 mg/L		108312	1	12/31/2008 11:20:24 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Cobalt	BRL	U	0.0013	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Copper	0.0037	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Iron	BRL	U	0.0360	0.100 mg/L		108312	1	12/31/2008 11:20:24 A
Lead	BRL	U	0.0038	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Magnesium	3.66		0.0190	0.100 mg/L		108312	1	12/31/2008 11:20:24 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 11:20:24 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Potassium	1.64		0.0300	0.500 mg/L		108312	1	12/31/2008 11:20:24 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Sodium	11.6		0.0063	1.00 mg/L		108312	1	12/31/2008 11:20:24 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Zinc	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.0427	J	0.0230	0.200 mg/L		108314	1	12/31/2008 5:18:42 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 5:18:42 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 5:18:42 PM
Barium	0.0217	J	0.0016	0.0200 mg/L		108314	1	12/31/2008 5:18:42 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 5:18:42 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 5:18:42 PM
Calcium	15.8		0.0110	0.100 mg/L		108314	1	12/31/2008 5:18:42 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 5:18:42 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 5:18:42 PM
Copper	0.0055	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:18:42 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-032

Client Sample ID: KWTDW-WS02  
 Collection Date: 12/29/2008 3:20:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	BRL	U	0.0360	0.100	mg/L	108314	1	12/31/2008 5:18:42 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 5:18:42 PM
Magnesium	4.41		0.0190	0.100	mg/L	108314	1	12/31/2008 5:18:42 PM
Manganese	BRL	U	0.0019	0.0150	mg/L	108314	1	12/31/2008 5:18:42 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
Potassium	1.89		0.0300	0.500	mg/L	108314	1	12/31/2008 5:18:42 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 5:18:42 PM
Sodium	16.1		0.0063	1.00	mg/L	108314	1	12/31/2008 5:18:42 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 5:18:42 PM
Zinc	BRL	↓	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0.00003	U	0.00001	0.00020	mg/L	108369	1 1/2/2009 3:46:23 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00020	0.00003	U	0.00001	0.00020	mg/L	108319	1 12/31/2008 6:25:43 PM

*[Signature]*  
 01/30/09

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-034

Client Sample ID: RWDW-WS03  
 Collection Date: 12/29/2008 4:35:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	BRL	U	1	5 mg/L		108315	1	12/31/2008 10:26:54 A
<b>DISSOLVED TOTAL SILICON</b> <i>gaw</i>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.14		0.0110	0.100 mg/L		108312	1	12/31/2008 10:58:51 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0235	J	0.0230	0.200 mg/L		108312	1	12/31/2008 11:28:02 A
Antimony	BRL	U	0.0063	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Arsenic	BRL	U	0.0031	0.0500 mg/L		108312	1	12/31/2008 11:28:02 A
Barium	0.0248		0.0016	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 11:28:02 A
Calcium	17.9		0.0110	0.100 mg/L		108312	1	12/31/2008 11:28:02 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 11:28:02 A
Lead	BRL	↓	0.0038	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Magnesium	5.87		0.0190	0.100 mg/L		108312	1	12/31/2008 11:28:02 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 11:28:02 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Potassium	1.64		0.0300	0.500 mg/L		108312	1	12/31/2008 11:28:02 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Silver	BRL	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Sodium	7.30		0.0063	1.00 mg/L		108312	1	12/31/2008 11:28:02 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Zinc	0.0240		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.0326	J	0.0230	0.200 mg/L		108314	1	12/31/2008 5:25:43 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 5:25:43 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 5:25:43 PM
Barium	0.0295		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:25:43 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 5:25:43 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 5:25:43 PM
Calcium	20.0		0.0110	0.100 mg/L		108314	1	12/31/2008 5:25:43 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 5:25:43 PM
Cobalt	BRL	↓	0.0013	0.0200 mg/L		108314	1	12/31/2008 5:25:43 PM
Copper	BRL	↓	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:25:43 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-034

Client Sample ID: RWDW-WS03  
 Collection Date: 12/29/2008 4:35:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	BRL	U	0.0360	0.100	mg/L	108314	1	12/31/2008 5:25:43 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 5:25:43 PM
Magnesium	6.97		0.0190	0.100	mg/L	108314	1	12/31/2008 5:25:43 PM
Manganese	BRL	U	0.0019	0.0150	mg/L	108314	1	12/31/2008 5:25:43 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
Potassium	1.92		0.0300	0.500	mg/L	108314	1	12/31/2008 5:25:43 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 5:25:43 PM
Sodium	8.31		0.0063	1.00	mg/L	108314	1	12/31/2008 5:25:43 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:25:43 PM
Zinc	0.0321		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	U	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:50:14 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00020	U	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:29:34 PM

*gaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-033

Client Sample ID: RWWTL-WS04  
 Collection Date: 12/29/2008 4:30:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	8		1	5 mg/L		108315	1	12/31/2008 10:26:27 A
<b>DISSOLVED TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.03		0.0110	0.100 mg/L		108312	1	12/31/2008 10:57:03 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL	U	0.0230	0.200 mg/L		108312	1	12/31/2008 11:24:18 A
Antimony	BRL	J	0.0063	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Arsenic	BRL	J	0.0031	0.0500 mg/L		108312	1	12/31/2008 11:24:18 A
Barium	0.0251		0.0016	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Beryllium	BRL	U	0.0022	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Cadmium	BRL	U	0.0025	0.0050 mg/L		108312	1	12/31/2008 11:24:18 A
Calcium	17.9		0.0110	0.100 mg/L		108312	1	12/31/2008 11:24:18 A
Chromium	BRL	U	0.0075	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Cobalt	BRL	J	0.0013	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Copper	BRL	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Iron	BRL	J	0.0360	0.100 mg/L		108312	1	12/31/2008 11:24:18 A
Lead	BRL	J	0.0038	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Magnesium	5.87		0.0190	0.100 mg/L		108312	1	12/31/2008 11:24:18 A
Manganese	BRL	U	0.0019	0.0150 mg/L		108312	1	12/31/2008 11:24:18 A
Nickel	BRL	U	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Potassium	1.49		0.0300	0.500 mg/L		108312	1	12/31/2008 11:24:18 A
Selenium	BRL	U	0.0060	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Silver	0.0100	U	0.0003	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Sodium	6.37		0.0063	1.00 mg/L		108312	1	12/31/2008 11:24:18 A
Thallium	BRL	U	0.0041	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Vanadium	BRL	U	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Zinc	0.0633		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.149	J	0.0230	0.200 mg/L		108314	1	12/31/2008 5:22:13 PM
Antimony	BRL	U	0.0063	0.0200 mg/L		108314	1	12/31/2008 5:22:13 PM
Arsenic	BRL	U	0.0031	0.0500 mg/L		108314	1	12/31/2008 5:22:13 PM
Barium	0.0316		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:22:13 PM
Beryllium	BRL	U	0.0022	0.0100 mg/L		108314	1	12/31/2008 5:22:13 PM
Cadmium	BRL	U	0.0025	0.0050 mg/L		108314	1	12/31/2008 5:22:13 PM
Calcium	19.8		0.0110	0.100 mg/L		108314	1	12/31/2008 5:22:13 PM
Chromium	BRL	U	0.0075	0.0100 mg/L		108314	1	12/31/2008 5:22:13 PM
Cobalt	BRL	U	0.0013	0.0200 mg/L		108314	1	12/31/2008 5:22:13 PM
Copper	0.0036	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:22:13 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-033

Client Sample ID: RWWTI-WS04  
 Collection Date: 12/29/2008 4:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>		<b>(SW3010A)</b>			Analyst: BB
Iron	0.175		0.0360	0.100	mg/L	108314	1	12/31/2008 5:22:13 PM
Lead	BRL	U	0.0038	0.0100	mg/L	108314	1	12/31/2008 5:22:13 PM
Magnesium	6.87		0.0190	0.100	mg/L	108314	1	12/31/2008 5:22:13 PM
Manganese	0.0496		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:22:13 PM
Nickel	BRL	U	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
Potassium	1.77		0.0300	0.500	mg/L	108314	1	12/31/2008 5:22:13 PM
Selenium	BRL	U	0.0060	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
Silver	BRL	U	0.0003	0.0100	mg/L	108314	1	12/31/2008 5:22:13 PM
Sodium	7.27		0.0063	1.00	mg/L	108314	1	12/31/2008 5:22:13 PM
Thallium	BRL	U	0.0041	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
Vanadium	BRL	U	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:22:13 PM
Zinc	0.0991		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.000209-00004	JU	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:48:18 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>		<b>(SW7470)</b>			Analyst: MAW
Mercury	0.00020 0-00014	JU	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:27:39 PM

*MAW*  
01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



Analytical Environmental Services, Inc.

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-006

Client Sample ID: 090102-CRB-WS-01  
 Collection Date: 1/2/2009 4:50:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	7	J	2	10 mg/L		108414	1	1/3/2009 1:24:44 PM
<b>DISSOLVED TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.33		0.0110	0.100 mg/L		108410	1	1/5/2009 12:56:01 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	120		5.12	10.0 ug/L		108425	1	1/5/2009 3:56:33 PM
Antimony	BRL	U	0.490	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Barium	34.8		0.700	10.0 ug/L		108425	1	1/5/2009 3:56:33 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108425	1	1/5/2009 3:56:33 PM
Calcium	36800		14.1	100 ug/L		108425	1	1/5/2009 3:56:33 PM
Chromium	BRL	U	0.660	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Copper	1.18	J	0.730	2.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Iron	121		9.32	100 ug/L		108425	1	1/5/2009 3:56:33 PM
Lead	0.262	J	0.170	1.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Magnesium	10300		7.83	100 ug/L		108425	1	1/5/2009 3:56:33 PM
Manganese	30.7		0.620	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Nickel	1.28	J	0.650	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Potassium	1700		7.74	100 ug/L		108425	1	1/5/2009 3:56:33 PM
Selenium	BRL	U	1.06	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Silver	BRL	U	0.0630	1.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Sodium	7490		7.81	500 ug/L		108425	1	1/5/2009 3:56:33 PM
Thallium	BRL	U	0.0620	1.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Vanadium	BRL	U	0.670	5.00 ug/L		108425	1	1/5/2009 3:56:33 PM
Zinc	18.0		2.33	10.0 ug/L		108425	1	1/5/2009 3:56:33 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	30.6		5.12	10.0 ug/L		108437	1	1/5/2009 4:19:27 PM
Antimony	BRL	U	0.490	5.00 ug/L		108437	1	1/5/2009 4:19:27 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108437	1	1/5/2009 4:19:27 PM
Barium	32.2		0.700	10.0 ug/L		108437	1	1/5/2009 4:19:27 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108437	1	1/5/2009 4:19:27 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108437	1	1/5/2009 4:19:27 PM
Calcium	35500		14.1	100 ug/L		108437	1	1/5/2009 4:19:27 PM
Chromium	BRL	U	1.32	10.0 ug/L		108437	2	1/5/2009 5:46:26 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108437	1	1/5/2009 4:19:27 PM
Copper	2.04		0.730	2.00 ug/L		108437	1	1/5/2009 4:19:27 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-006

Client Sample ID: 090102-CRB-WS-01  
 Collection Date: 1/2/2009 4:50:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>								
			SW6020	(SAMP_FILT)				Analyst: JY
Iron	18.7	J	9.32	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Lead	BRL	U	0.170	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Magnesium	9840		7.83	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Manganese	BRL		0.620	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Nickel	1.10	J	0.650	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Potassium	1740	J-	7.74	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Selenium	BRL	U	1.06	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Silver	BRL	U	0.0630	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Sodium	7260		7.81	500	ug/L	108437	1	1/5/2009 4:19:27 PM
Thallium	0.107	J	0.0620	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Zinc	7.39	J+	2.33	10.0	ug/L	108437	1	1/5/2009 4:19:27 PM
<b>MERCURY, DISSOLVED</b>								
			SW7470A	(SW7470)				Analyst: JY
Mercury	BRL	U	0.00001	0.00020	mg/L	108412	1	1/3/2009 3:56:13 PM
<b>MERCURY, TOTAL</b>								
			SW7470A	(SW7470)				Analyst: JY
Mercury	BRL	U	0.00001	0.00020	mg/L	108413	1	1/3/2009 4:13:51 PM

*[Signature]*  
 01/30/09

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-003

Client Sample ID: 090102-ERB-WS-01  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	6	J	2	10	mg/L	108414	1	1/3/2009 1:24:11 PM
<b>DISSOLVED TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.03		0.0110	0.100	mg/L	108410	1	1/5/2009 12:50:41 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	132		5.12	10.0	ug/L	108425	1	1/5/2009 3:45:06 PM
Antimony	BRL	U	0.490	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Arsenic	BRL	U	0.880	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Barium	29.3		0.700	10.0	ug/L	108425	1	1/5/2009 3:45:06 PM
Beryllium	BRL	U	0.210	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Cadmium	BRL	U	0.0970	0.700	ug/L	108425	1	1/5/2009 3:45:06 PM
Calcium	8900		14.1	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Chromium	BRL	U	0.660	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Cobalt	BRL	U	0.620	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Copper	0.819	J	0.730	2.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Iron	195		9.32	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Lead	0.237	J	0.170	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Magnesium	2320		7.83	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Manganese	34.5		0.620	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Nickel	1.34	J	0.650	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Potassium	1220		7.74	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Selenium	BRL	U	1.06	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Silver	BRL	U	0.0630	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Sodium	2680		7.81	500	ug/L	108425	1	1/5/2009 3:45:06 PM
Thallium	BRL	U	0.0620	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Zinc	13.6		2.33	10.0	ug/L	108425	1	1/5/2009 3:45:06 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	33.6		5.12	10.0	ug/L	108437	1	1/5/2009 5:05:51 PM
Antimony	BRL	U	0.490	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Arsenic	BRL	U	0.880	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Barium	25.2		0.700	10.0	ug/L	108437	1	1/5/2009 5:05:51 PM
Beryllium	BRL	U	0.210	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Cadmium	BRL	U	0.0970	0.700	ug/L	108437	1	1/5/2009 5:05:51 PM
Calcium	7970		14.1	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Chromium	BRL	U	0.660	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Cobalt	BRL	U	0.620	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Copper	BRL	U	0.730	2.00	ug/L	108437	1	1/5/2009 5:05:51 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-003

Client Sample ID: 090102-ERB-WS-01  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>								
			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Iron	39.8	J	9.32	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Lead	BRL	U	0.170	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Magnesium	1940		7.83	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Manganese	5.69		0.620	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Nickel	1.09	J	0.650	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Potassium	1150	J-	7.74	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Selenium	BRL	U	1.06	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Silver	BRL	U	0.0630	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Sodium	2490		7.81	500	ug/L	108437	1	1/5/2009 5:05:51 PM
Thallium	BRL	U	0.0620	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Zinc	2.52	J+	2.33	10.0	ug/L	108437	1	1/5/2009 5:05:51 PM
<b>MERCURY, DISSOLVED</b>								
			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: JY
Mercury	BRL	U	0.00001	0.00020	mg/L	108412	1	1/3/2009 4:04:01 PM
<b>MERCURY, TOTAL</b>								
			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: JY
Mercury	BRL	U	0.00001	0.00020	mg/L	108413	1	1/3/2009 4:42:38 PM

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01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-005

Client Sample ID: KWTP-FWU-01  
 Collection Date: 1/5/2009 1:52:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED (TSS) (160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	BRL	U	1	5 mg/L		108562	1	1/8/2009 11:25:47 AM
<b>DISSOLVED SILICA (AS SI)</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Silica (as Si)	2.08		0.0110	0.100 mg/L		108499	1	1/7/2009 4:55:16 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	36.7		5.12	10.0 ug/L		108521	1	1/7/2009 7:27:24 PM
Antimony	BRL	U	0.490	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Barium	19.1		0.700	10.0 ug/L		108521	1	1/7/2009 7:27:24 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108521	1	1/7/2009 7:27:24 PM
Calcium	18300		14.1	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Chromium	BRL	U	0.660	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Copper	5.19		0.730	2.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Iron	BRL	U	9.32	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Lead	BRL	U	0.170	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Magnesium	3940		7.83	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Manganese	BRL	U	0.620	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Nickel	BRL	U	0.650	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Potassium	1900		7.74	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Selenium	BRL	U	1.06	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Silver	BRL	U	0.0630	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Sodium	14300		7.81	500 ug/L		108521	1	1/7/2009 7:27:24 PM
Thallium	BRL	U	0.0620	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Vanadium	BRL	U	0.670	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Zinc	6.34	J	2.33	10.0 ug/L		108521	1	1/7/2009 7:27:24 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	19.0		5.12	10.0 ug/L		108500	1	1/7/2009 6:18:57 PM
Antimony	BRL	U	0.490	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Barium	18.1		0.700	10.0 ug/L		108500	1	1/7/2009 6:18:57 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108500	1	1/7/2009 6:18:57 PM
Calcium	15200		14.1	100 ug/L		108500	1	1/7/2009 6:18:57 PM
Chromium	BRL	U	0.660	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Copper	4.80		0.730	2.00 ug/L		108500	1	1/7/2009 6:18:57 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gan*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-005

Client Sample ID: KWTP-FWU-01  
 Collection Date: 1/5/2009 1:52:00 PM  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				<b>Analyst: JY</b>
Iron	BRL	U	9.32	100	ug/L	108500	1	1/7/2009 6:18:57 PM
Lead	0.620	J	0.170	1.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Magnesium	3700		7.83	100	ug/L	108500	1	1/7/2009 6:18:57 PM
Manganese	1.58	J	0.620	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Nickel	BRL	U	0.650	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Potassium	1780		7.74	100	ug/L	108500	1	1/7/2009 6:18:57 PM
Selenium	BRL	U	1.06	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Silver	BRL	U	0.0630	1.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Sodium	13400		7.81	500	ug/L	108500	1	1/7/2009 6:18:57 PM
Thallium	BRL	U	0.0620	1.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Zinc	7.58	J	2.33	10.0	ug/L	108500	1	1/7/2009 6:18:57 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				<b>Analyst: MAW</b>
Mercury	BRL	U	0.00001	0.00020	mg/L	108558	1	1/8/2009 1:55:38 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				<b>Analyst: MAW</b>
Mercury	BRL	U	0.00001	0.00020	mg/L	108559	1	1/8/2009 1:32:11 PM

*Jaw*  
01/30/09

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-003

Client Sample ID: KWTP-RWU-01  
 Collection Date: 1/5/2009 1:52:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	4	J	1	5 mg/L		108562	1	1/8/2009 11:24:54 AM
<b>DISSOLVED SILICA (AS SI)</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Silica (as Si)	1.91		0.0110	0.100 mg/L		108499	1	1/7/2009 5:05:42 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	74.3		5.12	10.0 ug/L		108521	1	1/7/2009 7:55:50 PM
Antimony	BRL	U	0.490	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Barium	20.4		0.700	10.0 ug/L		108521	1	1/7/2009 7:55:50 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108521	1	1/7/2009 7:55:50 PM
Calcium	15700		14.1	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Chromium	BRL	U	0.660	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Copper	2.86		0.730	2.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Iron	70.4	J	9.32	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Lead	0.188	J	0.170	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Magnesium	3810		7.83	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Manganese	27.7		0.620	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Nickel	BRL	U	0.650	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Potassium	1850		7.74	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Selenium	BRL	U	1.06	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Silver	BRL	U	0.0630	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Sodium	9530		7.81	500 ug/L		108521	1	1/7/2009 7:55:50 PM
Thallium	BRL	U	0.0620	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Vanadium	BRL	U	0.670	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Zinc	24.5		2.33	10.0 ug/L		108521	1	1/7/2009 7:55:50 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	15.6		5.12	10.0 ug/L		108500	1	1/7/2009 6:47:27 PM
Antimony	BRL	U	0.490	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Barium	18.9		0.700	10.0 ug/L		108500	1	1/7/2009 6:47:27 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108500	1	1/7/2009 6:47:27 PM
Calcium	14800		14.1	100 ug/L		108500	1	1/7/2009 6:47:27 PM
Chromium	BRL	U	0.660	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Copper	2.16		0.730	2.00 ug/L		108500	1	1/7/2009 6:47:27 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 < Less than Result value  
 > Greater than Result value  
 B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range  
 H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit  
 N Analyte not NELAC certified  
 Rpt Lim Reporting Limit  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-003

Client Sample ID: KWTP-RWU-01  
 Collection Date: 1/5/2009 1:52:00 PM  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Iron	BRL	U	9.32	100	ug/L	108500	1	1/7/2009 6:47:27 PM
Lead	BRL	U	0.170	1.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Magnesium	3640		7.83	100	ug/L	108500	1	1/7/2009 6:47:27 PM
Manganese	BRL	U	0.620	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Nickel	BRL	U	0.650	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Potassium	1760		7.74	100	ug/L	108500	1	1/7/2009 6:47:27 PM
Selenium	BRL	U	1.06	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Silver	BRL	U	0.0630	1.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Sodium	9220		7.81	500	ug/L	108500	1	1/7/2009 6:47:27 PM
Thallium	BRL	U	0.0620	1.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Zinc	20.3		2.33	10.0	ug/L	108500	1	1/7/2009 6:47:27 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108558	1	1/8/2009 2:03:22 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108559	1	1/8/2009 1:40:03 PM

*[Signature]*  
 01/30/09

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-004

Client Sample ID: KWTP-RWU-01-DUP  
 Collection Date: 1/5/2009 1:52:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	4	J	1	5 mg/L		108562	1	1/8/2009 11:25:19 AM
<b>DISSOLVED SILICA (AS SI)</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Silica (as Si)	1.92		0.0110	0.100 mg/L		108499	1	1/7/2009 5:08:07 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	77.3		5.12	10.0 ug/L		108521	1	1/7/2009 8:01:32 PM
Antimony	BRL	U	0.490	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Barium	20.4		0.700	10.0 ug/L		108521	1	1/7/2009 8:01:32 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108521	1	1/7/2009 8:01:32 PM
Calcium	16000		14.1	100 ug/L		108521	1	1/7/2009 8:01:32 PM
Chromium	BRL	U	0.660	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Copper	4.06		0.730	2.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Iron	79.2	J	9.32	100 ug/L		108521	1	1/7/2009 8:01:32 PM
Lead	0.181	J	0.170	1.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Magnesium	3830		7.83	100 ug/L		108521	1	1/7/2009 8:01:32 PM
Manganese	28.4		0.620	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Nickel	BRL	U	0.650	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Potassium	1890		7.74	100 ug/L		108521	1	1/7/2009 8:01:32 PM
Selenium	BRL	U	1.06	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Silver	BRL	U	0.0630	1.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Sodium	9730		7.81	500 ug/L		108521	1	1/7/2009 8:01:32 PM
Thallium	BRL	U	0.0620	1.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Vanadium	BRL	U	0.670	5.00 ug/L		108521	1	1/7/2009 8:01:32 PM
Zinc	24.5		2.33	10.0 ug/L		108521	1	1/7/2009 8:01:32 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	12.2		5.12	10.0 ug/L		108500	1	1/7/2009 6:53:08 PM
Antimony	BRL	U	0.490	5.00 ug/L		108500	1	1/7/2009 6:53:08 PM
Arsenic	BRL	U	0.880	5.00 ug/L		108500	1	1/7/2009 6:53:08 PM
Barium	18.7		0.700	10.0 ug/L		108500	1	1/7/2009 6:53:08 PM
Beryllium	BRL	U	0.210	1.00 ug/L		108500	1	1/7/2009 6:53:08 PM
Cadmium	BRL	U	0.0970	0.700 ug/L		108500	1	1/7/2009 6:53:08 PM
Calcium	15500		14.1	100 ug/L		108500	1	1/7/2009 6:53:08 PM
Chromium	BRL	U	0.660	5.00 ug/L		108500	1	1/7/2009 6:53:08 PM
Cobalt	BRL	U	0.620	5.00 ug/L		108500	1	1/7/2009 6:53:08 PM
Copper	2.28		0.730	2.00 ug/L		108500	1	1/7/2009 6:53:08 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 01/30/09



**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-004

Client Sample ID: KWTP-RWU-01-DUP  
 Collection Date: 1/5/2009 1:52:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Iron	BRL	U	9.32	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Lead	BRL	U	0.170	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Magnesium	3630		7.83	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Manganese	BRL	U	0.620	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Nickel	BRL	U	0.650	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Potassium	1810		7.74	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Selenium	BRL	U	1.06	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Silver	BRL	U	0.0630	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Sodium	9320		7.81	500	ug/L	108500	1	1/7/2009 6:53:08 PM
Thallium	BRL	U	0.0620	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Zinc	19.0		2.33	10.0	ug/L	108500	1	1/7/2009 6:53:08 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108558	1	1/8/2009 2:05:18 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00001	0.00020	mg/L	108559	1	1/8/2009 1:41:58 PM

*Jaw*  
01/30/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**ENCLOSURE 2**

**DATA VALIDATION-QUALIFIED FIXED LABORATORY ANALYTICAL RESULTS FOR  
ANALYTICAL ENVIRONMENTAL SERVICES, INC., REPORT NOS. 0812G73, 0812I43,  
0901058, AND 0901111**

(Twelve Pages)



**TETRA TECH**

TDD No. TTEMI-05-001-0084 (Kingston Fossil Fly Ash Response)

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	KIF-CRM 4.0	KIF-ERM 0.1	KIF-CRM 5.5	KIF-ERM 2.1	KIF-ERM 4.0	TT-ERM 1.9
Sample Collection Date:	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/23/2008
Field Quality Control:						
Total Suspended Solids		mg/L				
Total Suspended Solids	NA	14700	NA	NA	NA	NA
Dissolved Metals		mg/L				
Aluminum	NA	0.164 J	NA	NA	NA	NA
Antimony	NA	0.02 U	NA	NA	NA	NA
Arsenic	NA	0.0116 J	NA	NA	NA	NA
Barium	NA	0.0345	NA	NA	NA	NA
Beryllium	NA	0.01 U	NA	NA	NA	NA
Cadmium	NA	0.005 U	NA	NA	NA	NA
Calcium	NA	9.38	NA	NA	NA	NA
Chromium	NA	0.01 U	NA	NA	NA	NA
Cobalt	NA	0.02 U	NA	NA	NA	NA
Copper	NA	0.00170 J	NA	NA	NA	NA
Iron	NA	0.187	NA	NA	NA	NA
Lead	NA	0.01 U	NA	NA	NA	NA
Magnesium	NA	2.20	NA	NA	NA	NA
Manganese	NA	0.153	NA	NA	NA	NA
Mercury	NA	0.0002 U	NA	NA	NA	NA
Nickel	NA	0.02 U	NA	NA	NA	NA
Potassium	NA	1.28	NA	NA	NA	NA
Selenium	NA	0.00749 J	NA	NA	NA	NA
Silica	NA	NA	NA	NA	NA	NA
Silver	NA	0.01 U	NA	NA	NA	NA
Sodium	NA	5.65	NA	NA	NA	NA
Thallium	NA	0.00774 J	NA	NA	NA	NA
Vanadium	NA	0.00341 J	NA	NA	NA	NA
Zinc	NA	0.00772 J	NA	NA	NA	NA
Total Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	1.53	121	0.986	1.13	0.338	2.20
Antimony	0.02 U	0.00655 J	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.00392 J	1.49	0.00501 J	0.05 U	0.05 U	0.0208 J
Barium	0.0430	1.47	0.0385	0.0405	0.0304	0.0565
Beryllium	0.01 U	0.0119	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.0155	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	30.8	38.2	35.0	8.04	7.81	9.11
Chromium	0.01 U	0.127	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.0768	0.02 U	0.02 U	0.02 U	0.02 U
Copper	0.01 U	0.225	0.01 U	0.01 U	0.01 U	0.00406 J
Iron	1.08	67.0	0.733	0.660	0.262	1.37
Lead	0.00461 J	0.0754	0.01 U	0.01 U	0.01 U	0.00625 J
Magnesium	8.51	12.4	9.94	2.14	1.78	2.20
Manganese	0.0938	1.89	0.0453	0.0738	0.0368	0.0898

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	KIF-CRM 4.0	KIF-ERM 0.1	KIF-CRM 5.5	KIF-ERM 2.1	KIF-ERM 4.0	TT-ERM 1.9
Sample Collection Date:	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/23/2008
Field Quality Control:						
Total Metals (cont'd)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	<b>0.103</b>	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	<b>2.44</b>	<b>32.1</b>	<b>2.45</b>	<b>1.52</b>	<b>1.35</b>	<b>1.71</b>
Selenium	0.02 U	<b>0.0180 J</b>	0.02 U	0.02 U	0.02 U	0.02 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	<b>5.85</b>	<b>4.85</b>	<b>6.83</b>	<b>2.56</b>	<b>2.53</b>	<b>2.63</b>
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	<b>0.00243 J</b>	<b>0.465</b>	0.01 U	<b>0.00255 J</b>	0.01 U	<b>0.00741 J</b>
Zinc	<b>0.00404 J</b>	<b>0.266</b>	0.02 U	<b>0.00461 J</b>	0.02 U	<b>0.0371</b>

Notes:

Positive results are listed in **BOLD**.

mg/L = Milligrams per liter

µg/L = Micrograms per liter

\* = For these samples, mercury and silica are reported in mg/L.

NA = The sample was not analyzed for this analyte.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	DUPLICATE	KIF-TRM568.5	KIF-CRM 0.0	KIF-CRM 2.0	KIF-KWTPI	081228-ERPL-WS01
Sample Collection Date:	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/28/2008
Field Quality Control:	Field Duplicate				(Kingston Raw)	
Total Suspended Solids		mg/L	mg/L	mg/L		mg/L
Total Suspended Solids	NA	10	15	80	NA	58
Dissolved Metals		mg/L	mg/L	mg/L		mg/L
Aluminum	NA	0.2 U	0.0268 J	0.0302 J	NA	0.152 J
Antimony	NA	0.02 U	0.02 U	0.02 U	NA	0.02 U
Arsenic	NA	0.05 U	0.05 U	0.05 U	NA	0.05 U
Barium	NA	0.0176 J	0.0189 J	0.0311	NA	0.0171 J
Beryllium	NA	0.01 U	0.01 U	0.01 U	NA	0.01 U
Cadmium	NA	0.005 U	0.005 U	0.005 U	NA	0.005 U
Calcium	NA	13.8	14.8	22.9	NA	6.83
Chromium	NA	0.01 U	0.01 U	0.01 U	NA	0.01 U
Cobalt	NA	0.02 U	0.02 U	0.02 U	NA	0.02 U
Copper	NA	0.01 U	0.01 U	0.01 U	NA	0.01 U
Iron	NA	0.1 U	0.1 U	0.0481 J	NA	0.155
Lead	NA	0.01 U	0.01 U	0.01 U	NA	0.01 U
Magnesium	NA	3.52	3.80	6.30	NA	2.20
Manganese	NA	0.00464 J	0.00944 J	0.0149 J	NA	0.0155
Mercury	NA	0.0002 U	0.0002 U	0.0002 U	NA	0.0002 U
Nickel	NA	0.02 U	0.02 U	0.02 U	NA	0.02 U
Potassium	NA	1.57	1.78	1.58	NA	0.993
Selenium	NA	0.02 U	0.02 U	0.02 U	NA	0.02 U
Silica	NA	NA	NA	NA	NA	1.99
Silver	NA	0.01 U	0.01 U	0.01 U	NA	0.01 U
Sodium	NA	7.48	8.04	4.50	NA	1.88
Thallium	NA	0.02 U	0.00463 J	0.02 U	NA	0.02 U
Vanadium	NA	0.01 U	0.01 U	0.01 U	NA	0.01 U
Zinc	NA	0.02 U	0.02 U	0.02 U	NA	0.02 U
Total Metals		mg/L	mg/L	mg/L	µg/L*	mg/L
Aluminum	2.58	0.291	0.265	0.905	247	5.84
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U
Arsenic	0.0337 J	0.05 U	0.00351 J	0.00310 J	5 U	0.00629 J
Barium	0.0643	0.0218	0.0215	0.0436	21.2	0.0389
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.7 U	0.005 U
Calcium	9.26	16.2	15.9	27.3	16500	8.55
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	5 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U
Copper	0.00508 J	0.01 U	0.01 U	0.01 U	0.914 J	0.00536 J
Iron	1.77	0.255	0.234	0.607	249	6.22
Lead	0.00492 J	0.01 U	0.01 U	0.01 U	0.332 J	0.00886 J
Magnesium	2.27	4.17	4.09	7.57	3630	3.11
Manganese	0.0970	0.0288	0.0248	0.0512	44.8	0.0921



**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	DUPLICATE	KIF-TRM568.5	KIF-CRM 0.0	KIF-CRM 2.0	KIF-KWTPI	081228-ERPL-WS01
Sample Collection Date:	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/23/2008	12/28/2008
Field Quality Control:	Field Duplicate				(Kingston Raw)	
Total Metals (cont'd)	mg/L	mg/L	mg/L	mg/L	µg/L*	mg/L
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	0.02 U	<b>0.672 J</b>	0.02 U
Potassium	<b>1.80</b>	<b>1.97</b>	<b>1.92</b>	<b>2.14</b>	<b>1890</b>	<b>1.81</b>
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	5 U	0.02 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U
Sodium	<b>2.68</b>	<b>8.90</b>	<b>8.67</b>	<b>5.43</b>	<b>8490</b>	<b>2.05</b>
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	1 U	0.02 U
Vanadium	<b>0.0108</b>	0.01 U	0.01 U	<b>0.00237 J</b>	5 U	<b>0.0150</b>
Zinc	<b>0.0350</b>	0.02 U	0.02 U	0.02 U	<b>10.7</b>	<b>0.0125 J</b>

Notes:

Positive results are listed in **BOLD**.

mg/L = Milligrams per liter

µg/L = Micrograms per liter

\* = For these samples, mercury and silica are reported in mg/L.

NA = The sample was not analyzed for this analyte.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	081228-ERER-WS02	081228-ERER-WS02-DUP	081228-SGUBR-WS03	081228-KCPS-WS04	KIF-TRM568.5	KIF-CRM0.0
Sample Collection Date:	12/28/2008	12/28/2008	12/28/2008	12/28/2008	12/29/2008	12/29/2008
Field Quality Control:	Field Duplicate					
Total Suspended Solids	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Total Suspended Solids	161	186	68	969	10	46
Dissolved Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.0680 J	0.0643 J	0.2 U	0.0361 J	0.2 U	0.2 U
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Barium	0.0197 J	0.0205	0.0319	0.0276	0.0184 J	0.0172 J
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	6.42	6.40	30.3	23.3	14.1	14.2
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.0827 J	0.0832 J	0.1 U	0.0398 J	0.1 U	0.1 U
Lead	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Magnesium	1.76	1.76	9.44	6.78	3.71	3.72
Manganese	0.0129 J	0.0120 J	0.015 U	0.015 U	0.015 U	0.015 U
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	1.07	1.06	1.56	1.45	1.62	1.62
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Silica	1.92	1.91	2.01	1.97	1.81	1.87
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	1.90	1.90	5.84	4.68	8.62	8.63
Thallium	0.02 U	0.0047 J	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Total Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	1.85	1.85	2.27	8.20	0.257	0.751
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.0127 J	0.0106 J	0.00773 J	0.0480 J	0.05 U	0.05 U
Barium	0.0468	0.0434	0.0514	0.142	0.0260	0.0311
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	9.00	7.35	34.2	25.1	16.6	16.4
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.00219 J	0.02 U	0.02 U
Copper	0.00524 J	0.00331 J	0.00282 J	0.0141	0.01 U	0.00168 J
Iron	1.48	1.49	2.51	3.99	0.305	1.12
Lead	0.01 U	0.01 U	0.01 U	0.00589 J	0.01 U	0.01 U
Magnesium	2.38	2.28	11.5	7.98	4.69	4.71
Manganese	0.0629	0.0585	0.0715	0.0816	0.0508	0.159

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	081228-ERER-WS02	081228-ERER-WS02-DUP	081228-SGUBR-WS03	081228-KCPS-WS04	KIF-TRM568.5	KIF-CRM0.0
Sample Collection Date:	12/28/2008	12/28/2008	12/28/2008	12/28/2008	12/29/2008	12/29/2008
Field Quality Control:		Field Duplicate				
Total Metals (cont'd)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mercury	0.0002 U	0.0002 U	<b>0.00188</b>	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	<b>0.00604 J</b>	0.02 U	0.02 U
Potassium	<b>1.83</b>	<b>1.73</b>	<b>2.18</b>	<b>3.59</b>	<b>2.05</b>	<b>2.10</b>
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	<b>2.27</b>	<b>2.04</b>	<b>6.71</b>	<b>4.95</b>	<b>10.8</b>	<b>10.5</b>
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	<b>0.00593 J</b>	<b>0.00505 J</b>	<b>0.00625 J</b>	<b>0.0261</b>	0.01 U	0.01 U
Zinc	<b>0.0473</b>	<b>0.00719 J</b>	<b>0.00777 J</b>	<b>0.0333</b>	0.02 U	<b>0.00634 J</b>

Notes:

Positive results are listed in **BOLD**.

mg/L = Milligrams per liter

µg/L = Micrograms per liter

\* = For these samples, mercury and silica are reported in mg/L.

NA = The sample was not analyzed for this analyte.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	KIF-CRM2.0	TT-CRM2.5	KIF-CRM4.0	KIF-CRM5.5	KIF-ERM0.1	KIF-ERM-1.75
Sample Collection Date:	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008
Field Quality Control:						
Total Suspended Solids	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Total Suspended Solids	15	13	10	9	9	13
Dissolved Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.2 U	0.2 U	0.2 U	0.2 U	0.0265 J	0.0439 J
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Barium	0.0288	0.0280	0.0286	0.0292	0.0240	0.0223
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	24.7	27.8	28.5	30.2	13.3	6.12
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.1 U	0.1 U	0.1 U	0.1 U	0.0376 J	0.0569 J
Lead	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Magnesium	7.40	8.41	8.61	9.14	3.92	1.54
Manganese	0.015 U	0.015 U	0.015 U	0.015 U	0.0126 J	0.0221
Mercury	0.0002 U	0.0002 U	0.0002 U	0.00023	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	1.45	1.51	1.51	1.56	1.18	1.03
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Silica	1.94	1.89	1.96	1.95	1.94	1.85
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	5.15	5.67	5.78	6.14	3.18	1.95
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Total Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.516	0.355	0.355	0.308	0.400	0.587
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Barium	0.0411	0.0384	0.0374	0.0379	0.0320	0.0328
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	28.6	31.2	31.7	34.1	14.7	6.83
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	0.466	0.328	0.335	0.294	0.323	0.414
Lead	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Magnesium	9.21	10.1	10.3	11.1	4.63	1.87
Manganese	0.0507	0.0495	0.0473	0.0518	0.0427	0.0408

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	KIF-CRM2.0	TT-CRM2.5	KIF-CRM4.0	KIF-CRM5.5	KIF-ERM0.1	KIF-ERM-1.75
Sample Collection Date:	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008
Field Quality Control:						
Total Metals (cont'd)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	<b>1.87</b>	<b>1.86</b>	<b>1.84</b>	<b>1.90</b>	<b>1.47</b>	<b>1.34</b>
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Silver	0.01 U	<b>0.00038 J</b>	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	<b>6.08</b>	<b>6.58</b>	<b>6.63</b>	<b>7.08</b>	<b>3.35</b>	<b>2.03</b>
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

Positive results are listed in **BOLD**.

mg/L = Milligrams per liter

µg/L = Micrograms per liter

\* = For these samples, mercury and silica are reported in mg/L.

NA = The sample was not analyzed for this analyte.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.





**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	KIF-ERM4.0	KIF-ERM2.0	KIF-ERM2.0-DUP	KWTPI-WS01	KWTDW-WS02	RWDW-WS03
Sample Collection Date:	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008
Field Quality Control:			Field Duplicate	(Kingston Raw)	(Kingston Finished)	(Rockwood Finished)
Total Suspended Solids	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Total Suspended Solids	10	22	17	10	5 U	5 U
Dissolved Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.0441 J	0.0411 J	0.0420 J	0.2 U	0.2 U	0.0235 J
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Barium	0.0226	0.0218	0.0219	0.0192 J	0.0179 J	0.0248
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	6.42	5.87	6.29	14.2	14.0	17.9
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	0.01 U	0.01 U	0.01 U	0.01 U	0.0037 J	0.01 U
Iron	0.0621 J	0.0598 J	0.0583 J	0.1 U	0.1 U	0.1 U
Lead	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Magnesium	1.64	1.47	1.47	3.67	3.66	5.87
Manganese	0.0275	0.0227	0.0238	0.015 U	0.015 U	0.015 U
Mercury	0.00021	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	1.16	1.02	1.03	1.60	1.64	1.64
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Silica	2.07	1.86	1.84	1.94	2.12	2.14
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	2.02	1.91	1.91	8.36	11.6	7.30
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Zinc	0.02 U	0.02 U	0.0067 J	0.0337	0.02 U	0.0240
Total Metals	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	0.582	0.995	0.998	0.423	0.0427 J	0.0326 J
Antimony	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Barium	0.0325	0.0377	0.0375	0.0258	0.0217	0.0295
Beryllium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cadmium	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Calcium	6.92	6.81	6.71	15.5	15.8	20.0
Chromium	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cobalt	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Copper	0.01 U	0.01 U	0.00198 J	0.00441 J	0.00551 J	0.01 U
Iron	0.397	0.643	0.625	0.512	0.1 U	0.1 U
Lead	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Magnesium	1.92	1.87	1.83	4.34	4.41	6.97
Manganese	0.0442	0.0446	0.0437	0.106	0.015 U	0.015 U

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	KIF-ERM4.0	KIF-ERM2.0	KIF-ERM2.0-DUP	KWTPI-WS01	KWTDW-WS02	RWDW-WS03
Sample Collection Date:	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008	12/29/2008
Field Quality Control:			Field Duplicate	(Kingston Raw)	(Kingston Finished)	(Rockwood Finished)
Total Metals (cont'd)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Mercury	0.0002 U	0.0002 U	0.0002 U	<b>0.00041</b>	0.0002 U	0.0002 U
Nickel	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Potassium	<b>1.41</b>	<b>1.44</b>	<b>1.42</b>	<b>1.90</b>	<b>1.89</b>	<b>1.92</b>
Selenium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Silver	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sodium	<b>2.09</b>	<b>2.06</b>	<b>2.02</b>	<b>9.45</b>	<b>16.1</b>	<b>8.31</b>
Thallium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vanadium	0.01 U	<b>0.00230 J</b>	<b>0.00218 J</b>	0.01 U	0.01 U	0.01 U
Zinc	<b>0.00408 J</b>	<b>0.00467 J</b>	<b>0.00409 J</b>	<b>0.0712</b>	0.02 U	<b>0.0321</b>

Notes:

Positive results are listed in **BOLD**.

mg/L = Milligrams per liter

µg/L = Micrograms per liter

\* = For these samples, mercury and silica are reported in mg/L.

NA = The sample was not analyzed for this analyte.

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	RWWTI-WS04	090102-CRB-WS-01	090102-ERB-WS-01	KWTP-FWU-01	KWTP-RWU-01	KWTP-RWU-01-DUP
Sample Collection Date:	12/29/2008	1/2/2009	1/2/2009	1/5/2009	1/5/2009	1/5/2009
Field Quality Control:	(Rockwood Raw)					Field Duplicate
Total Suspended Solids	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Total Suspended Solids	8	7 J	6 J	5 U	4 J	4 J
Dissolved Metals	mg/L	µg/L*	µg/L*	µg/L*	µg/L*	µg/L*
Aluminum	0.2 U	30.6	33.6	19.0	15.6	12.2
Antimony	0.02 U	5 U	5 U	5 U	5 U	5 U
Arsenic	0.05 U	5 U	5 U	5 U	5 U	5 U
Barium	0.0251	32.2	25.2	18.1	18.9	18.7
Beryllium	0.01 U	1 U	1 U	1 U	1 U	1 U
Cadmium	0.005 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	17.9	35500	7970	15200	14800	15500
Chromium	0.01 U	10 U	5 U	5 U	5 U	5 U
Cobalt	0.02 U	5 U	5 U	5 U	5 U	5 U
Copper	0.01 U	2.04	2 U	4.80	2.16	2.28
Iron	0.1 U	18.7 J	39.8 J	100 U	100 U	100 U
Lead	0.01 U	1 U	1 U	0.62 J	1 U	1 U
Magnesium	5.87	9840	1940	3700	3640	3630
Manganese	0.015 U	5 U	5.69	1.59 J	5 U	5 U
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	1.10 J	1.09 J	5 U	5 U	5 U
Potassium	1.49	1740 J-	1150 J-	1780	1760	1810
Selenium	0.02 U	5 U	5 U	5 U	5 U	5 U
Silica	2.03	1.33	2.03	2.06	1.91	1.92
Silver	0.01 U	1 U	1 U	1 U	1 U	1 U
Sodium	6.37	7260	2490	13400	9220	9330
Thallium	0.02 U	0.107 J	1 U	1 U	1 U	1 U
Vanadium	0.01 U	5 U	5 U	5 U	5 U	5 U
Zinc	0.0633	7.39 J+	2.52 J+	7.58 J	20.3	19
Total Metals	mg/L	µg/L*	µg/L*	µg/L*	µg/L*	µg/L*
Aluminum	0.149 J	120	132	36.7	74.3	77.3
Antimony	0.02 U	5 U	5 U	5 U	5 U	5 U
Arsenic	0.05 U	5 U	5 U	5 U	5 U	5 U
Barium	0.0316	34.8	29.3	19.1	20.4	20.4
Beryllium	0.01 U	1 U	1 U	1 U	1 U	1 U
Cadmium	0.005 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Calcium	19.8	36800	8900	16300	15700	16000
Chromium	0.01 U	5 U	5 U	5 U	5 U	5 U
Cobalt	0.02 U	5 U	5 U	5 U	5 U	5 U
Copper	0.00356 J	1.18 J	0.819 J	5.19	2.86	4.06
Iron	0.175	121	195	100 U	70.4 J	79.2 J
Lead	0.01 U	0.262 J	0.237 J	1 U	0.188 J	0.181 J
Magnesium	6.87	10300	2330	3940	3810	3830
Manganese	0.0496	30.7	34.5	5 U	27.7	28.4

**FINAL LABORATORY ANALYTICAL RESULTS FOR AQUEOUS SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	RWWTI-WS04	090102-CRB-WS-01	090102-ERB-WS-01	KWTP-FWU-01	KWTP-RWU-01	KWTP-RWU-01-DUP
Sample Collection Date:	12/29/2008	1/2/2009	1/2/2009	1/5/2009	1/5/2009	1/5/2009
Field Quality Control:	(Rockwood Raw)					Field Duplicate
Total Metals (cont'd)	mg/L	µg/L*	µg/L*	µg/L*	µg/L*	µg/L*
Mercury	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	0.02 U	1.28 J	1.34 J	5 U	5 U	5 U
Potassium	1.77	1700	1220	1900	1850	1890
Selenium	0.02 U	5 U	5 U	5 U	5 U	5 U
Silver	0.01 U	1 U	1 U	1 U	1 U	1 U
Sodium	7.27	7490	2680	14300	9530	9730
Thallium	0.02 U	1 U	1 U	1 U	1 U	1 U
Vanadium	0.01 U	5 U	5 U	5 U	5 U	5 U
Zinc	0.0991	18.0	13.6	6.34 J	24.5	24.5

Notes:

- Positive results are listed in **BOLD**.
- mg/L = Milligrams per liter
- µg/L = Micrograms per liter
- \* = For these samples, mercury and silica are reported in mg/L.
- NA = The sample was not analyzed for this analyte.
- J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased high.
- J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and is possibly biased low.
- J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
- U = The analyte was analyzed for, but was not detected at or above the associated value.





February 11, 2009

Mr. Les Sims  
 On-Scene Coordinator  
 U.S. Environmental Protection Agency, Region 4  
 61 Forsyth Street, SW, 11th Floor  
 Atlanta, GA 30303

**Subject: Kingston Fossil Fly Ash Response**  
**Technical Direction Document Number TTEMI-05-001-0084**  
**Contract No. EP-W-05-054 (START III Region 4)**  
**Cursory Data Validation Report**  
**Analytical Environmental Services, Inc., Report Numbers (Nos.) 0812G73, 0812I49,**  
**0901058, 0901103, and 0901111**  
**Analytical Parameters: Volatile organic compounds (VOC), total metals, silica, and**  
**toxicity characteristic leaching procedure (TCLP) metals**

Laboratory Report No.	Samples	Field Duplicate Pairs	Field Blank Samples
0812G73	KIF-CRM 4.0, KIF-ERM 0.1, KIF-CRM 5.5, KIF-ERM 2.1, KIF-ERM 4.0, TT-ERM 1.9, KIF-TRM568.5, KIF-CRM 0.0, KIF-CRM 2.0, and KIF-KWTPI	TT-ERM 1.9 and DUPLICATE	None
0812I49	081228-ERPL-WS01, 081228-ERER-WS02, 081228-SGUBR-WS03, 081228-KCPS-WS04, KIF-TRM368.5, KIF-CRM 0.0, KIF-CRM 2.0, TT-CRM 2.5, KIF-CRM 4.0, KIF-CRM 5.5, KIF-ERM 0.1, KIF-ERM 1.75, KIF-ERM 4.0, KIF-ERM 2.0, KWTPI-WS01, KWTDW-WS02, RWDW-WS03, and RWWT1-WS04	081228-ERER-WS02 and 081228-ERER-WS02-DUP  KIF-ERM 2.0 and KIF-ERM 2.0-DUP	None
0901058	090102-CRB-WS01 and 090102-ERB-WS01	None	None
0901103	None	None	090105-RINSE-01 and TRIP BLANK.
0901111	KWTP-FWU-01 and KWTP-RWU-02	KWTP-RWU-02 and KWTP-RWU-02-DUP	None

Dear Mr. Sims:

The Tetra Tech Superfund Technical Assessment and Response Team (START) conducted data validation on the analytical results for twenty solid samples (soil, sediment, and fly ash) and nine quality control (QC) samples (three field duplicate samples, one equipment blank sample, and five trip blank samples) that were collected at the Kingston Fossil Fly Ash Response in Kingston, Tennessee,



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December 23, 2008 through January 5, 2009. The samples were analyzed under laboratory report Nos. 0812G73, 0812I49, 0901058, 0901103, and 0901111 by Analytical Environmental Services, Inc. (AES), of Atlanta, Georgia. The samples were analyzed for selected volatile organic compounds (VOC) by SW-846 Method 8260B, total metals by SW-846 Methods 6010B and 7471A (mercury by Method 7470A for the equipment blank sample), and TCLP metals by SW-846 Methods 1311, 6010B, and 7470A. In addition, portions of the samples in laboratory report numbers 0812I49, 0901058, and 0901111 were transferred to Analytical Services, Inc. (ASI) of Norcross, Georgia. ASI digested the samples by SW-846 Method 3052 (which uses hydrofluoric acid) and analyzed them for silica (silicon dioxide) under laboratory report Nos. ARL0989, ASA0015, and ASA0071, respectively (included in the associated AES laboratory reports).

Analytical data were evaluated in general accordance with applicable data validation guidance documents, including the following: the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (EPA June 2008) and the EPA CLP NFG for Inorganic Data Review (EPA October 2004). The analytical methods used by AES and ASI during this project provide guidance on procedures and method acceptance criteria that, in some areas, differ from the NFGs. Where the methods and the NFGs differ, the data validators followed the acceptance criteria in the methods. In addition, if laboratory-derived acceptance criteria were presented in the AES and ASI data packages, then these criteria were used to evaluate the data, unless the criteria were considered inadequate.

Data were evaluated based on the following criteria:

- Data Completeness \*
- Sample Preservation, Sample Receipt, and Holding Times \*
- Laboratory Blanks
- Internal Standards
- Surrogates \*
- Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD) \*
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Field duplicate Results
- Dilution and Reported Detection Limits
- Analyte Quantitation \*

\* All QC criteria were met for this evaluated parameter. Those criteria without an asterisk (\*) displayed a deficiency that is described later in this report.

The following efficient and effective data validation approach was used for providing an abbreviated assessment of the quality of the data set. Data evaluation consisted of a review of the data with a focus on the available review parameters present in the summary data package (which typically does not include the raw data). This review was not a complete assessment of all possible QC parameters or even of each QC parameter that was reviewed. The review, rather, was intended to efficiently identify and focus on those problems and QC deficiencies that could be readily identified from the summary data package. Because of the nature of this approach, some problems and deficiencies may not have been identified; as such, this approach may not support some critical uses and required limits on decision-making uncertainty for the data.

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Enclosure 1 presents copies of the sample results sheets from the laboratory data packages, with hand-entered qualifications from the data validation effort. Enclosure 2 presents the same data validation-qualified analytical results in table format.

### DATA REVIEW RESULTS

The following sections discuss the data package and provide an overall assessment of the data. This discussion concentrates on the irregularities associated with the various parameters as indicated above.

#### LABORATORY BLANKS

Many of the laboratory (method) blanks for the metals analyses contained concentrations below the reporting limit (RL) for some analytes. In most cases, no qualifications were warranted because the associated field sample results were above the corresponding RL or non-detect. However, qualifications were required for sample results below the RLs. The following results were qualified as non-detect due to blank contamination. All qualified results were raised to their respective RLs and flagged "U" as probable laboratory artifacts.

Report No.	Analyte	Affected Samples
0812I49	TCLP Mercury	081228-SPRRW-02, 081227-DKC-SS-01
0812I49	TCLP Barium and Sodium	081228-EERBS-SS04, 081228-ERER-SS08, 081228-SGUBR-SS09
0812I49	TCLP Barium, TCLP Mercury, and Sodium	081228-ERPL-SS05, 081228-ERPR-SS06, 081228-ERER-SS07, 081228-ERER-SS07-DUP, 081228-KCPS-SS10, 081228-KCP-SS11
0901058	TCLP Barium, TCLP Selenium, Mercury, and Sodium	090102-ERB-SS-01, 090102-ERB-SS-02
0901058	TCLP Barium, TCLP Lead, Mercury, Nickel, and Sodium	090102-CRB-SS-01
0901058	TCLP Lead, Mercury, Silver, and Sodium	090102-CRB-SS-02
0901103	Magnesium and Silica	090105-RINSE-01

The trip blanks did not contain detectable concentrations of VOC constituents. The rinsate blank did contain concentrations below the RLs for some metals. No qualifications were required for these results because the associated field sample results were above the corresponding RL or non-detect.

#### INTERNAL STANDARDS

Although not usually reviewed during a cursory data validation, the validator requested that the laboratory provide the VOC internal standard information for samples with area count exceedances noted in the laboratory report case narratives. Upon review of this information, the area counts for the internal standards in samples TT-SS01, 081228-KFPRW-01, 090105-KFPRW-SS12, and 090105-KFPRW-SS12-DUP were below the lower QC limits. Therefore, the positive m,p-xylenes result for sample 081228-KFPRW-01 was qualified as estimated (flagged "J"). The remaining associated VOC results were non-detect and were therefore rejected as unusable (flagged "R"),

#### MATRIX SPIKE/MATRIX SPIKE DUPLICATES

MS/MSD analyses that were performed on non-project samples were not evaluated as part of this data validation. All MS/MSD analyses for the TCLP extracts and for the VOC analyses were within QC limits. Project MS/MSD recoveries (%R) and relative percent differences (RPD) were within QC limits,



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with the following exceptions. Recoveries for several metals exceeded the QC limits in either one or both of the MS/MSD recoveries. In these cases, the sample concentration was greater than four times the spiked amount; therefore, no qualifications were warranted for these data gaps. These included aluminum, calcium, and iron for spiked sample 081228-ERER-SS08; aluminum, iron, and manganese for spiked sample 090102-CRB-SS-02; aluminum, barium, calcium, iron, magnesium, manganese, and potassium for spiked sample 090105-KFPRW-SS12; and aluminum, iron, and manganese for spiked sample 090105-CRM-SS13.

The following MS/MSD exceedances were observed in the spiked samples indicated below. The actions detailed in the below tables were applied to all solid samples included in the laboratory report referenced.

081228-ERER-SS08 (0812I49):

Analyte	MS %R	MSD %R	RPD	Limits	Action
Antimony	58.1	56.2	3.22	75-125; 20	Flag positives "J-" and non-detects "UJ"
Barium	88.1	144	29.2	75-125; 20	Flag positives "J"
Manganese	173	467	47.1	75-125; 20	Flag positives "J"

090102-CRB-SS-01 (0901058):

Analyte	MS %R	MSD %R	RPD	Limits	Action
Mercury	8.13	137	168	80-120; 20	Flag positives "J" and non-detects "UJ"

090102-CRB-SS-02 (0901058):

Analyte	MS %R	MSD %R	RPD	Limits	Action
Antimony	54.9	57.1	5.79	75-125; 20	Flag positives "J-" and non-detects "UJ"
Barium	121	135	5.51	75-125; 20	No flag (only one recovery out)
Vanadium	66.0	72.2	5.61	75-125; 20	Flag positives "J"

090105-KFPRW-SS12 (0901111):

Analyte	MS %R	MSD %R	RPD	Limits	Action
Antimony	58.3	57.2	1.91	75-125; 20	Flag positives "J"
Arsenic	84.0	54.5	15.7	75-125; 20	No flag (only one recovery out)
Thallium	72.4	67.9	6.43	75-125; 20	Flag non-detects "UJ"
Benzene	190	155	16.7	75-125; 20	No flag (results non-detect or previously rejected)
Ethylbenzene	232	178	22.9	75-125; 20	No flag (results non-detect or previously rejected)
m,p-Xylenes	190	146	22.6	75-125; 20	No flag (results non-detect or previously rejected)
o-Xylene	173	141	16.3	75-125; 20	No flag (results non-detect or previously rejected)

090105-CRM-SS13 (0901111):

Analyte	MS %R	MSD %R	RPD	Limits	Action
Antimony	59.3	63.1	6.31	75-125; 20	Flag positives "J"
Calcium	-187	-177	4.59	75-125; 20	Flag positives "J"
Mercury	124	99.3	22.2	80-120; 20	Flag positives "J"
Magnesium	-50.6	-40.5	6.28	75-125; 20	Flag positives "J"



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All silica MS/MSD analyses gave excessive recoveries for both the pre-and post-digestion spikes. In the analyses performed on sample 081228-ERER-SS08, MS/MSD recoveries were 636 and 507 percent and the post-digestion spike (PDS) recovery was 256 percent. In the analyses performed on sample 090102-CRB-SS01, MS/MSD recoveries were 187 and 242 percent and the PDS recovery was 552 percent. In the analyses performed on sample 090105-CRM-SS13, MS/MSD recoveries were 387 and 355 percent and the PDS recovery was 638 percent. In the analyses performed on sample 090105-KFPRW-SS12, MS/MSD recoveries were 409 and 349 percent and the PDS recovery was 807 percent. In several of these analyses, there was also poor precision with the sample duplicate analyses. These consistent results indicate significant matrix interference. Therefore, all silica results were considered to be estimates, biased high, and flagged "J+".

#### FIELD DUPLICATE RESULTS

Many of the field duplicate results were within the advisory QC limits of a RPD of 50 percent or less. However, the pair from location 081228-ERER-SS07 had RPDs of 87 percent for barium and 99 percent for manganese. The pair from location 090105-CRM-SS13 had RPDs of 107 percent for calcium and 118 percent for magnesium. There were no such irregularities for the pair from location 090105-KFPRW-SS12. These results indicate irregular distributions of some metals within the sample matrix. No qualifications were made for these field duplicate irregularities, but data users should be aware of the possibility of similar heterogeneities in other samples.

#### DILUTION AND REPORTED DETECTION LIMITS

The following results for the listed samples required the indicated dilutions to place the results within the calibration range. This resulted in elevated RLs for the non-detected results.

Dilution	Sample Identification	Affected Analytes
10x	TT-SS01	Aluminum, Calcium, and Iron
10x	081228-DKC-SS-01	Iron and Thallium
10x	081228-DKCL-SS-02, 081228-KFPRW-01, 081228-SPRRW-02, 081228-SPCRW-03, 081228-EERBS-SS04, 081228-ERPL-SS05, 081228-ERPR-SS06, 081228-ERER-SS07, 081228-ERER-SS08, 081228-SGUBR-SS09, 081228-KCPS-SS10, 081228-KCP-SS11	Iron
10x	081228-ERER-SS07-DUP	Iron, Manganese, and Thallium
5x	090102-CRB-SS-01, 090102-CRB-SS-02, 090102-ERB-SS-02	Iron and Manganese
5x	090102-ERB-SS-01	Manganese
5x	090105-KFPRW-SS12, 090105-CRM-SS13, 090105-CRM-SS13-DUP	Iron
5x	090105-KFPRW-SS12-DUP	Iron and Zinc
2x	090105-CRM-SS13-DUP	Zinc

A number of the results were above the method detection limit but below the sample RL, which corresponds to the lower end of the calibration range. The laboratory correctly flagged these results "J" to indicate that they are estimated.

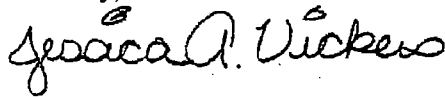
Mr. L. Sims  
February 11, 2009

### OVERALL ASSESSMENT OF DATA

The overall quality of this data package was acceptable. The non-detect VOC results for samples TT-SS01, 081228-KFPRW-01, 090105-KFPRW-SS12, and 090105-KFPRW-SS12-DUP were rejected due to internal standard area count failures. Several results were estimated because the reported value was above the method detection limit but below the sample RL. Many metals results, especially antimony and silica, were qualified as estimated because of spike recovery irregularities. A number of metals results, especially barium, calcium, magnesium, and manganese, were qualified due to apparent irregular distribution of the metal within the sample. This is frequently seen at sites where the contamination is in particulate form. The data user should keep in mind that similar heterogeneity may exist in other samples with these and other metals. Where possible, biases to the estimated results have been assigned. All results may be used as qualified.

Please call me at (678) 775-3104 if you have any questions regarding this data validation report.

Sincerely,



Jessica Vickers  
START III Quality Assurance Manager

Enclosures (3)

cc: Katrina Jones, EPA Project Officer  
Darryl Walker, EPA Alternate Project Officer  
Angel Reed, Tetra Tech START III Document Control Coordinator





**ENCLOSURE 1**

**FIXED LABORATORY ANALYTICAL RESULTS SHEETS WITH HAND-ENTERED DATA  
VALIDATION QUALIFIERS FOR ANALYTICAL ENVIRONMENTAL SERVICES, INC.,  
REPORT NOS. 0812G73, 0812I49, 0901058, 0901103, AND 0901111 AND ANALYTICAL  
SERVICES, INC., REPORT NOS. ARL0989, ASA0015, AND ASA0071**

(74 Pages)



**TETRA TECH**

TDD No. TTEMI-05-001-0084 (Kingston Fossil Fly Ash Response)

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-012

Client Sample ID: TT-SS01  
 Collection Date: 12/23/2008 4:55:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: DJ
Aluminum	26400		49.3	562	mg/Kg-dry	108096	10	12/24/2008 5:18:15 PM
Antimony	1.27	J	0.214	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Arsenic	44.8		0.169	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Barium	864		0.169	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Beryllium	6.25		0.0157	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Cadmium	0.577	J	0.0371	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Calcium	18300		220	562	mg/Kg-dry	108096	10	12/24/2008 5:18:15 PM
Chromium	41.3		0.0742	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Cobalt	17.7		0.0202	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Copper	59.9		0.0472	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Iron	12000		14.3	562	mg/Kg-dry	108096	10	12/24/2008 5:18:15 PM
Lead	20.3		0.112	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Magnesium	3900		1.32	56.2	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Manganese	66.9		0.202	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Nickel	29.4		0.0281	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Potassium	3280		1.23	112	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Selenium	3.13	J	0.450	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Silver	BRL	U	0.0157	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Sodium	672		4.87	112	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Thallium	4.36	J	0.202	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Vanadium	107		0.0270	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Zinc	55.6		0.720	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0879	J	0.00478	0.137	mg/Kg-dry	108154	1	12/24/2008 2:41:24 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL	R	0.18	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
Toluene	BRL		0.17	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
Ethylbenzene	BRL		0.22	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
m,p-Xylene	BRL		0.47	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
o-Xylene	BRL		0.49	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
Surr: 4-Bromofluorobenzene	64.4		0	56-145	%REC	108171	1	12/24/2008 3:25:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	27.7		0	0	wt%	1	12/24/2008 12:00:00 P	

*gaw*  
02/02/09

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-018

Client Sample ID: 081227-DKC-SS-01  
 Collection Date: 12/27/2008 11:45:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	0.004	0-00266	JU	0.00288	0.00400 mg/L	108322	1	12/31/2008 7:55:47 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250 mg/L	108325	1	12/31/2008 5:13:57 PM	
Barium	4.71		0.00455	0.500 mg/L	108325	1	12/31/2008 5:13:57 PM	
Cadmium	BRL	U	0.0175	0.0250 mg/L	108325	1	12/31/2008 5:13:57 PM	
Chromium	0.0540		0.00565	0.0500 mg/L	108325	1	12/31/2008 5:13:57 PM	
Lead	BRL	U	0.0105	0.0500 mg/L	108325	1	12/31/2008 5:13:57 PM	
Selenium	BRL	J	0.0357	0.100 mg/L	108325	1	12/31/2008 5:13:57 PM	
Silver	BRL	J	0.00540	0.0250 mg/L	108325	1	12/31/2008 5:13:57 PM	
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	28900		5.93	67.7 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Antimony	1.16	J-	0.257	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Arsenic	45.8		0.203	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Barium	825	J	0.203	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Beryllium	1.89	J	0.0189	3.38 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Cadmium	0.800	J	0.0447	3.38 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Calcium	19500		26.5	67.7 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Chromium	38.1		0.0893	3.38 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Cobalt	18.7		0.0244	3.38 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Copper	69.4		0.0568	3.38 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Iron	14100		17.2	67.7 mg/Kg-dry	108311	10	12/31/2008 3:36:58 PM	
Lead	24.9		0.135	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Magnesium	4300		1.58	67.7 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Manganese	67.5	J+	0.244	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Nickel	32.3		0.0338	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Potassium	2840		1.48	135 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Selenium	6.63	J	0.541	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Silver	BRL	U	0.0189	3.38 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Sodium	725		5.86	135 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Thallium	BRL	U	2.44	67.7 mg/Kg-dry	108311	10	12/31/2008 3:36:58 PM	
Vanadium	121		0.0325	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
Zinc	54.9		0.866	6.77 mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM	
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	0.111	J	0.00502	0.143 mg/Kg-dry	108309	1	12/31/2008 4:52:18 PM	
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: JE
Benzene	BRL	U	0.18	1.3 ug/Kg-dry	108323	1	12/31/2008 11:07:00 A	

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-018

Client Sample ID: 081227-DKC-SS-01  
 Collection Date: 12/27/2008 11:45:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	0	0.17	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
Ethylbenzene	BRL		0.22	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
m,p-Xylene	BRL		0.46	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
o-Xylene	BRL		0.49	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
Surr: 4-Bromofluorobenzene	91.4		0	56-145	%REC	108323	1	12/31/2008 11:07:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	31.0		0	0	wt%		1	12/31/2008 10:00:00 A

*Qaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-DKC-SS01  
Date/Time Sampled: 12/27/2008 11:45:00AM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-13  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	67.8	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	18.7	0.59	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 16:06	A812970	FBS
Silica	40.1 JT	1.25	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 16:06	[CALC]	FBS

*gaw*  
02/02/09



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-019

Client Sample ID: 081227-DKCL-SS-02  
 Collection Date: 12/27/2008 12:30:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:57:42 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 5:18:05 PM
Barium	0.766		0.00455	0.500	mg/L	108325	1	12/31/2008 5:18:05 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 5:18:05 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:18:05 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 5:18:05 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:18:05 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:18:05 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	10500		5.10	58.2	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Antimony	1.06	J=	0.221	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Arsenic	59.9		0.175	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Barium	204	J	0.175	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Beryllium	0.460	J	0.0163	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Cadmium	0.765	J	0.0384	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Calcium	2710		22.8	58.2	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Chromium	20.0		0.0768	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Cobalt	8.50		0.0210	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Copper	29.9		0.0489	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Iron	19300		14.8	58.2	mg/Kg-dry	108311	10	12/31/2008 3:41:04 PM
Lead	20.0		0.116	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Magnesium	873		1.36	58.2	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Manganese	231	J+	0.210	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Nickel	17.1		0.0291	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Potassium	1340		1.27	116	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Selenium	5.15	J	0.466	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Silver	BRL	U	0.0163	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Sodium	147		5.04	116	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Thallium	BRL	U	0.210	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Vanadium	45.6		0.0279	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Zinc	28.7		0.745	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0755	J	0.00428	0.122	mg/Kg-dry	108309	1	12/31/2008 4:54:52 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Benzene	BRL	U	0.16	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL.

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-019

Client Sample ID: 081227-DKCL-SS-02  
 Collection Date: 12/27/2008 12:30:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.15	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
Ethylbenzene	BRL		0.19	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
m,p-Xylene	BRL		0.40	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
o-Xylene	BRL		0.42	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
Surr. 4-Bromofluorobenzene	97.4		0	56-145	%REC	108323	1	12/31/2008 4:51:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	21.3		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-DKCL-SS02  
Date/Time Sampled: 12/27/2008 12:30:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-14  
Date/Time Received: 12/31/2008 1:08:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	81.0	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	496	1.20	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 16:09	A812970	FBS
Silica	1060	J+ 2.58	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 16:09	[CALC]	FBS

*jas*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-001

Client Sample ID: 081228-KFPRW-01  
 Collection Date: 12/28/2008 9:00:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:59:37 PM
			SW1311/7470A	(SW7470)	Analyst: MAW			
<b>ICP METALS, TCLP</b>								
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 4:20:24 PM
Barium	0.801		0.00455	0.500	mg/L	108325	1	12/31/2008 4:20:24 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:20:24 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:20:24 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:20:24 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:20:24 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:20:24 PM
<b>METALS, TOTAL</b>								
Aluminum	11000		5.25	59.9	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Antimony	1.06	J	0.228	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Arsenic	54.2		0.180	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Barium	188	J	0.180	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Beryllium	0.553	J	0.0168	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Cadmium	0.737	J	0.0396	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Calcium	2190		23.5	59.9	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Chromium	18.2		0.0791	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Cobalt	8.58		0.0216	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Copper	34.5		0.0503	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Iron	11800		15.2	599	mg/Kg-dry	108311	10	12/31/2008 2:43:28 PM
Lead	15.3		0.120	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Magnesium	713		1.40	59.9	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Manganese	48.3	J+	0.216	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Nickel	19.3		0.0300	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Potassium	1770		1.31	120	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Selenium	6.36		0.480	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Silver	BRL	U	0.0168	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Sodium	174		5.19	120	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Thallium	BRL	U	0.216	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Vanadium	44.6		0.0288	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Zinc	24.3		0.767	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
<b>TOTAL MERCURY</b>								
Mercury	0.0563	IS	0.00443	0.127	mg/Kg-dry	108309	1	12/31/2008 4:18:48 PM
			SW7471A	(SW7471)	Analyst: MAW			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL	R	0.16	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
			SW8260B	(SW5035)	Analyst: JE			

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gan*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-001

Client Sample ID: 081228-KFPRW-01  
 Collection Date: 12/28/2008 9:00:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	R	0.15	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
Ethylbenzene	BRL	R	0.20	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
m,p-Xylene	1.6	J	0.42	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
o-Xylene	BRL	R	0.45	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
Surr. 4-Bromofluorobenzene	63.1		0	56-145	%REC	108323	1	12/31/2008 9:50:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.2		0	0	wt%		1	12/31/2008 10:00:00 A

*Jaw*  
02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL





# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-01

Client ID: 081228-KFPRW-01

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 9:00:00AM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Infl.
<b>General Chemistry</b>										
% Solids	80.5	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	489	1.23	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:31	A812970	FBS
Silica	1050	J+2.63	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:31	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-002

Client Sample ID: 081228-SPRRW-02  
 Collection Date: 12/28/2008 9:56:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercurey	0.004	0.00234	U	0.000288	0.00400 mg/L	108322	1	12/31/2008 8:01:34 PM
<b>ICP METALS, TCLP</b>								
Arsenic	0.0862	J	0.0467	0.250 mg/L	108325	1	12/31/2008 4:24:31 PM	
Barium	1.06		0.00455	0.500 mg/L	108325	1	12/31/2008 4:24:31 PM	
Cadmium	BRL	U	0.0175	0.0250 mg/L	108325	1	12/31/2008 4:24:31 PM	
Chromium	BRL		0.00565	0.0500 mg/L	108325	1	12/31/2008 4:24:31 PM	
Lead	BRL		0.0105	0.0500 mg/L	108325	1	12/31/2008 4:24:31 PM	
Selenium	BRL		0.0357	0.100 mg/L	108325	1	12/31/2008 4:24:31 PM	
Silver	BRL		0.00540	0.0250 mg/L	108325	1	12/31/2008 4:24:31 PM	
<b>METALS, TOTAL</b>								
Aluminum	18600		5.61	64.0 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Antimony	1.63	J	0.243	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Arsenic	81.3		0.192	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Barium	248	J	0.192	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Beryllium	0.782	J	0.0179	3.20 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Cadmium	1.23	J	0.0422	3.20 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Calcium	3070		25.1	64.0 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Chromium	30.4		0.0845	3.20 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Cobalt	11.4		0.0230	3.20 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Copper	49.2		0.0537	3.20 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Iron	13900		16.3	640 mg/Kg-dry	108311	10	12/31/2008 2:47:34 PM	
Lead	23.2		0.128	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Magnesium	1210		1.50	64.0 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Manganese	56.8	J	0.230	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Nickel	25.3		0.0320	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Potassium	3050		1.39	128 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Selenium	6.37	J	0.512	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Silver	BRL	U	0.0179	3.20 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Sodium	298		5.54	128 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Thallium	BRL	U	0.230	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Vanadium	71.0		0.0307	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
Zinc	42.7		0.819	6.40 mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM	
<b>TOTAL MERCURY</b>								
Mercurey	0.0973	J	0.00472	0.135 mg/Kg-dry	108309	1	12/31/2008 4:21:22 PM	
<b>VOLATILE ORGANICS</b>								
Benzene	BRL	U	0.18	1.3 ug/Kg-dry	108323	1	12/30/2008 10:55:00 P	

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-002

**Client Sample ID:** 081228-SPRRW-02  
**Collection Date:** 12/28/2008 9:56:00 AM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>								
Toluene	BRL	Y	SW8260B	(SW5035)	1.3 ug/Kg-dry	108323	1	Analyst: NWH 12/30/2008 10:55:00 P
Ethylbenzene	BRL	↓	0.17		1.3 ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
m,p-Xylene	BRL	↓	0.22		1.3 ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
o-Xylene	BRL	↓	0.46		1.3 ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
Surr: 4-Bromofluorobenzene	81.7		0		56-145 %REC	108323	1	12/30/2008 10:55:00 P
<b>PERCENT MOISTURE</b>								
Percent Moisture	26.1		D2216		0 wt%		1	Analyst: LW 12/31/2008 10:00:00 A

*Qaw*  
02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
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(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-02

Client ID: 081228-SPRRW-02

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 9:56:00AM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	72.8		0.04% by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	85.9	1.35	mg/kg dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:38	A812970	FBS
Silica	184	JT 2.90	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:38	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-003

Client Sample ID: 081228-SPCRW-03  
 Collection Date: 12/28/2008 10:42:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	BRL	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:03:30 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic	0.0984	J	0.0467	0.250	mg/L	108325	1	12/31/2008 4:28:38 PM
Barium	0.747		0.00455	0.500	mg/L	108325	1	12/31/2008 4:28:38 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:28:38 PM
Chromium	BRL	J	0.00565	0.0500	mg/L	108325	1	12/31/2008 4:28:38 PM
Lead	BRL	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:28:38 PM
Selenium	BRL	J	0.0357	0.100	mg/L	108325	1	12/31/2008 4:28:38 PM
Silver	BRL	J	0.00540	0.0250	mg/L	108325	1	12/31/2008 4:28:38 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	14900		5.91	67.5	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Antimony	1.38	J	0.257	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Arsenic	69.8	J	0.203	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Barium	208	J	0.203	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Beryllium	1.04	J	0.0189	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Cadmium	1.06	J	0.0446	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Calcium	2570		26.5	67.5	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Chromium	27.4		0.0891	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Cobalt	11.7		0.0243	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Copper	58.5		0.0567	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Iron	9590		17.1	675	mg/Kg-dry	108311	10	12/31/2008 2:51:41 PM
Lead	56.9		0.135	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Magnesium	979		1.58	67.5	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Manganese	45.7	J+	0.243	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Nickel	27.0		0.0338	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Potassium	2250		1.47	135	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Selenium	7.15		0.540	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Silver	BRL	U	0.0189	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Sodium	224		5.85	135	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Thallium	BRL	U	0.243	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Vanadium	72.9		0.0324	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Zinc	36.9		0.864	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	0.0664	J	0.00488	0.140	mg/Kg-dry	108309	1	12/31/2008 4:23:56 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: NWH
Benzene	BRL	U	0.17	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-003

Client Sample ID: 081228-SPCRW-03  
 Collection Date: 12/28/2008 10:42:00 AM  
 Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.16	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
Ethylbenzene	BRL	↓	0.21	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
m,p-Xylene	BRL	↓	0.45	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
o-Xylene	BRL	↓	0.47	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
Surr: 4-Bromofluorobenzene	96.6		0	56-145	%REC	108323	1	12/30/2008 11:20:00 P
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	29.9		0	0	wt%		1	12/31/2008 10:00:00 A

*Jaw*  
 02/02/09

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL



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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-SPCRW-03  
Date/Time Sampled: 12/28/2008 10:42:00AM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-03  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	70.6	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	38.1	0.56	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:45	A812970	FBS
Silica	81.5	J+1.20	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:45	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-004

Client Sample ID: 081228-EERBS-SS04  
 Collection Date: 12/28/2008 12:18:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:05:26 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 4:32:45 PM
Barium	0.5 0.393	U	0.00455	0.500	mg/L	108325	1	12/31/2008 4:32:45 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:32:45 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108325	1	12/31/2008 4:32:45 PM
Lead	BRL	U	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:32:45 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108325	1	12/31/2008 4:32:45 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108325	1	12/31/2008 4:32:45 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	13100		5.46	62.3	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Antimony	0.461	U	0.237	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Arsenic	1.34	J	0.187	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Barium	76.5	J	0.187	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Beryllium	0.497	J	0.0174	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Cadmium	BRL	U	0.0411	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Calcium	1510		24.4	62.3	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Chromium	21.0		0.0822	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Cobalt	8.49		0.0224	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Copper	12.8		0.0523	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Iron	19100		15.8	623	mg/Kg-dry	108311	10	12/31/2008 2:55:47 PM
Lead	10.1		0.125	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Magnesium	2530		1.46	62.3	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Manganese	268	J+	0.224	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Nickel	23.5		0.0312	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Potassium	1840		1.36	125	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Selenium	2.12	J	0.498	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Silver	BRL	U	0.0174	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Sodium	125 52.2	U	5.40	125	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Thallium	BRL	U	0.224	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Vanadium	20.3		0.0299	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Zinc	44.7		0.797	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	BRL	U	0.00444	0.127	mg/Kg-dry	108309	1	12/31/2008 4:31:40 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Benzene	BRL	U	0.13	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank.  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-004

Client Sample ID: 081228-EERBS-SS04  
 Collection Date: 12/28/2008 12:18:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.12	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
Ethylbenzene	BRL		0.16	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
m,p-Xylene	BRL		0.33	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
o-Xylene	BRL		0.35	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
Surr: 4-Bromofluorobenzene	95.8		0	56-145	%REC	108323	1	12/30/2008 11:46:00 P
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.5		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-04


Client ID: 081228-EERBS-SS04

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 12:18:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	78.9	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	123	1.26	mg/kg dry	EPA 8010B		1	1/02/09 8:30	1/02/09 14:53	A812970	FBS
Silica	263	2.70	mg/kg dry	EPA 8010		1	1/02/09 8:30	1/02/09 14:53	[CALC]	FBS

  
02/02/09



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-006

Client Sample ID: 081228-ERPL-SS05  
 Collection Date: 12/28/2008 1:15:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	0.004	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:07:22 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 4:36:52 PM
Barium	0.5	U	0.00455	0.500	mg/L	108325	1	12/31/2008 4:36:52 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:36:52 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108325	1	12/31/2008 4:36:52 PM
Lead	0.0116	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:36:52 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108325	1	12/31/2008 4:36:52 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108325	1	12/31/2008 4:36:52 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	12500		5.44	62.1	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Antimony	1.10	J-	0.236	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Arsenic	27.9		0.186	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Barium	28.2	J	0.186	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Beryllium	0.0646	J	0.0174	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Cadmium	0.273	J	0.0410	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Calcium	976		24.4	62.1	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Chromium	27.7		0.0820	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Cobalt	4.04		0.0224	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Copper	21.0		0.0522	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Iron	36700		15.8	621	mg/Kg-dry	108311	10	12/31/2008 2:59:55 PM
Lead	45.4		0.124	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Magnesium	458		1.45	62.1	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Manganese	228	J+	0.224	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Nickel	11.7		0.0311	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Potassium	350		1.35	124	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Selenium	2.64	J	0.497	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Silver	BRL	U	0.0174	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Sodium	124	J	5.38	124	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Thallium	BRL	U	0.224	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Vanadium	81.5		0.0298	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Zinc	26.3		0.795	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	0.127	J	0.00462	0.132	mg/Kg-dry	108309	1	12/31/2008 4:34:14 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: NWH
Benzene	BRL	U	0.15	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Signature]*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-006

Client Sample ID: 081228-ERPL-SS05  
 Collection Date: 12/28/2008 1:15:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.14	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
Ethylbenzene	BRL	↓	0.18	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
m,p-Xylene	BRL	↓	0.38	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
o-Xylene	BRL	↓	0.40	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
Surr: 4-Bromofluorobenzene	96.9		0	56-145	%REC	108323	1	12/31/2008 12:11:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	25.8		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-ERPL-SS05  
Date/Time Sampled: 12/28/2008 1:15:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-05  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	77.0	0.04% by Weight		SOP Moisture	1		1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	89.7	1.29	mg/kg dry wt. dry	EPA 6010B	1		1/02/09 8:30	1/02/09 15:10	A812970	FBS
Silica	192.5	2.77	mg/kg dry	EPA 6010	1		1/02/09 8:30	1/02/09 15:10	[CALC]	FBS

*gaw*  
02/02/09

Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-007

Client Sample ID: 081228-ERPR-SS06  
 Collection Date: 12/28/2008 2:35:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	0.004	U	0.00288	0.00400	mg/L	108322	1	12/31/2008 8:09:17 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 4:40:59 PM
Barium	0.5	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:40:59 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:40:59 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108325	1	12/31/2008 4:40:59 PM
Lead	BRL	U	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:40:59 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108325	1	12/31/2008 4:40:59 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108325	1	12/31/2008 4:40:59 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	14400		5.40	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Antimony	0.567	J	0.234	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Arsenic	3.29	J	0.185	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Barium	118	J	0.185	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Beryllium	0.685	J	0.0173	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Cadmium	BRL	U	0.0407	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Calcium	2140		24.2	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Chromium	26.0		0.0814	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Cobalt	18.0		0.0222	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Copper	15.6		0.0518	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Iron	24800		15.7	61.7	mg/Kg-dry	108311	10	12/31/2008 3:04:02 PM
Lead	18.2		0.123	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Magnesium	2410		1.44	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Manganese	1150	J+	0.222	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Nickel	18.8		0.0308	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Potassium	2260		1.34	123	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Selenium	3.37	J	0.493	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Silver	BRL	U	0.0173	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Sodium	123	J	5.34	123	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Thallium	BRL	U	0.222	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Vanadium	28.5		0.0296	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Zinc	35.4		0.789	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	BRL	U	0.00452	0.129	mg/Kg-dry	108309	1	12/31/2008 4:36:48 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: NWH
Benzene	BRL	U	0.14	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QW*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-007

Client Sample ID: 081228-ERPR-SS06  
 Collection Date: 12/28/2008 2:35:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	↓	0.13	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
Ethylbenzene	BRL	↓	0.17	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
m,p-Xylene	BRL	↓	0.36	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
o-Xylene	BRL	↓	0.38	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
Surr: 4-Bromofluorobenzene	96.7		0	56-145	%REC	108323	1	12/31/2008 12:37:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	24.7		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL





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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-ERPR-SS06  
Date/Time Sampled: 12/28/2008 2:35:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-06  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	77.4		0.04% by Weight	SOP Moisture	1		1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	90.2	1.27	mg/kg dry wt. dry	EPA 6010B	1		1/02/09 8:30	1/02/09 15:17	A812970	FBS
Silica	193.5	2.71	mg/kg dry	EPA 6010	1		1/02/09 8:30	1/02/09 15:17	[CALC]	FBS

*[Signature]*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-009

Client Sample ID: 081228-ERER-SS07  
 Collection Date: 12/28/2008 3:07:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				
Mercury	0.0040	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:11:16 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 4:53:16 PM
Barium	0.5	JU	0.00455	0.500	mg/L	108325	1	12/31/2008 4:53:16 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:53:16 PM
Chromium	BRL	J	0.00565	0.0500	mg/L	108325	1	12/31/2008 4:53:16 PM
Lead	BRL	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:53:16 PM
Selenium	BRL	J	0.0357	0.100	mg/L	108325	1	12/31/2008 4:53:16 PM
Silver	BRL	J	0.00540	0.0250	mg/L	108325	1	12/31/2008 4:53:16 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				
Aluminum	9580		5.29	60.4	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Antimony	1.24	J-	0.229	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Arsenic	19.1		0.181	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Barium	68.2	J	0.181	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Beryllium	0.535	J	0.0169	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Cadmium	0.141	J	0.0398	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Calcium	1030		23.7	60.4	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Chromium	54.4		0.0797	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Cobalt	33.7		0.0217	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Copper	10.9		0.0507	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Iron	28000		15.3	604	mg/Kg-dry	108311	10	12/31/2008 3:16:22 PM
Lead	71.8		0.121	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Magnesium	635		1.41	60.4	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Manganese	1410	J+	0.217	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Nickel	11.6		0.0302	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Potassium	577		1.32	121	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Selenium	2.86	J	0.483	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Silver	BRL	U	0.0169	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Sodium	121	JU	5.23	121	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Thallium	BRL	U	0.217	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Vanadium	41.0		0.0290	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Zinc	31.8		0.773	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				
Mercury	0.0280	J	0.00414	0.118	mg/Kg-dry	108309	1	12/31/2008 4:39:24 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				
Benzene	BRL	U	0.14	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-009

Client Sample ID: 081228-ERER-SS07  
 Collection Date: 12/28/2008 3:07:00 PM

Matrix: SEDIMENT

Analyses	Result Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>		<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	0.13	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
Ethylbenzene	BRL	0.17	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
m,p-Xylene	BRL	0.35	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
o-Xylene	BRL	0.37	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
Surr: 4-Bromofluorobenzene	91.1	0	56-145	%REC	108323	1	12/31/2008 10:16:00 A
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: LW
Percent Moisture	18.3	0	0	wt%	1	1	12/31/2008 10:00:00 A

*QAW*  
02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-ERER-SS07  
Date/Time Sampled: 12/28/2008 3:07:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-07  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	84.2	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	150	1.19	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:24	A812970	FBS
Silica	320	J+2.54	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:24	[CALC]	FBS

*JS*  
02/02/09

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-010

Client Sample ID: 081228-ERER-SS07-DUP  
 Collection Date: 12/28/2008 3:10:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	0.004	0-000294	U	0.000288	0.00400 mg/L	108322	1	12/31/2008 8:17:13 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic		BRL	U	0.0467	0.250 mg/L	108325	1	12/31/2008 4:57:25 PM
Barium	0.5	0-346	U	0.00455	0.500 mg/L	108325	1	12/31/2008 4:57:25 PM
Cadmium		BRL	U	0.0175	0.0250 mg/L	108325	1	12/31/2008 4:57:25 PM
Chromium		BRL		0.00565	0.0500 mg/L	108325	1	12/31/2008 4:57:25 PM
Lead		BRL		0.0105	0.0500 mg/L	108325	1	12/31/2008 4:57:25 PM
Selenium		BRL		0.0357	0.100 mg/L	108325	1	12/31/2008 4:57:25 PM
Silver		BRL		0.00540	0.0250 mg/L	108325	1	12/31/2008 4:57:25 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	10100			5.29	60.4 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Antimony	1.87			0.229	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Arsenic	19.1			0.181	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Barium	174		J	0.181	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Beryllium	0.618		J	0.0169	3.02 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Cadmium	0.211		J	0.0398	3.02 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Calcium	1120			23.7	60.4 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Chromium	86.7			0.0797	3.02 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Cobalt	30.8			0.0217	3.02 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Copper	11.3			0.0507	3.02 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Iron	30100			15.3	60.4 mg/Kg-dry	108311	10	12/31/2008 3:20:30 PM
Lead	61.2			0.121	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Magnesium	688			1.41	60.4 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Manganese	4160		J+	2.17	60.4 mg/Kg-dry	108311	10	12/31/2008 3:20:30 PM
Nickel	12.9			0.0302	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Potassium	534			1.32	121 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Selenium	4.29		J	0.483	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Silver	0.375		J	0.0169	3.02 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Sodium	121	22.5	U	5.23	121 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Thallium		BRL	U	2.17	60.4 mg/Kg-dry	108311	10	12/31/2008 3:20:30 PM
Vanadium	43.0			0.0290	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Zinc	35.6			0.773	6.04 mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	0.0293		J	0.00444	0.127 mg/Kg-dry	108309	1	12/31/2008 4:41:58 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: NWH
Benzene		BRL	U	0.12	0.88 ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-010

Client Sample ID: 081228-ERER-SS07-DUP  
 Collection Date: 12/28/2008 3:10:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	↓	0.11	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
Ethylbenzene	BRL	↓	0.15	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
m,p-Xylene	BRL	↓	0.32	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
o-Xylene	BRL	↓	0.34	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
Sur: 4-Bromofluorobenzene	98.0		0	56-145	%REC	108323	1	12/31/2008 1:28:00 AM
<b>PERCENT MOISTURE</b>								
			<b>D2216</b>					Analyst: LW
Percent Moisture	22.0		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

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(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-08

Client ID: 081228-ERER-SS07-DUP

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 3:10:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	82.2	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	107	1.21	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:31	A812970	FBS
Silica	228	J+2.59	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:31	[CALC]	FBS

*gaw*  
02/02/09

Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-012

Client Sample ID: 081228-ERER-SS08  
 Collection Date: 12/28/2008 3:53:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW131177470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00413		0.00288	0.00400	mg/L	108322	1	12/31/2008 7:38:14 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 4:07:46 PM
Barium	0.5 <del>0.178</del>	JU	0.00455	0.500	mg/L	108325	1	12/31/2008 4:07:46 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 4:07:46 PM
Chromium	BRL	J	0.00565	0.0500	mg/L	108325	1	12/31/2008 4:07:46 PM
Lead	BRL	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:07:46 PM
Selenium	BRL	J	0.0357	0.100	mg/L	108325	1	12/31/2008 4:07:46 PM
Silver	BRL	J	0.00540	0.0250	mg/L	108325	1	12/31/2008 4:07:46 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	13700		5.15	58.8	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Antimony	0.664	J-	0.224	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Arsenic	3.99	J	0.176	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Barium	44.3	J	0.176	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Beryllium	0.117	J	0.0165	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Cadmium	BRL	U	0.0388	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Calcium	1420		23.1	58.8	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Chromium	18.7		0.0777	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Cobalt	4.39		0.0212	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Copper	8.74		0.0494	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Iron	23100		14.9	588	mg/Kg-dry	108311	10	12/31/2008 2:31:06 PM
Lead	13.8		0.118	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Magnesium	874		1.38	58.8	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Manganese	180	J+	0.212	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Nickel	6.68		0.0294	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Potassium	659		1.28	118	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Selenium	2.60	J	0.471	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Silver	BRL	U	0.0165	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Sodium	118 <del>48.2</del>	JU	5.09	118	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Thallium	BRL	U	0.212	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Vanadium	23.2		0.0282	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Zinc	31.1		0.753	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0649	J	0.00451	0.129	mg/Kg-dry	108309	1	12/31/2008 4:08:24 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Benzene	BRL	U	0.13	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-012

Client Sample ID: 081228-ERER-SS08  
 Collection Date: 12/28/2008 3:53:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.12	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
Ethylbenzene	BRL	↓	0.16	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
m,p-Xylene	BRL	↓	0.33	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
o-Xylene	BRL	↓	0.35	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
Surr: 4-Bromofluorobenzene	96.4		0	56-145	%REC	108323	1	12/31/2008 1:53:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.6		0	0	wt%	1	1	12/31/2008 10:00:00 A

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02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-09

Client ID: 081228-ERER-SS08

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 3:53:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	78.8	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	111	1.27	mg/kg dry	EPA 8010B		1	1/02/09 8:30	1/02/09 15:38	A812970	FBS
Silica	238.5	2.71	mg/kg dry	EPA 8010		1	1/02/09 8:30	1/02/09 15:38	[CALC]	FBS

*gaw*  
02/02/09



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-013

Client Sample ID: 081228-SGUBR-SS09  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	BRL	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:45:59 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 5:01:32 PM
Barium	0.5 0.288	U	0.00455	0.500	mg/L	108325	1	12/31/2008 5:01:32 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 5:01:32 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108325	1	12/31/2008 5:01:32 PM
Lead	BRL	U	0.0105	0.0500	mg/L	108325	1	12/31/2008 5:01:32 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108325	1	12/31/2008 5:01:32 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108325	1	12/31/2008 5:01:32 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	16200		5.81	66.3	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Antimony	1.06	U	0.252	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Arsenic	34.5		0.199	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Barium	47.0	J	0.199	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Beryllium	0.346	J	0.0186	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Cadmium	0.333	J	0.0438	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Calcium	2180		26.0	66.3	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Chromium	19.5		0.0875	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Cobalt	6.46		0.0239	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Copper	35.6		0.0557	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Iron	40700		16.8	663	mg/Kg-dry	108311	10	12/31/2008 3:24:41 PM
Lead	55.5		0.133	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Magnesium	873		1.55	66.3	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Manganese	313	J+	0.239	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Nickel	18.8		0.0332	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Potassium	581		1.45	133	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Selenium	3.23	J	0.530	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Silver	BRL	U	0.0186	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Sodium	133 36.7	U	5.74	133	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Thallium	BRL	U	0.239	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Vanadium	69.3		0.0318	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Zinc	66.4		0.849	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	0.212		0.00452	0.129	mg/Kg-dry	108309	1	12/31/2008 4:44:34 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: NWH
Benzene	BRL	U	0.13	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-013

Client Sample ID: 081228-SGUBR-SS09  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.12	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
Ethylbenzene	BRL	↓	0.15	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
m,p-Xylene	BRL	↓	0.32	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
o-Xylene	BRL	↓	0.34	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
Surr: 4-Bromofluorobenzene	95.2		0	56-145	%REC	108323	1	12/31/2008 3:09:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	25.2		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-10

Client ID: 081228-SGUBR-SS09

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 4:45:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	77.6	0.04% by Weight		SOP Moisture	1		1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	108	1.26	mg/kg dry wt. dry	EPA 6010B	1		1/02/09 8:30	1/02/09 15:43	A812970	FBS
Silica	232	2.70	mg/kg dry	EPA 6010	1		1/02/09 8:30	1/02/09 15:43	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-015

Client Sample ID: 081228-KCPS-SS10  
 Collection Date: 12/28/2008 5:20:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	0.004	U	0.00288	0.00400	mg/L	108322	1	12/31/2008 7:47:56 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic	BRL	U	0.0467	0.250	mg/L	108325	1	12/31/2008 5:05:40 PM
Barium	0.5	U	0.00455	0.500	mg/L	108325	1	12/31/2008 5:05:40 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108325	1	12/31/2008 5:05:40 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:05:40 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 5:05:40 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:05:40 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:05:40 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	22600		6.00	68.5	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Antimony	1.11	U	0.260	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Arsenic	19.1		0.206	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Barium	24.5	J	0.206	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Beryllium	0.351	J	0.0192	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Cadmium	0.178	J	0.0452	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Calcium	1620		26.9	68.5	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Chromium	34.2		0.0905	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Cobalt	2.34	J	0.0247	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Copper	21.8		0.0576	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Iron	40800		17.4	685	mg/Kg-dry	108311	10	12/31/2008 3:28:46 PM
Lead	24.7		0.137	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Magnesium	1020		1.60	68.5	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Manganese	143	J	0.247	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Nickel	12.2		0.0343	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Potassium	840		1.49	137	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Selenium	3.86	J	0.548	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Silver	BRL	U	0.0192	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Sodium	137	U	5.94	137	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Thallium	BRL	U	0.247	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Vanadium	66.1		0.0329	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Zinc	84.5		0.877	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury	0.160		0.00479	0.137	mg/Kg-dry	108309	1	12/31/2008 4:47:10 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: NWH
Benzene	BRL	U	0.15	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-015

Client Sample ID: 081228-KCPS-SS10  
 Collection Date: 12/28/2008 5:20:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL	U	0.14	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
Ethylbenzene	BRL		0.18	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
m,p-Xylene	BRL		0.38	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
o-Xylene	BRL		0.41	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
Surr: 4-Bromofluorobenzene	97.5		0	56-145	%REC	108323	1	12/31/2008 3:35:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	27.4		0	0	wt%		1	12/31/2008 10:00:00 A

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL





# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
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(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-KCPS-SS10  
Date/Time Sampled: 12/28/2008 5:20:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-11  
Date/Time Received: 12/31/2008 1:08:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	75.7	0.04% by Weight		SOP Moisture	1		1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	110	1.30	mg/kg dry wt. dry	EPA 6010B	1		1/02/09 8:30	1/02/09 15:50	A812970	FBS
Silica	235	2.78	mg/kg dry	EPA 6010	1		1/02/09 8:30	1/02/09 15:50	[CALC]	FBS

*glw*  
02/02/09

Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-017

Client Sample ID: 081228-KCP-SS11  
 Collection Date: 12/28/2008 5:57:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	0.004	U	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:53:51 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: TAA
Arsenic		U	0.0467	0.250	mg/L	108325	1	12/31/2008 5:09:50 PM
Barium	0.5	JU	0.00455	0.500	mg/L	108325	1	12/31/2008 5:09:50 PM
Cadmium		U	0.0175	0.0250	mg/L	108325	1	12/31/2008 5:09:50 PM
Chromium		U	0.00565	0.0500	mg/L	108325	1	12/31/2008 5:09:50 PM
Lead	0.0188	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 5:09:50 PM
Selenium		U	0.0357	0.100	mg/L	108325	1	12/31/2008 5:09:50 PM
Silver		U	0.00540	0.0250	mg/L	108325	1	12/31/2008 5:09:50 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	8140		5.33	60.8	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Antimony	0.418	U	0.231	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Arsenic	6.07	J	0.182	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Barium	17.8	J	0.182	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Beryllium	0.109	J	0.0170	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Cadmium	0.0423	J	0.0401	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Calcium	647		23.8	60.8	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Chromium	11.7		0.0803	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Cobalt	2.69	J	0.0219	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Copper	10.7		0.0511	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Iron	17900		15.4	608	mg/Kg-dry	108311	10	12/31/2008 3:32:52 PM
Lead	15.3		0.122	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Magnesium	379		1.42	60.8	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Manganese	112	J+	0.219	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Nickel	5.62	J	0.0304	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Potassium	416		1.33	122	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Selenium	2.01	J	0.486	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Silver		U	0.0170	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Sodium	122	JU	5.27	122	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Thallium		U	0.219	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Vanadium	18.8		0.0292	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Zinc	22.9		0.778	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: MAW
Mercury		U	0.00453	0.129	mg/Kg-dry	108309	1	12/31/2008 4:49:44 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: JE
Benzene		U	0.13	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*QAW*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-017

Client Sample ID: 081228-KCP-SS11  
 Collection Date: 12/28/2008 5:57:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	U	0.12	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
Ethylbenzene	BRL	↓	0.16	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
m,p-Xylene	BRL	↓	0.33	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
o-Xylene	BRL	↓	0.35	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
Surr: 4-Bromofluorobenzene	92.9		0	56-145	%REC	108323	1	12/31/2008 10:42:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	23.1		0	0	wt%		1	12/31/2008 10:00:00 A

*Qaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-KCP-SS11  
Date/Time Sampled: 12/28/2008 5:57:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-12  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	76.7	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/08 14:20	A901004	SSM
<b>Metals</b>										
Silicon	137	1.27	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:57	A812970	FBS
Silica	292.5	2.72	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:57	[CALC]	FBS

*Jaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-004

Client Sample ID: 090102-CRB-SS-01  
 Collection Date: 1/2/2009 3:45:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed	
<b>MERCURY, TCLP</b>									
			SW1311/7470A	(SW7470)				Analyst: MAW	
Mercury	BRL	U	0.00288	0.00400	mg/L	108467	1	1/6/2009 5:43:39 PM	
<b>ICP METALS, TCLP</b>									
			SW1311/6010B	(SW3010A)				Analyst: BB	
Arsenic	BRL	U	0.0467	0.250	mg/L	108476	1	1/6/2009 2:52:25 PM	
Barium	0.5	0.180	JU	0.00455	0.500	mg/L	108476	1	1/6/2009 2:52:25 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108476	1	1/6/2009 2:52:25 PM	
Chromium	BRL	U	0.00565	0.0500	mg/L	108476	1	1/6/2009 2:52:25 PM	
Lead	0.05	0.0139	JU	0.0105	0.0500	mg/L	108476	1	1/6/2009 2:52:25 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108476	1	1/6/2009 2:52:25 PM	
Silver	BRL	U	0.00540	0.0250	mg/L	108476	1	1/6/2009 2:52:25 PM	
<b>METALS, TOTAL</b>									
			SW6010B	(SW3050B)				Analyst: TAA	
Aluminum	6190		4.33	49.4	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Antimony	0.460	J	0.188	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Arsenic	4.32	J	0.148	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Barium	29.8		0.148	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Beryllium	BRL	U	0.0138	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Cadmium	0.0404	J	0.0326	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Calcium	954		19.4	49.4	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Chromium	17.8		0.0652	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Cobalt	3.88		0.0178	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Copper	5.90		0.0415	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Iron	15900		6.28	247	mg/Kg-dry	108408	5	1/3/2009 4:18:49 PM	
Lead	14.2		0.0988	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Magnesium	411		1.16	49.4	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Manganese	388		0.889	24.7	mg/Kg-dry	108408	5	1/3/2009 4:18:49 PM	
Nickel	4.943-80	JU	0.0247	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Potassium	401		1.08	98.8	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Selenium	1.98	J	0.395	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Silver	BRL	U	0.0138	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Sodium	98.8	20.1	JU	4.28	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Thallium	BRL	U	0.178	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Vanadium	17.8	J-	0.0237	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
Zinc	17.7		0.633	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM	
<b>TOTAL MERCURY</b>									
			SW7471A	(SW7471)				Analyst: JY	
Mercury	0.121	0.0201	JUS	0.00423	0.121	mg/Kg-dry	108411	1	1/3/2009 5:21:45 PM
<b>VOLATILE ORGANICS</b>									
			SW8260B	(SW5035)				Analyst: JE	
Benzene	BRL	U	0.18	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM	

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09



**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-004

Client Sample ID: 090102-CRB-SS-01  
 Collection Date: 1/2/2009 3:45:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	U	0.17	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
Ethylbenzene	BRL	↓	0.22	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
m,p-Xylene	BRL	↓	0.46	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
o-Xylene	BRL	↓	0.48	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
Surr: 4-Bromofluorobenzene	93.3		0	56-145	%REC	108416	1	1/3/2009 4:21:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	18.5		0	0	wt%		1	1/3/2009 11:30:00 AM

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015

Lab Number ID: ASA0015-03

Client ID: 0901058-004

Date/Time Received: 1/5/2009 8:15:00AM

Date/Time Sampled: 1/2/2009 3:45:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	82.1		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	114	1.22	mg/kg dry wt. dry	EPA 6010B		1	1/05/09 10:15	1/05/09 15:00	A901035	FBS
Silica	243	2.61	mg/kg dry	EPA 6010		1	1/05/09 10:15	1/05/09 15:00	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-005

Client Sample ID: 090102-CRB-SS-02  
 Collection Date: 1/2/2009 4:50:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A (SW7470)</b>		Analyst: MAW			
Mercury	BRL	U	0.000288	0.00400	mg/L	108467	1	1/6/2009 5:45:35 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B (SW3010A)</b>		Analyst: BB			
Arsenic	BRL	U	0.0467	0.250	mg/L	108476	1	1/6/2009 2:57:06 PM
Barium	0.695		0.00455	0.500	mg/L	108476	1	1/6/2009 2:57:06 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108476	1	1/6/2009 2:57:06 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108476	-1	1/6/2009 2:57:06 PM
Lead	0.05	JU	0.0105	0.0500	mg/L	108476	1	1/6/2009 2:57:06 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108476	1	1/6/2009 2:57:06 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108476	1	1/6/2009 2:57:06 PM
<b>METALS, TOTAL</b>			<b>SW6010B (SW3050B)</b>		Analyst: TAA			
Aluminum	5910		4.81	54.9	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Antimony	0.962	J-	0.209	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Arsenic	11.1		0.165	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Barium	95.1		0.165	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Beryllium	0.216	J	0.0154	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Cadmium	0.161	J	0.0362	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Calcium	916		21.5	54.9	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Chromium	31.1		0.0724	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Cobalt	8.04		0.0198	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Copper	6.16		0.0461	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Iron	23100		6.97	274	mg/Kg-dry	108408	5	1/3/2009 3:45:40 PM
Lead	27.2		0.110	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Magnesium	426		1.28	54.9	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Manganese	1230		0.988	27.4	mg/Kg-dry	108408	5	1/3/2009 3:45:40 PM
Nickel	6.66		0.0274	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Potassium	321		1.20	110	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Selenium	3.04	J	0.439	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Silver	2.74	JU	0.0154	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Sodium	110	JU	4.75	110	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Thallium	BRL	U	0.198	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Vanadium	36.3	J-	0.0263	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Zinc	24.6		0.702	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
<b>TOTAL MERCURY</b>			<b>SW7471A (SW7471)</b>		Analyst: JY			
Mercury	0.125	JUJ	0.00438	0.125	mg/Kg-dry	108411	1	1/3/2009 5:34:58 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B (SW5035)</b>		Analyst: JE			
Benzene	BRL	U	0.14	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-005

Client Sample ID: 090102-CRB-SS-02  
 Collection Date: 1/2/2009 4:50:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	U	0.13	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
Ethylbenzene	BRL	↓	0.17	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
m,p-Xylene	BRL	↓	0.36	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
o-Xylene	BRL	↓	0.38	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
Surr: 4-Bromofluorobenzene	86.2		0	56-145	%REC	108416	1	1/3/2009 4:46:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	21.6		0	0	wt%		1	1/3/2009 11:30:00 AM

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015

Lab Number ID: ASA0015-04

Client ID: 0901058-005

Date/Time Received: 1/5/2009 8:15:00AM

Date/Time Sampled: 1/2/2009 4:50:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	80.2		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	121	1.24	mg/kg dry wt. dry	EPA 60108		1	1/05/09 10:15	1/05/09 15:06	A901035	FBS
Silica	258	3+2.66	mg/kg dry	EPA 6010		1	1/05/09 10:15	1/05/09 15:06	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-001

Client Sample ID: 090102-ERB-SS-01  
 Collection Date: 1/2/2009 1:00:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			SW1311/7470A	(SW7470)				Analyst: MAW
Mercury	BRL	U	0.00288	0.00400	mg/L	108467	1	1/6/2009 5:39:42 PM
<b>ICP METALS, TCLP</b>								
			SW1311/6010B	(SW3010A)				Analyst: BB
Arsenic	BRL	U	0.0467	0.250	mg/L	108476	1	1/6/2009 2:35:15 PM
Barium	0.5	U	0.00455	0.500	mg/L	108476	1	1/6/2009 2:35:15 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108476	1	1/6/2009 2:35:15 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108476	1	1/6/2009 2:35:15 PM
Lead	0.0628		0.0105	0.0500	mg/L	108476	1	1/6/2009 2:35:15 PM
Selenium	0.1	U	0.0357	0.100	mg/L	108476	1	1/6/2009 2:35:15 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108476	1	1/6/2009 2:35:15 PM
<b>METALS, TOTAL</b>								
			SW6010B	(SW3050B)				Analyst: TAA
Aluminum	2170		4.86	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Antimony	BRL	U	0.211	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Arsenic	1.06	J	0.166	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Barium	24.5		0.166	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Beryllium	0.225	J	0.0155	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Cadmium	0.110	J	0.0366	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Calcium	348		21.8	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Chromium	4.19		0.0733	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Cobalt	3.23		0.0200	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Copper	4.26		0.0466	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Iron	4880		1.41	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Lead	6.57		0.111	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Magnesium	240		1.30	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Manganese	61.1		0.999	27.7	mg/Kg-dry	108408	5	1/3/2009 4:02:16 PM
Nickel	6.76		0.0277	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Potassium	213		1.21	111	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Selenium	1.04	J	0.444	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Silver	BRL	U	0.0155	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Sodium	111	U	4.81	111	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Thallium	BRL	U	0.200	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Vanadium	5.01	J	0.0266	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Zinc	20.9		0.710	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
<b>TOTAL MERCURY</b>								
			SW7471A	(SW7471)				Analyst: JY
Mercury	0.135	U	0.00472	0.135	mg/Kg-dry	108411	1	1/3/2009 5:30:33 PM
<b>VOLATILE ORGANICS</b>								
			SW8260B	(SW5035)				Analyst: JE
Benzene	BRL	U	0.16	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09



**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-001

Client Sample ID: 090102-ERB-SS-01  
 Collection Date: 1/2/2009 1:00:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	U	0.15	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
Ethylbenzene	BRL	J	0.19	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
m,p-Xylene	BRL	J	0.40	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
o-Xylene	BRL	J	0.43	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
Surr: 4-Bromofluorobenzene	89.0		0	56-145	%REC	108416	1	1/3/2009 3:30:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	26.9		0	0	wt%		1	1/3/2009 11:30:00 AM

*glw*  
 02/02/09

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

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(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015

Lab Number ID: ASA0015-01

Client ID: 0901058-001

Date/Time Received: 1/5/2009 8:15:00AM

Date/Time Sampled: 1/2/2009 1:00:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	73.5		% by Weight	SOP Moisture	1		1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	136	1.34	mg/kg dry wt. dry	EPA 8010B	1		1/05/09 10:15	1/05/09 14:48	A901035	FBS
Silica	291	2.87	mg/kg dry	EPA 6010	1		1/05/09 10:15	1/05/09 14:48	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-002

Client Sample ID: 090102-ERB-SS-02  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A (SW7470)</b>		Analyst: MAW			
Mercury	BRL	U	0.000288	0.00400	mg/L	108467	1	1/6/2009 5:41:39 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B (SW3010A)</b>		Analyst: BB			
Arsenic	BRL	U	0.0467	0.250	mg/L	108476	1	1/6/2009 2:47:57 PM
Barium	0.5 0-367	JU	0.00455	0.500	mg/L	108476	1	1/6/2009 2:47:57 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108476	1	1/6/2009 2:47:57 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108476	1	1/6/2009 2:47:57 PM
Lead	0.0576		0.0105	0.0500	mg/L	108476	1	1/6/2009 2:47:57 PM
Selenium	0.1 0-0648	JU	0.0357	0.100	mg/L	108476	1	1/6/2009 2:47:57 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108476	1	1/6/2009 2:47:57 PM
<b>METALS, TOTAL</b>			<b>SW6010B (SW3050B)</b>		Analyst: TAA			
Aluminum	3280		4.76	54.3	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Antimony	0.425	JD	0.206	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Arsenic	15.9		0.163	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Barium	39.9		0.163	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Beryllium	0.293	J	0.0152	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Cadmium	0.355	J	0.0358	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Calcium	1950		21.3	54.3	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Chromium	11.9		0.0717	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Cobalt	6.71		0.0195	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Copper	23.2		0.0456	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Iron	7620		6.89	271	mg/Kg-dry	108408	5	1/3/2009 4:14:42 PM
Lead	18.8		0.109	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Magnesium	514		1.27	54.3	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Manganese	225		0.977	27.1	mg/Kg-dry	108408	5	1/3/2009 4:14:42 PM
Nickel	8.49		0.0271	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Potassium	226		1.18	109	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Selenium	1.47	J	0.434	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Silver	BRL	U	0.0152	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Sodium	109 21.2	JU	4.70	109	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Thallium	BRL	U	0.195	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Vanadium	9.20	J	0.0261	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Zinc	68.5		0.695	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
<b>TOTAL MERCURY</b>			<b>SW7471A (SW7471)</b>		Analyst: JY			
Mercury	0.139 0-00964	JUJ	0.00487	0.139	mg/Kg-dry	108411	1	1/3/2009 5:32:48 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B (SW5035)</b>		Analyst: JE			
Benzene	1.9		0.16	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-002

Client Sample ID: 090102-ERB-SS-02  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	2.0		0.15	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
Ethylbenzene	BRL	↓	0.20	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
m,p-Xylene	BRL	↓	0.41	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
o-Xylene	BRL	↓	0.44	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
Surr: 4-Bromofluorobenzene	81.7		0	56-145	%REC	108416	1	1/3/2009 3:55:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	28.6		0	0	wt%		1	1/3/2009 11:30:00 AM

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015

Lab Number ID: ASA0015-02

Client ID: 0901058-002

Date/Time Received: 1/5/2009 8:15:00AM

Date/Time Sampled: 1/2/2009 2:15:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	72.3		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	107	1.35	mg/kg dry wt. dry	EPA 6010B		1	1/05/09 10:15	1/05/09 14:54	A901035	FBS
Silica	230	3.289	mg/kg dry	EPA 6010		1	1/05/09 10:15	1/05/09 14:54	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-001

Client Sample ID: 090105-KFPRW-SS12  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL	U	0.00288	0.00400	mg/L	108560	1	1/8/2009 3:25:27 PM
			SW1311/7470A	(SW7470)	Analyst: MAW			
<b>ICP METALS, TCLP</b>								
Arsenic	BRL	U	0.0467	0.250	mg/L	108564	1	1/8/2009 1:48:14 PM
Barium	0.798		0.00455	0.500	mg/L	108564	1	1/8/2009 1:48:14 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108564	1	1/8/2009 1:48:14 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108564	1	1/8/2009 1:48:14 PM
Lead	0.0124	J	0.0105	0.0500	mg/L	108564	1	1/8/2009 1:48:14 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108564	1	1/8/2009 1:48:14 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108564	1	1/8/2009 1:48:14 PM
<b>METALS, TOTAL</b>								
Aluminum	12500		5.34	61.0	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Antimony	0.916	J-	0.232	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Arsenic	72.2		0.183	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Barium	231		0.183	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Beryllium	0.122	J	0.0171	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Cadmium	0.858	J	0.0402	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Calcium	8750	J-	23.9	61.0	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Chromium	22.0		0.0805	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Cobalt	7.91		0.0219	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Copper	32.9		0.0512	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Iron	15200		7.74	305	mg/Kg-dry	108517	5	1/8/2009 4:10:35 PM
Lead	18.3		0.122	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Magnesium	1650	J-	1.43	61.0	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Manganese	447		0.219	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Nickel	18.3		0.0305	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Potassium	1850		1.33	122	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Selenium	6.35		0.488	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Silver	BRL	U	0.0171	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Sodium	189		5.28	122	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Thallium	BRL	UJ	0.219	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Vanadium	51.8		0.0293	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Zinc	34.5		0.780	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
<b>TOTAL MERCURY</b>								
Mercury	0.116	J	0.00435	0.124	mg/Kg-dry	108516	1	1/7/2009 2:23:04 PM
			SW7471A	(SW7471)	Analyst: MAW			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL	R	0.14	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
			SW8260B	(SW5035)	Analyst: JF			

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*Qaw*  
 02/02/09



**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-001

Client Sample ID: 090105-KFPRW-SS12  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			SW8260B	(SW5035)				Analyst: JF
Toluene	BRL	R	0.13	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
Ethylbenzene	BRL	↓	0.17	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
m,p-Xylene	BRL	↓	0.35	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
o-Xylene	BRL	↓	0.37	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
Sum: 4-Bromofluorobenzene	69.4		0	56-145	%REC	108469	1	1/8/2009 4:52:00 PM
<b>PERCENT MOISTURE</b>			D2216					Analyst: MAS
Percent Moisture	19.9		0	0	wt%		1	1/7/2009 9:00:00 AM

*(Signature)*  
 02/02/09

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

January 19, 2009

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Ms. Blair Stout

Report No.: ASA0071  
Client ID: 080105-KFPRW-8812  
Date/Time Sampled: 1/8/2009 1:20:00PM  
Matrix: Ash

Lab Number ID: ASA0071-01  
Date/Time Received: 1/8/2009 3:30:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	IntL.
<b>General Chemistry</b>										
% Solids	82.9		% by Weight	SOP Moisture		1	1/09/09 7:00	1/08/09 7:00	A801105	MZF
<b>Metals</b>										
Silicon	349	4.83	mg/kg dry wt. dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:23	A801190	FBS
Silica	746	5+10.3	mg/kg dry	EPA 8010B		1	1/09/09 13:30	1/13/09 13:23	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-002

Client Sample ID: 090105-KFPRW-SS12-DUP  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL	U	0.000288	0.00400	mg/L	108560	1	1/8/2009 5:54:41 PM
			SW1311/7470A	(SW7470)	Analyst: MAW			
<b>ICP METALS, TCLP</b>								
Arsenic	BRL	U	0.0467	0.250	mg/L	108564	1	1/8/2009 2:03:01 PM
Barium	0.826		0.00455	0.500	mg/L	108564	1	1/8/2009 2:03:01 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108564	1	1/8/2009 2:03:01 PM
Chromium	BRL		0.00585	0.0500	mg/L	108564	1	1/8/2009 2:03:01 PM
Lead	BRL		0.0105	0.0500	mg/L	108564	1	1/8/2009 2:03:01 PM
Selenium	BRL		0.0357	0.100	mg/L	108564	1	1/8/2009 2:03:01 PM
Silver	BRL		0.00540	0.0250	mg/L	108564	1	1/8/2009 2:03:01 PM
<b>METALS, TOTAL</b>								
Aluminum	10900		5.29	60.4	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Antimony	0.981	U-	0.230	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Arsenic	56.6		0.181	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Barium	179		0.181	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Beryllium	0.168	J	0.0169	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Cadmium	0.700	J	0.0399	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Calcium	9010	J-	23.7	60.4	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Chromium	19.9		0.0797	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Cobalt	8.01		0.0217	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Copper	32.3		0.0507	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Iron	15800		7.67	302	mg/Kg-dry	108517	5	1/9/2009 10:51:44 AM
Lead	17.5		0.121	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Magnesium	1260	J-	1.41	60.4	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Manganese	166		0.217	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Nickel	17.0		0.0302	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Potassium	1590		1.32	121	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Selenium	5.80	J	0.483	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Silver	BRL	U	0.0169	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Sodium	143		5.23	121	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Thallium	BRL	UJ	0.217	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Vanadium	48.9		0.0290	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Zinc	42.4		3.87	30.2	mg/Kg-dry	108517	5	1/9/2009 10:51:44 AM
<b>TOTAL MERCURY</b>								
Mercury	0.108	J	0.00423	0.121	mg/Kg-dry	108516	1	1/7/2009 2:51:40 PM
			SW7471A	(SW7471)	Analyst: MAW			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL	R	0.16	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
			SW8260B	(SW5035)	Analyst: JF			

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-002

Client Sample ID: 090105-KFPRW-SS12-DUP  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JF
Toluene	BRL	R	0.14	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
Ethylbenzene	BRL		0.19	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
m,p-Xylene	BRL		0.40	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
o-Xylene	BRL		0.42	1.1	ug/Kg-dry	108469	1	1/8/2009 6:18:00 PM
Sum: 4-Bromofluorobenzene	71.8		0	56-145	%REC	108469	1	1/8/2009 5:18:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	18.9		0	0	wt%		1	1/7/2009 9:00:00 AM

*gaw*  
 02/02/09

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 18, 2009

Report No.: ASA0071

Lab Number ID: ASA0071-02

Client ID: 090105-KFFRW-8812 Duplicate

Date/Time Received: 1/8/2009 3:30:00PM

Date/Time Sampled: 1/8/2009 1:20:00PM

Matrix: Ash

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	80.8		% by Weight	SOP Moisture		1	1/09/09 7:00	1/09/09 7:00	AS01105	MZF
<b>Metals</b>										
Silicon	286	4.59	mg/kg dry wt. dry	EPA 6010B		1	1/09/09 13:30	1/13/09 12:28	AS01180	FBS
Silica	612 J+9.81		mg/kg dry	EPA 6010B		1	1/09/09 13:30	1/13/09 12:28	[CALC]	FBS

*gaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-006

Client Sample ID: 090105-CRM-SS13  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00288	0.00400	mg/L	108560	1	1/8/2009 3:33:13 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL	U	0.0467	0.250	mg/L	108564	1	1/8/2009 2:06:53 PM
Barium	0.302	J	0.00455	0.500	mg/L	108564	1	1/8/2009 2:06:53 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108564	1	1/8/2009 2:06:53 PM
Chromium	BRL	U	0.00565	0.0500	mg/L	108564	1	1/8/2009 2:06:53 PM
Lead	BRL	U	0.0105	0.0500	mg/L	108564	1	1/8/2009 2:06:53 PM
Selenium	BRL	U	0.0357	0.100	mg/L	108564	1	1/8/2009 2:06:53 PM
Silver	BRL	U	0.00540	0.0250	mg/L	108564	1	1/8/2009 2:06:53 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	3630		4.99	57.0	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Antimony	0.325	J-	0.217	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Arsenic	7.51		0.171	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Barium	24.8		0.171	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Beryllium	0.0453	J	0.0160	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Cadmium	0.0935	J	0.0376	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Calcium	2310	J-	22.3	57.0	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Chromium	9.83		0.0752	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Cobalt	5.54		0.0205	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Copper	11.6		0.0479	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Iron	12300		7.24	285	mg/Kg-dry	108517	5	1/9/2009 10:55:52 AM
Lead	16.9		0.114	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Magnesium	1170	J-	1.33	57.0	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Manganese	348		0.205	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Nickel	5.74		0.0285	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Potassium	274		1.24	114	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Selenium	1.74	J	0.456	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Silver	BRL	U	0.0160	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Sodium	8.30	J	4.83	114	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Thallium	BRL	UJ	0.205	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Vanadium	12.4		0.0273	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Zinc	25.2		0.729	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0942	J	0.00425	0.121	mg/Kg-dry	108516	1	1/7/2009 2:36:23 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL	U	0.14	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gan*  
 02/02/09



**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-006

Client Sample ID: 090105-CRM-SS13  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	U	0.13	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
Ethylbenzene	BRL	↓	0.17	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
m,p-Xylene	BRL	↓	0.38	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
o-Xylene	BRL	↓	0.38	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
Surr: 4-Bromofluorobenzene	93.3		0	56-145	%REC	108469	1	1/6/2009 7:43:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	18.1		0	0	wt%		1	1/7/2009 9:00:00 AM

*QW*  
02/02/09

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

January 19, 2009

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Ms. Blair Stout

Report No.: ASA0071  
Client ID: 090106-CRM-8813  
Date/Time Sampled: 1/8/2009 3:20:00PM  
Metric: Soil

Lab Number ID: ASA0071-03  
Date/Time Received: 1/8/2009 3:30:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	82.9		% by Weight	SOP Moisture		1	1/09/09 7:00	1/09/09 7:00	A801105	MZF
<b>Metals</b>										
Silicon	374	4.83	mg/kg dry wt. dry	EPA 8010B		1	1/09/09 13:30	1/13/09 13:33	A801190	FBS
Silica	800	J+10.3	mg/kg dry	EPA 8010B		1	1/09/09 13:30	1/13/09 13:33	[CALC]	FBS

*QAW*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-007

Client Sample ID: 090105-CRM-SS13-DUP  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analytes	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL	U	0.00288	0.00400	mg/L	108560	1	1/8/2009 5:56:37 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL	U	0.0467	0.250	mg/L	108564	1	1/8/2009 2:33:10 PM
Barium	0.384	J	0.00455	0.500	mg/L	108564	1	1/8/2009 2:33:10 PM
Cadmium	BRL	U	0.0175	0.0250	mg/L	108564	1	1/8/2009 2:33:10 PM
Chromium	BRL	↓	0.00565	0.0500	mg/L	108564	1	1/8/2009 2:33:10 PM
Lead	BRL	↓	0.0105	0.0500	mg/L	108564	1	1/8/2009 2:33:10 PM
Selenium	BRL	↓	0.0357	0.100	mg/L	108564	1	1/8/2009 2:33:10 PM
Silver	BRL	↓	0.00540	0.0250	mg/L	108564	1	1/8/2009 2:33:10 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	3750		5.13	58.6	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Antimony	0.357	Ⓟ	0.223	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Arsenic	5.62	J	0.176	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Barium	24.2		0.176	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Beryllium	0.0401	J	0.0164	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Cadmium	0.0883	J	0.0387	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Calcium	700	J-	23.0	58.8	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Chromium	10.4		0.0773	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Cobalt	4.81		0.0211	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Copper	10.8		0.0492	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Iron	9530		7.44	293	mg/Kg-dry	108517	5	1/9/2009 11:22:30 AM
Lead	14.5		0.117	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Magnesium	301	J-	1.37	58.6	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Manganese	295		0.211	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Nickel	5.21	J	0.0293	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Potassium	268		1.28	117	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Selenium	1.11	J	0.489	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Silver	BRL	U	0.0164	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Sodium	BRL	U	5.07	117	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Thallium	BRL	U	0.211	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Vanadium	11.8		0.0281	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Zinc	24.8		1.50	11.7	mg/Kg-dry	108517	2	1/9/2009 11:44:10 AM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.112	J	0.00432	0.123	mg/Kg-dry	108518	1	1/7/2009 2:53:52 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL	U	0.13	0.80	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*[Handwritten Signature]*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-007

Client Sample ID: 090105-CRM-SS13-DUP  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	U	0.12	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
Ethylbenzene	BRL	↓	0.15	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
m,p-Xylene	BRL	↓	0.32	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
o-Xylene	BRL	↓	0.34	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
Surr: 4-Bromofluorobenzene	93.6		0	56-145	%REC	108469	1	1/6/2009 7:18:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	19.7		0	0	wt%		1	1/7/2009 8:00:00 AM

*gls*  
 02/02/09

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 18, 2009

Report No.: ASA0071  
Client ID: 090105-CRM-8813 Duplicate  
Date/Time Sampled: 1/8/2009 3:20:00PM  
Matrix: Soil

Lab Number ID: ASA0071-04  
Date/Time Received: 1/8/2009 3:30:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Inf.
<b>General Chemistry</b>										
% Solids	80.3		% by Weight	SOP Moisture		1	1/09/09 7:00	1/09/09 7:00	A901105	MZF
<b>Metals</b>										
Silicon	437	4.70	mg/kg dry wt. dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:39	A901190	FBS
Silica	935	10.1	mg/kg dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:39	[CALC]	FBS

*jaw*  
02/02/09

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-035

Client Sample ID: TRIP BLANK1  
 Collection Date: 12/30/2008

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: PV
Benzene	BRL	U	0.22	1.0	ug/L	108303	1	12/30/2008 6:37:00 PM
Toluene	BRL		0.26	1.0	ug/L	108303	1	12/30/2008 6:37:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108303	1	12/30/2008 6:37:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108303	1	12/30/2008 6:37:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108303	1	12/30/2008 6:37:00 PM
Surr: 4-Bromofluorobenzene	101		0	64.1-129	%REC	108303	1	12/30/2008 6:37:00 PM

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL



Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-036

Client Sample ID: TRIP BLANK2  
 Collection Date: 12/30/2008  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: PV
Benzene	BRL	U	0.22	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
Toluene	BRL	↓	0.26	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
Ethylbenzene	BRL	↓	0.37	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
m,p-Xylene	BRL	↓	0.60	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
o-Xylene	BRL	↓	0.29	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
Surr: 4-Bromofluorobenzene	98.0		0	64.1-129	%REC	108303	1	12/30/2008 6:12:00 PM

*QAW*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-037

Client Sample ID: TRIP BLANK3  
 Collection Date: 12/30/2008

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: PV
Benzene	BRL	U	0.22	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
Toluene	BRL		0.26	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
Surr: 4-Bromofluorobenzene	100		0	64.1-129	%REC	108303	1	12/30/2008 5:47:00 PM

*gaw*  
 02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-007

Client Sample ID: TRIP BLANK  
 Collection Date: 1/3/2009  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>		Analyst: JE		
Benzene	BRL	↓	0.22	1.0	ug/L	108417	1	1/3/2009 2:01:00 PM
Toluene	BRL	↓	0.26	1.0	ug/L	108417	1	1/3/2009 2:01:00 PM
Ethylbenzene	BRL	↓	0.37	1.0	ug/L	108417	1	1/3/2009 2:01:00 PM
m,p-Xylene	BRL	↓	0.60	1.0	ug/L	108417	1	1/3/2009 2:01:00 PM
o-Xylene	BRL	↓	0.29	1.0	ug/L	108417	1	1/3/2009 2:01:00 PM
Surr: 4-Bromofluorobenzene	93.7		0	64.1-129	%REC	108417	1	1/3/2009 2:01:00 PM

*gaw*  
 02/02/09

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 07-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901103  
 Project: TVA Kingston  
 Lab ID: 0901103-001

Client Sample ID: 090105-RINSE-01  
 Collection Date: 1/5/2009 6:05:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Silica (as Si)	0.1	0.0540- J	0.0110	0.100	mg/L	108480	1	1/6/2009 1:57:45 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	72.9		5.12	10.0	ug/L	108481	1	1/6/2009 4:11:09 PM
Antimony	BRL	U	0.490	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Arsenic	BRL	↓	0.880	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Barium	BRL	↓	0.700	10.0	ug/L	108481	1	1/6/2009 4:11:09 PM
Beryllium	BRL	↓	0.210	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Cadmium	BRL	↓	0.0970	0.700	ug/L	108481	1	1/6/2009 4:11:09 PM
Calcium	44.5	J	14.1	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Chromium	BRL	U	0.660	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Cobalt	BRL	↓	0.620	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Copper	BRL	↓	0.730	2.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Iron	BRL	↓	9.32	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Lead	0.275	J	0.170	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Magnesium	100	44.3- J	7.83	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Manganese	BRL	U	0.620	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Nickel	BRL	↓	0.650	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Potassium	BRL	↓	7.74	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Selenium	BRL	↓	1.06	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Silver	BRL	↓	0.0630	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Sodium	112	J	7.81	500	ug/L	108481	1	1/6/2009 4:11:09 PM
Thallium	0.0630	J	0.0620	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Vanadium	BRL	U	0.670	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Zinc	3.03	J	2.33	10.0	ug/L	108481	1	1/6/2009 4:11:09 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00002	J	0.00001	0.00020	mg/L	108468	1	1/6/2009 5:16:26 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: AJK
Benzene	BRL	U	0.22	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
Toluene	BRL	↓	0.26	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
Ethylbenzene	BRL	↓	0.37	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
m,p-Xylene	BRL	↓	0.60	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
o-Xylene	BRL	↓	0.29	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
Surr: 4-Bromofluorobenzene	82.1		0	64.1-129	%REC	108489	1	1/6/2009 12:32:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

*gaw*  
 02/02/09

**Analytical Environmental Services, Inc.**

Date: 07-Jan-09

CLIENT: Tetra Tech EM Inc.

Client Sample ID: TRIP BLANK

Lab Order: 0901103

Collection Date: 1/6/2009

Project: TVA Kingston

Lab ID: 0901103-002

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: AJK
Benzene	BRL	U	0.22	1.0	ug/L	108489	1	1/6/2009 12:07:00 PM
Toluene	BRL		0.26	1.0	ug/L	108489	1	1/6/2009 12:07:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108489	1	1/6/2009 12:07:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108489	1	1/6/2009 12:07:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108489	1	1/6/2009 12:07:00 PM
Surr: 4-Bromofluorobenzene	80.9		0	64.1-129	%REC	108489	1	1/6/2009 12:07:00 PM

*AJK*  
02/02/09

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-008

Client Sample ID: TRIP BLANK  
 Collection Date: 1/6/2009

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: AJK
Benzene	BRL	U	0.22	1.0	ug/L	108511	1	1/6/2009 6:58:00 PM
Toluene	BRL		0.26	1.0	ug/L	108511	1	1/6/2009 6:58:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108511	1	1/6/2009 6:58:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108511	1	1/6/2009 6:58:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108511	1	1/6/2009 6:58:00 PM
Surr: 4-Bromofluorobenzene	84.5		0	64.1-129	%REC	108511	1	1/6/2009 6:58:00 PM

*gaw*  
 02/02/09

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
Rpt Lim Reporting Limit		S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL



**ENCLOSURE 2**

**DATA VALIDATION-QUALIFIED FIXED LABORATORY ANALYTICAL RESULTS FOR  
ANALYTICAL ENVIRONMENTAL SERVICES, INC., REPORT NOS. 0812G73, 0812I49,  
0901058, 0901103, AND 0901111 AND ANALYTICAL SERVICES, INC., REPORT NOS.  
ARL0989, ASA0015, AND ASA0071**

(Six Pages)

**LABORATORY ANALYTICAL RESULTS FOR SOLID SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	TT-SS01	081227-DKC-SS-01	081227-DKCL-SS-02	081228-KFPRW-01	081228-SPRRW-02
Sample Collection Date:	12/23/2008	12/27/2008	12/27/2008	12/28/2008	12/28/2008
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	27.7	31.0	21.3	22.2	26.1
<b>BTEX (µg/kg)</b>					
Benzene	R	1.3 U	1.1 U	R	1.3 U
Ethylbenzene	R	1.3 U	1.1 U	R	1.3 U
m,p-Xylenes	R	1.3 U	1.1 U	1.6 J	1.3 U
o-Xylene	R	1.3 U	1.1 U	R	1.3 U
Toluene	R	1.3 U	1.1 U	R	1.3 U
<b>Total Metals (mg/kg)</b>					
Aluminum	26400	28900	10500	11000	18600
Antimony	1.27 J	1.16 J-	1.06 J-	1.06 J-	1.63 J-
Arsenic	44.8	45.8	59.9	54.2	81.3
Barium	864	825 J	204 J	188 J	248 J
Beryllium	6.25	1.89 J	0.460 J	0.553 J	0.782 J
Cadmium	0.577 J	0.800 J	0.765 J	0.737 J	1.23 J
Calcium	18300	19500	2710	2190	3070
Chromium	41.3	38.1	20.0	18.2	30.4
Cobalt	17.7	18.7	8.50	8.58	11.4
Copper	59.9	69.4	29.9	34.5	49.2
Iron	12000	14100	19300	11800	13900
Lead	20.3	24.9	20.0	15.3	23.2
Magnesium	3900	4300	873	713	1210
Manganese	66.9	67.5 J+	231 J+	48.3 J+	56.8 J+
Mercury	0.0879 J	0.111 J	0.0755 J	0.0563 J	0.0973 J
Nickel	29.4	32.3	17.1	19.3	25.3
Potassium	3280	2840	1340	1770	3050
Selenium	3.13 J	6.63 J	5.15 J	6.36	6.37 J
Silica	NA	40.1 J+	1060 J+	1050 J+	184 J+
Silver	2.81 U	3.38 U	2.91 U	3.00 U	3.20 U
Sodium	672	725	147	174	298
Thallium	4.36 J	67.7 U	5.82 U	5.99 U	6.40 U
Vanadium	107	121	45.6	44.6	71.0
Zinc	55.6	54.9	28.7	24.3	42.7
<b>TCLP Metals (mg/L)</b>					
Arsenic	NA	0.25 U	0.25 U	0.25 U	0.0862 J
Barium	NA	4.71	0.766	0.801	1.06
Cadmium	NA	0.025 U	0.025 U	0.025 U	0.025 U
Chromium	NA	0.0540	0.05 U	0.05 U	0.05 U
Lead	NA	0.05 U	0.05 U	0.05 U	0.05 U
Mercury	NA	0.004 U	0.004 U	0.004 U	0.004 U
Selenium	NA	0.1 U	0.1 U	0.1 U	0.1 U
Silver	NA	0.025 U	0.025 U	0.025 U	0.025 U

**Notes:**

Positive results are listed in **BOLD**

The equipment and trip blank samples are reported in units of micrograms per liter (µg/L).

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

BTEX = Benzene, toluene, ethylbenzene, and xylenes

TCLP = Toxicity characteristic leaching procedure

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.

UJ = The analyte was analyzed for, but was not detected at or above the associated value, which is considered approximate due to deficiencies in one or more quality control criteria.

**LABORATORY ANALYTICAL RESULTS FOR SOLID SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	081228-SPCRW-03	081228-EERBS-SS04	081228-ERPL-SS05	081228-ERPR-SS06	081228-ERER-SS07
Sample Collection Date:	12/28/2008	12/28/2008	12/28/2008	12/28/2008	12/28/2008
Field Quality Control:					
Percent Moisture (percent)					
Percent Moisture	29.9	22.5	25.8	24.7	18.3
BTEX (µg/kg)					
Benzene	1.2 U	0.92 U	1.1 U	1.0 U	0.98 U
Ethylbenzene	1.2 U	0.92 U	1.1 U	1.0 U	0.98 U
m,p-Xylenes	1.2 U	0.92 U	1.1 U	1.0 U	0.98 U
o-Xylene	1.2 U	0.92 U	1.1 U	1.0 U	0.98 U
Toluene	1.2 U	0.92 U	1.1 U	1.0 U	0.98 U
Total Metals (mg/kg)					
Aluminum	14900	13100	12500	14400	9580
Antimony	1.38 J-	0.461 J-	1.10 J-	0.567 J-	1.24 J-
Arsenic	69.8	1.34 J	27.9	3.29 J	19.1
Barium	208 J	76.5 J	28.2 J	118 J	68.2 J
Beryllium	1.04 J	0.497 J	0.0646 J	0.685 J	0.535 J
Cadmium	1.06 J	3.12 U	0.273 J	3.08 U	0.141 J
Calcium	2570	1510	976	2140	1030
Chromium	27.4	21.0	27.7	26.0	54.4
Cobalt	11.7	8.49	4.04	18.0	33.7
Copper	58.5	12.8	21.0	15.6	10.9
Iron	9590	19100	36700	24800	28000
Lead	56.9	10.1	45.4	18.2	71.8
Magnesium	979	2530	458	2410	635
Manganese	45.7 J+	268 J+	228 J+	1150 J+	1410 J+
Mercury	0.0664 J	0.127 U	0.127 J	0.129 U	0.0280 J
Nickel	27.0	23.5	11.7	18.8	11.6
Potassium	2250	1840	350	2260	577
Selenium	7.15	2.12 J	2.64 J	3.37 J	2.86 J
Silica	81.5 J+	263 J+	192 J+	193 J+	320 J+
Silver	3.38 U	3.12 U	3.11 U	3.08 U	3.02 U
Sodium	224	125 U	124 U	123 U	121 U
Thallium	6.75 U	6.23 U	6.21 U	6.17 U	6.04 U
Vanadium	72.9	20.3	81.5	28.5	41.0
Zinc	36.9	44.7	26.3	35.4	31.8
TCLP Metals (mg/L)					
Arsenic	0.0984 J	0.25 U	0.25 U	0.25 U	0.25 U
Barium	0.747	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chromium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lead	0.05 U	0.05 U	0.0116 J	0.05 U	0.05 U
Mercury	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Selenium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Silver	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U

- Notes: Positive results are listed in **BOLD**  
 The equipment and trip blank samples are reported in units of micrograms per liter (µg/L).  
 µg/kg = Micrograms per kilogram  
 mg/kg = Milligrams per kilogram  
 mg/L = Milligrams per liter  
 NA = Not analyzed  
 BTEX = Benzene, toluene, ethylbenzene, and xylenes  
 TCLP = Toxicity characteristic leaching procedure  
 J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.  
 J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.  
 J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.  
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 U = The analyte was analyzed for, but was not detected at or above the associated value.  
 UJ = The analyte was analyzed for, but was not detected at or above the associated value, which is considered approximate due to deficiencies in one or more quality control criteria.

**LABORATORY ANALYTICAL RESULTS FOR SOLID SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	081228-ERER-SS07-DUP	081228-ERER-SS08	081228-SGUBR-SS09	081228-KCPS-SS10	081228-KCP-SS11
Sample Collection Date:	12/28/2008	12/28/2008	12/28/2008	12/28/2008	12/28/2008
Field Quality Control:	Field Duplicate				
<b>Percent Moisture (percent)</b>					
Percent Moisture	22.0	22.6	25.2	27.4	23.1
<b>BTEX (µg/kg)</b>					
Benzene	0.88 U	0.92 U	0.89 U	1.1 U	0.92 U
Ethylbenzene	0.88 U	0.92 U	0.89 U	1.1 U	0.92 U
m,p-Xylenes	0.88 U	0.92 U	0.89 U	1.1 U	0.92 U
o-Xylene	0.88 U	0.92 U	0.89 U	1.1 U	0.92 U
Toluene	0.88 U	0.92 U	0.89 U	1.1 U	0.92 U
<b>Total Metals (mg/kg)</b>					
Aluminum	10100	13700	16200	22600	8140
Antimony	1.87 J-	0.664 J-	1.06 J-	1.11 J-	0.418 J-
Arsenic	19.1	3.99 J	34.5	19.1	6.07 J
Barium	174 J	44.3 J	47.0 J	24.5 J	17.8 J
Beryllium	0.618 J	0.117 J	0.346 J	0.351 J	0.109 J
Cadmium	0.211 J	2.94 U	0.333 J	0.178 J	0.0423 J
Calcium	1120	1420	2180	1620	647
Chromium	86.7	18.7	19.5	34.2	11.7
Cobalt	30.8	4.39	6.46	2.34 J	2.69 J
Copper	11.3	8.74	35.6	21.8	10.7
Iron	30100	23100	40700	40800	17900
Lead	61.2	13.8	55.5	24.7	15.3
Magnesium	688	874	873	1020	379
Manganese	4160 J+	180 J+	313 J+	143 J+	112 J+
Mercury	0.0293 J	0.0649 J	0.212	0.160	0.129 U
Nickel	12.9	6.68	18.8	12.2	5.62 J
Potassium	534	659	581	840	416
Selenium	4.29 J	2.60 J	3.23 J	3.86 J	2.01 J
Silica	228 J+	238 J+	232 J+	235 J+	292 J+
Silver	0.375 J	2.94 U	3.32 U	3.43 U	3.04 U
Sodium	121 U	118 U	133 U	137 U	122 U
Thallium	60.4 U	5.88 U	6.63 U	6.85 U	6.08 U
Vanadium	43.0	23.2	69.3	66.1	18.8
Zinc	35.6	31.1	66.4	84.5	22.9
<b>TCLP Metals (mg/L)</b>					
Arsenic	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Barium	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chromium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lead	0.05 U	0.05 U	0.05 U	0.05 U	0.0188 J
Mercury	0.004 U	0.00413	0.004 U	0.004 U	0.004 U
Selenium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Silver	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U

**Notes:**

Positive results are listed in **BOLD**

The equipment and trip blank samples are reported in units of micrograms per liter (µg/L).

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

BTEX = Benzene, toluene, ethylbenzene, and xylenes

TCLP = Toxicity characteristic leaching procedure

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

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**LABORATORY ANALYTICAL RESULTS FOR SOLID SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	090102-CRB-SS-01	090102-CRB-SS-02	090102-ERB-SS-01	090102-ERB-SS-02	090105-KFPRW-SS12
Sample Collection Date:	1/2/2009	1/2/2009	1/2/2009	1/2/2009	1/5/2009
Field Quality Control:					
<b>Percent Moisture (percent)</b>					
Percent Moisture	18.5	21.6	26.9	28.6	19.9
<b>BTEX (µg/kg)</b>					
Benzene	1.3 U	0.99 U	1.1 U	1.9	R
Ethylbenzene	1.3 U	0.99 U	1.1 U	1.2 U	R
m,p-Xylenes	1.3 U	0.99 U	1.1 U	1.2 U	R
o-Xylene	1.3 U	0.99 U	1.1 U	1.2 U	R
Toluene	1.3 U	0.99 U	1.1 U	2.0	R
<b>Total Metals (mg/kg)</b>					
Aluminum	6190	5910	2170	3280	12500
Antimony	0.460 J-	0.962 J-	5.55 UJ	0.425 J-	0.916 J-
Arsenic	4.32 J	11.1	1.06 J	15.9	72.2
Barium	29.8	95.1	24.5	39.9	231
Beryllium	2.47 U	0.216 J	0.225 J	0.293 J	0.122 J
Cadmium	0.0404 J	0.161 J	0.110 J	0.355 J	0.858 J
Calcium	954	916	348	1950	8750 J-
Chromium	17.8	31.1	4.19	11.9	22.0
Cobalt	3.88	8.04	3.23	6.71	7.91
Copper	5.90	6.16	4.26	23.2	32.9
Iron	15900	23100	4880	7620	15200
Lead	14.2	27.2	6.57	18.8	18.3
Magnesium	411	426	240	514	1650 J-
Manganese	388	1230	61.1	225	447
Mercury	0.121 UJ	0.125 UJ	0.135 UJ	0.139 UJ	0.116 J
Nickel	4.94 U	6.66	6.76	8.49	18.3
Potassium	401	321	213	226	1850
Selenium	1.98 J	3.04 J	1.04 J	1.47 J	6.35
Silica	243 J+	258 J+	291 J+	230 J+	746 J+
Silver	2.47 U	2.74 U	2.77 U	2.71 U	3.05 U
Sodium	98.8 U	110 U	111 U	109 U	169
Thallium	4.94 U	5.49 U	5.55 U	5.43 U	6.1 UJ
Vanadium	17.8 J-	36.3 J-	5.01 J-	9.20 J-	51.8
Zinc	17.7	24.6	20.9	68.5	34.5
<b>TCLP Metals (mg/L)</b>					
Arsenic	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Barium	0.5 U	0.695	0.5 U	0.5 U	0.798
Cadmium	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Chromium	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Lead	0.05 U	0.05 U	0.0628	0.0576	0.0124 J
Mercury	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Selenium	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Silver	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U

**Notes:**

Positive results are listed in **BOLD**

The equipment and trip blank samples are reported in units of micrograms per liter (µg/L).

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

BTEX = Benzene, toluene, ethylbenzene, and xylenes

TCLP = Toxicity characteristic leaching procedure

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UJ = The analyte was analyzed for, but was not detected at or above the associated value, which is considered approximate due to deficiencies in one or more quality control criteria.

**LABORATORY ANALYTICAL RESULTS FOR SOLID SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	090105-KFPRW-SS12-DUP	090105-CRM-SS13	090105-CRM-SS13-DUP	TRIP BLANK1
Sample Collection Date:	1/5/2009	1/5/2009	1/5/2009	12/30/2008
Field Quality Control:	Field Duplicate		Field Duplicate	Trip Blank
<b>Percent Moisture (percent)</b>				
Percent Moisture	18.9	18.1	19.7	NA
<b>BTEX (µg/kg)</b>				
Benzene	R	0.99 U	0.9 U	1 U
Ethylbenzene	R	0.99 U	0.9 U	1 U
m,p-Xylenes	R	0.99 U	0.9 U	1 U
o-Xylene	R	0.99 U	0.9 U	1 U
Toluene	R	0.99 U	0.9 U	1 U
<b>Total Metals (mg/kg)</b>				
Aluminum	10900	3630	3750	NA
Antimony	0.981 J-	0.325 J-	0.357 J-	NA
Arsenic	56.6	7.51	5.62 J	NA
Barium	179	24.8	24.2	NA
Beryllium	0.168 J	0.0453 J	0.0401 J	NA
Cadmium	0.700 J	0.0935 J	0.0883 J	NA
Calcium	9010 J-	2310 J-	700 J-	NA
Chromium	19.9	9.83	10.4	NA
Cobalt	8.01	5.54	4.81	NA
Copper	32.3	11.6	10.8	NA
Iron	15800	12300	9530	NA
Lead	17.5	16.9	14.5	NA
Magnesium	1260 J-	1170 J-	301 J-	NA
Manganese	166	348	295	NA
Mercury	0.108 J	0.0942 J	0.112 J	NA
Nickel	17.0	5.74	5.21 J	NA
Potassium	1590	274	268	NA
Selenium	5.80 J	1.74 J	1.11 J	NA
Silica	812 J+	800 J+	935 J+	NA
Silver	3.02 U	2.85 U	2.93 U	NA
Sodium	143	8.30 J	117 U	NA
Thallium	6.04 UJ	5.7 UJ	5.86 UJ	NA
Vanadium	48.9	12.4	11.8	NA
Zinc	42.4	25.2	24.8	NA
<b>TCLP Metals (mg/L)</b>				
Arsenic	0.25 U	0.25 U	0.25 U	NA
Barium	0.826	0.302 J	0.384 J	NA
Cadmium	0.025 U	0.025 U	0.025 U	NA
Chromium	0.05 U	0.05 U	0.05 U	NA
Lead	0.05 U	0.05 U	0.05 U	NA
Mercury	0.004 U	0.004 U	0.004 U	NA
Selenium	0.1 U	0.1 U	0.1 U	NA
Silver	0.025 U	0.025 U	0.025 U	NA

**Notes:**

Positive results are listed in **BOLD**

The equipment and trip blank samples are reported in units of micrograms per liter (µg/L).

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

BTEX = Benzene, toluene, ethylbenzene, and xylenes

TCLP = Toxicity characteristic leaching procedure

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

R = The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value.

UJ = The analyte was analyzed for, but was not detected at or above the associated value, which is considered approximate due to deficiencies in one or more quality control criteria.



**LABORATORY ANALYTICAL RESULTS FOR SOLID SAMPLES  
KINGSTON FOSSIL RESPONSE**

Sample Designation:	TRIP BLANK2	TRIP BLANK3	TRIP BLANK	090105-RINSE-01	TRIP BLANK
Sample Collection Date:	12/30/2008	12/30/2008	1/2/2009	1/5/2009	1/6/2009
Field Quality Control:	Trip Blank	Trip Blank	Trip Blank	Equipment Blank	Trip Blank
Percent Moisture (percent)					
Percent Moisture	NA	NA	NA		NA
BTEX (µg/kg)					
Benzene	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U	1 U
m,p-Xylenes	1 U	1 U	1 U	1 U	1 U
o-Xylene	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	1 U	1 U	1 U
Total Metals (mg/kg)					
Aluminum	NA	NA	NA	72.9	NA
Antimony	NA	NA	NA	5 U	NA
Arsenic	NA	NA	NA	5 U	NA
Barium	NA	NA	NA	10 U	NA
Beryllium	NA	NA	NA	1 U	NA
Cadmium	NA	NA	NA	0.7 U	NA
Calcium	NA	NA	NA	44.5 J	NA
Chromium	NA	NA	NA	5 U	NA
Cobalt	NA	NA	NA	5 U	NA
Copper	NA	NA	NA	2 U	NA
Iron	NA	NA	NA	100 U	NA
Lead	NA	NA	NA	0.275 J	NA
Magnesium	NA	NA	NA	100 U	NA
Manganese	NA	NA	NA	5 U	NA
Mercury	NA	NA	NA	0.02 J	NA
Nickel	NA	NA	NA	5 U	NA
Potassium	NA	NA	NA	100 U	NA
Selenium	NA	NA	NA	5 U	NA
Silica	NA	NA	NA	100 U	NA
Silver	NA	NA	NA	1 U	NA
Sodium	NA	NA	NA	112 J	NA
Thallium	NA	NA	NA	0.063 J	NA
Vanadium	NA	NA	NA	5 U	NA
Zinc	NA	NA	NA	3.03 J	NA
TCLP Metals (mg/L)					
Arsenic	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA

Notes:

Positive results are listed in **BOLD**

The equipment and trip blank samples are reported in units of micrograms per liter (µg/L).

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Not analyzed

BTEX = Benzene, toluene, ethylbenzene, and xylenes

TCLP = Toxicity characteristic leaching procedure

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

J- = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

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**APPENDIX G**  
**TABLE OF WITNESSES**  
(3 Pages)

**TABLE OF WITNESSES**  
**KINGSTON FOSSIL PLANT FLY ASH RESPONSE**  
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**ATTACHMENT 1**  
**LABORATORY DATA PACKAGE**  
(323 Pages)



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)





**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

January 06, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Duluth, GA 30096

TEL: (678) 775-3104

FAX (678) 775-3138

RE: TVA Kingston

Order No.: 0812G73

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 12 samples on 12/24/2008 10:40:00 AM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

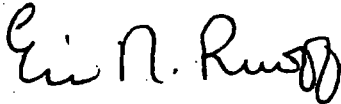
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/08-06/30/09.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 08/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 47 total pages (including cover letter).

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

Sincerely,

*for*  


Blair Stout  
Project Manager



COMPANY: <b>Tetra Tech</b>		ADDRESS: <b>1955 Evergreen Blvd Suite 300 Duluth Ga 30094</b>			ANALYSIS REQUESTED						Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		No # of Containers										
PHONE: <b>404-395-5220 / 678-983-4655</b>		FAX: <b>678-775-3138</b>			<table border="1"> <tr> <td>TAL Metals</td> <td>Dissolved Metals</td> <td>Total Suspended Solids</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>									TAL Metals	Dissolved Metals	Total Suspended Solids							
TAL Metals	Dissolved Metals	Total Suspended Solids																					
SAMPLED BY: <b>Chris Jones</b>		SIGNATURE: <i>[Signature]</i>			PRESERVATION (See codes)						REMARKS												
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)						REMARKS	No # of Containers									
		DATE	TIME																				
1	KIF-KWTPI	12/23/08	1147			SW	✓								1								
2	KIF-CRM 4.0		1423				✓								1								
3	KIF-ERM 0.1		1432				✓	✓	✓						2								
4	KIF-CRM 5.5		1410				✓								1								
5	KIF-ERM 2.1		1515				✓								1								
6	KIF-ERM 4.0		1530				✓								1								
7	MS/MSD		1530				✓								1								
8	TT-ERM 1.9		1655				✓						X - Dissolved		1								
9	Duplicate		1657				✓						metals →		1								
* 10	KIF-TRM 568.5		1133				✓	✓	✓				Filter and		1								
* 11	KIF-CRM 0.0		1158				✓	✓	✓				preserve,		1								
* 12	KIF-CRM 2.0		1216				✓	✓	✓				Total metals →		1								
13	TT-SSOI		1655			SE	✓						Needs		1								
14													Preservation										
RELINQUISHED BY: <i>[Signature]</i>		DATE/TIME: <b>12/23/08 2030</b>		RECEIVED BY: <i>[Signature]</i>		DATE/TIME: <b>12/24/08 10:40</b>		PROJECT INFORMATION						RECEIPT									
								PROJECT NAME: <b>TVA Kingston</b>						Total # of Containers: <b>14</b>									
								PROJECT #: <b>714 Swan Pond rd Harriman TN</b>						Turnaround Time Request									
								SITE ADDRESS: <b>714 Swan Pond rd Harriman TN</b>						<input type="radio"/> Standard 5 Business Days <input type="radio"/> 2 Business Day Rush <input type="radio"/> Next Business Day Rush <input checked="" type="radio"/> Same Day Rush (auth req.) <input type="radio"/> Other									
								SEND REPORT TO: <b>Jessica Vickers and Chris Jones</b>						STATE PROGRAM (if any): _____									
								INVOICE TO: (IF DIFFERENT FROM ABOVE) <b>Chris Jones</b>						E-mail? Y/N, Fax? Y/N									
								QUOTE #: _____ PO# _____						DATA PACKAGE: I II III IV									
SPECIAL INSTRUCTIONS/COMMENTS:				SHIPMENT METHOD																			
				OUT / / VIA																			
				IN / / VIA																			
				CLIENT <input checked="" type="radio"/> FedEx UPS MAIL COURIER																			
				GREYHOUND OTHER																			

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT. SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)  
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Toxic Tech

Work Order Number 0812 G73

Checklist completed by [Signature] Date 12/24/18

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3-4 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler#5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? (N) Checked by (N)

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.



**CLIENT:** Tetra Tech EM Inc.  
**Project:** TVA Kingston  
**Lab Order:** 0812G73

**CASE NARRATIVE**

Sample 0812G73-008A had "KIF-ERM 4.0" listed as the ID on the sample bottle labels, but the ID was listed as "DUP" on the bottle cap.

Per Chris Jones via telephone on 12/24/08, sample 0812G73-008 was reported as "Duplicate."  
Dissolved TAL metals were required for Dissolved Metals analysis.

Per Jessica Vickers 1/5/09 11:30 am, sample KIF-KWTPI (-001) requires TAL Metals analysis by Method 6020.

Sample 0812G73-003A as received did not meet method specified pH range for the requested test method. No attempt to further adjust the pH was made due to sample matrix.

Samples 0812G73-009A, -010A, and -011A were split from samples 0812G73-009B, -010B, and -011B, respectively, after receipt at the laboratory to prepare sample needed for Total TAL Metals analysis. Chemical preservatives were added to meet method specified pH requirements for the requested test methods.

12/24/08 at 12:05pm - Per Chris Jones via telephone, sample "TT-SS01" (0812G73-012) also required BTEX analysis.

Preserved soil vials in accordance with Method 5035 were not received for sample 0812G73-012A. Preserved soil vials were prepared at the laboratory from the sample jar.

Volatiles Organic Compounds Analysis by Method 8260:

Percent recoveries for all internal standard compounds on sample 0812G73-012A were outside control limits biased low due to suspected matrix interference.

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-001

Client Sample ID: KIF-KWTPI  
 Collection Date: 12/23/2008 11:47:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: DJ		
Aluminum	0.388		0.0230	0.200	mg/L	108148	1	12/24/2008 2:14:33 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Arsenic	BRL		0.0031	0.0500	mg/L	108148	1	12/24/2008 2:14:33 PM
Barium	0.0234		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:14:33 PM
Calcium	16.1		0.0110	0.100	mg/L	108148	1	12/24/2008 2:14:33 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Copper	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Iron	0.386		0.0360	0.100	mg/L	108148	1	12/24/2008 2:14:33 PM
Lead	BRL		0.0038	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Magnesium	4.16		0.0190	0.100	mg/L	108148	1	12/24/2008 2:14:33 PM
Manganese	0.0487		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:11:41 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Potassium	1.95		0.0300	0.500	mg/L	108148	1	12/24/2008 2:14:33 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Sodium	8.77		0.0063	1.00	mg/L	108148	1	12/24/2008 2:14:33 PM
Thallium	0.0062	J	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:14:33 PM
Zinc	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:14:33 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>		Analyst: JY		
Aluminum	247		5.12	10.0	ug/L	108443	1	1/5/2009 6:03:30 PM
Antimony	BRL		0.490	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Arsenic	BRL		0.880	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Barium	21.2		0.700	10.0	ug/L	108443	1	1/5/2009 6:03:30 PM
Beryllium	BRL		0.210	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Cadmium	BRL		0.0970	0.700	ug/L	108443	1	1/5/2009 6:03:30 PM
Calcium	16500		14.1	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Chromium	BRL		0.660	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Cobalt	BRL		0.620	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Copper	0.914	J	0.730	2.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Iron	249		9.32	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Lead	0.332	J	0.170	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Magnesium	3630		7.83	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Manganese	44.8		0.620	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Nickel	0.672	J	0.650	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812G73  
**Project:** TVA Kingston  
**Lab ID:** 0812G73-001

**Client Sample ID:** KIF-KWTPI  
**Collection Date:** 12/23/2008 11:47:00 AM  
**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Potassium	1890		7.74	100	ug/L	108443	1	1/5/2009 6:03:30 PM
Selenium	BRL		1.06	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Silver	BRL		0.0630	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Sodium	8490		7.81	500	ug/L	108443	1	1/5/2009 6:03:30 PM
Thallium	BRL		0.0620	1.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Vanadium	BRL		0.670	5.00	ug/L	108443	1	1/5/2009 6:03:30 PM
Zinc	10.7		2.33	10.0	ug/L	108443	1	1/5/2009 6:03:30 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:00:39 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-002

Client Sample ID: KIF-CRM 4.0  
 Collection Date: 12/23/2008 2:23:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	1.53		0.0230	0.200	mg/L	108148	1	12/24/2008 2:18:21 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
Arsenic	0.0039	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:18:21 PM
Barium	0.0430		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:18:21 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:18:21 PM
Calcium	30.8		0.0110	0.100	mg/L	108148	1	12/24/2008 2:18:21 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:18:21 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
Copper	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:18:21 PM
Iron	1.08		0.0360	0.100	mg/L	108148	1	12/24/2008 2:18:21 PM
Lead	0.0046	J	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:18:21 PM
Magnesium	8.51		0.0190	0.100	mg/L	108148	1	12/24/2008 2:18:21 PM
Manganese	0.0938		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:15:17 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
Potassium	2.44		0.0300	0.500	mg/L	108148	1	12/24/2008 2:18:21 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:18:21 PM
Sodium	5.85		0.0063	1.00	mg/L	108148	1	12/24/2008 2:18:21 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
Vanadium	0.0024	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:18:21 PM
Zinc	0.0040	J	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:18:21 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:02:35 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812G73  
**Project:** TVA Kingston  
**Lab ID:** 0812G73-003

**Client Sample ID:** KIF-ERM 0.1  
**Collection Date:** 12/23/2008 2:32:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>								
Residue, Suspended (TSS)	14700		E160.2	(E160.2)		108167	1	Analyst: ML 12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>								
<b>SW6010B (SAMP_FILT) Analyst: DJ</b>								
Aluminum	0.164	J	0.0230	0.200	mg/L	108149	1	12/24/2008 1:32:00 PM
Antimony	BRL		0.0063	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
Arsenic	0.0116	J	0.0031	0.0500	mg/L	108149	1	12/24/2008 1:32:00 PM
Barium	0.0345		0.0016	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108149	1	12/24/2008 1:32:00 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108149	1	12/24/2008 1:32:00 PM
Calcium	9.38		0.0110	0.100	mg/L	108149	1	12/24/2008 1:32:00 PM
Chromium	BRL		0.0075	0.0100	mg/L	108149	1	12/24/2008 3:48:05 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
Copper	0.0017	J	0.0016	0.0100	mg/L	108149	1	12/24/2008 1:32:00 PM
Iron	0.187		0.0360	0.100	mg/L	108149	1	12/24/2008 1:32:00 PM
Lead	BRL		0.0038	0.0100	mg/L	108149	1	12/24/2008 1:32:00 PM
Magnesium	2.20		0.0190	0.100	mg/L	108149	1	12/24/2008 1:32:00 PM
Manganese	0.153		0.0019	0.0150	mg/L	108149	1	12/24/2008 3:48:05 PM
Nickel	BRL		0.0035	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
Potassium	1.28		0.0300	0.500	mg/L	108149	1	12/24/2008 1:32:00 PM
Selenium	0.0075	J	0.0060	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
Silver	BRL		0.0003	0.0100	mg/L	108149	1	12/24/2008 1:32:00 PM
Sodium	5.65		0.0063	1.00	mg/L	108149	1	12/24/2008 1:32:00 PM
Thallium	0.0077	J	0.0041	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
Vanadium	0.0034	J	0.0016	0.0100	mg/L	108149	1	12/24/2008 1:32:00 PM
Zinc	0.0077	J	0.0035	0.0200	mg/L	108149	1	12/24/2008 1:32:00 PM
<b>METALS, TOTAL</b>								
<b>SW6010B (SW3010A) Analyst: DJ</b>								
Aluminum	121		0.115	1.00	mg/L	108148	5	12/24/2008 4:32:37 PM
Antimony	0.0065	J	0.0063	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Arsenic	1.49		0.0031	0.0500	mg/L	108148	1	12/24/2008 2:38:16 PM
Barium	1.47		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Beryllium	0.0119		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Cadmium	0.0155		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:38:16 PM
Calcium	38.2		0.0110	0.100	mg/L	108148	1	12/24/2008 2:38:16 PM
Chromium	0.127		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Cobalt	0.0768		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Copper	0.225		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Iron	67.0		0.180	0.500	mg/L	108148	5	12/24/2008 4:32:37 PM
Lead	0.0754		0.0038	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-003

Client Sample ID: KIF-ERM 0.1  
 Collection Date: 12/23/2008 2:32:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	12.4		0.0190	0.100	mg/L	108148	1	12/24/2008 2:38:16 PM
Manganese	1.89		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:18:52 PM
Nickel	0.103		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Potassium	32.1		0.0300	0.500	mg/L	108148	1	12/24/2008 2:38:16 PM
Selenium	0.0180	J	0.0060	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Sodium	4.85		0.0063	1.00	mg/L	108148	1	12/24/2008 2:38:16 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
Vanadium	0.465		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:38:16 PM
Zinc	0.266		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:38:16 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108150	1	12/24/2008 6:39:10 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:04:31 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-004

Client Sample ID: KIF-CRM 5.5  
 Collection Date: 12/23/2008 2:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminium	0.986		0.0230	0.200	mg/L	108148	1	12/24/2008 2:42:04 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Arsenic	0.0050	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:42:04 PM
Barium	0.0385		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:42:04 PM
Calcium	35.0		0.0110	0.100	mg/L	108148	1	12/24/2008 2:42:04 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Copper	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Iron	0.733		0.0360	0.100	mg/L	108148	1	12/24/2008 2:42:04 PM
Lead	BRL		0.0038	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Magnesium	9.94		0.0190	0.100	mg/L	108148	1	12/24/2008 2:42:04 PM
Manganese	0.0453		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:29:02 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Potassium	2.45		0.0300	0.500	mg/L	108148	1	12/24/2008 2:42:04 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Sodium	6.83		0.0063	1.00	mg/L	108148	1	12/24/2008 2:42:04 PM
Thallium	0.0043	J	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:42:04 PM
Zinc	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:42:04 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:06:26 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 < Less than Result value  
 > Greater than Result value  
 B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range  
 H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit  
 N Analyte not NELAC certified  
 Rpt Lim Reporting Limit  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-005

Client Sample ID: KIF-ERM 2.1  
 Collection Date: 12/23/2008 3:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	1.13		0.0230	0.200	mg/L	108148	1	12/24/2008 2:52:19 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Arsenic	BRL		0.0031	0.0500	mg/L	108148	1	12/24/2008 2:52:19 PM
Barium	0.0405		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:52:19 PM
Calcium	8.04		0.0110	0.100	mg/L	108148	1	12/24/2008 2:52:19 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Copper	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Iron	0.660		0.0360	0.100	mg/L	108148	1	12/24/2008 2:52:19 PM
Lead	BRL		0.0038	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Magnesium	2.14		0.0190	0.100	mg/L	108148	1	12/24/2008 2:52:19 PM
Manganese	0.0738		0.0019	0.0150	mg/L	108148	1	12/24/2008 2:52:19 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Potassium	1.52		0.0300	0.500	mg/L	108148	1	12/24/2008 2:52:19 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Sodium	2.56		0.0063	1.00	mg/L	108148	1	12/24/2008 2:52:19 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
Vanadium	0.0026	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:52:19 PM
Zinc	0.0046	J	0.0035	0.0200	mg/L	108148	1	12/24/2008 2:52:19 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:08:22 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-006

Client Sample ID: KIF-ERM 4.0  
 Collection Date: 12/23/2008 3:30:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: DJ		
Aluminum	0.338		0.0230	0.200	mg/L	108148	1	12/24/2008 2:03:11 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Arsenic	BRL		0.0031	0.0500	mg/L	108148	1	12/24/2008 2:03:11 PM
Barium	0.0304		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:03:11 PM
Calcium	7.81		0.0110	0.100	mg/L	108148	1	12/24/2008 2:03:11 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Copper	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Iron	0.262		0.0360	0.100	mg/L	108148	1	12/24/2008 2:03:11 PM
Lead	BRL		0.0038	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Magnesium	1.78		0.0190	0.100	mg/L	108148	1	12/24/2008 2:03:11 PM
Manganese	0.0368		0.0019	0.0150	mg/L	108148	1	12/24/2008 4:08:08 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Potassium	1.35		0.0300	0.500	mg/L	108148	1	12/24/2008 2:03:11 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Sodium	2.53		0.0063	1.00	mg/L	108148	1	12/24/2008 2:03:11 PM
Thallium	0.0041	J	0.0041	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 2:03:11 PM
Zinc	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:03:11 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 6:48:50 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-007

Client Sample ID: TT-ERM 1.9  
 Collection Date: 12/23/2008 4:55:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	2.20		0.0230	0.200	mg/L	108148	1	12/24/2008 2:55:56 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Arsenic	0.0208	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 2:55:56 PM
Barium	0.0565		0.0016	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 2:55:56 PM
Calcium	9.11		0.0110	0.100	mg/L	108148	1	12/24/2008 2:55:56 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Copper	0.0041	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Iron	1.37		0.0360	0.100	mg/L	108148	1	12/24/2008 2:55:56 PM
Lead	0.0063	J	0.0038	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Magnesium	2.20		0.0190	0.100	mg/L	108148	1	12/24/2008 2:55:56 PM
Manganese	0.0898		0.0019	0.0150	mg/L	108148	1	12/24/2008 2:55:56 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Potassium	1.71		0.0300	0.500	mg/L	108148	1	12/24/2008 2:55:56 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Sodium	2.63		0.0063	1.00	mg/L	108148	1	12/24/2008 2:55:56 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
Vanadium	0.0074	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 2:55:56 PM
Zinc	0.0371		0.0035	0.0200	mg/L	108148	1	12/24/2008 2:55:56 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:10:19 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-008

Client Sample ID: DUPLICATE  
 Collection Date: 12/23/2008 4:57:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	2.58		0.0230	0.200	mg/L	108148	1	12/24/2008 3:04:42 PM
Antimony	BRL		0.0063	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Arsenic	0.0337	J	0.0031	0.0500	mg/L	108148	1	12/24/2008 3:04:42 PM
Barium	0.0643		0.0016	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108148	1	12/24/2008 3:04:42 PM
Calcium	9.26		0.0110	0.100	mg/L	108148	1	12/24/2008 3:04:42 PM
Chromium	BRL		0.0075	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Copper	0.0051	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Iron	1.77		0.0360	0.100	mg/L	108148	1	12/24/2008 3:04:42 PM
Lead	0.0049	J	0.0038	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Magnesium	2.27		0.0190	0.100	mg/L	108148	1	12/24/2008 3:04:42 PM
Manganese	0.0970		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:04:42 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Potassium	1.80		0.0300	0.500	mg/L	108148	1	12/24/2008 3:04:42 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Sodium	2.68		0.0063	1.00	mg/L	108148	1	12/24/2008 3:04:42 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
Vanadium	0.0108		0.0016	0.0100	mg/L	108148	1	12/24/2008 3:04:42 PM
Zinc	0.0350		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:04:42 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:12:15 PM

**Qualifiers:**

- Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-009

Client Sample ID: KJF-TRM568.5  
 Collection Date: 12/23/2008 11:33:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: DJ
Aluminum	BRL		0.0230	0.200 mg/L		108149	1	12/24/2008 1:35:35 PM
Antimony	BRL		0.0063	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108149	1	12/24/2008 1:35:35 PM
Barium	0.0176	J	0.0016	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108149	1	12/24/2008 1:35:35 PM
Calcium	13.8		0.0110	0.100 mg/L		108149	1	12/24/2008 1:35:35 PM
Chromium	BRL		0.0075	0.0100 mg/L		108149	1	12/24/2008 3:50:53 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Copper	BRL		0.0016	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Iron	BRL		0.0360	0.100 mg/L		108149	1	12/24/2008 1:35:35 PM
Lead	BRL		0.0038	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Magnesium	3.52		0.0190	0.100 mg/L		108149	1	12/24/2008 1:35:35 PM
Manganese	0.0046	J	0.0019	0.0150 mg/L		108149	1	12/24/2008 3:50:53 PM
Nickel	BRL		0.0035	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Potassium	1.57		0.0300	0.500 mg/L		108149	1	12/24/2008 1:35:35 PM
Selenium	BRL		0.0060	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Silver	BRL		0.0003	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Sodium	7.48		0.0063	1.00 mg/L		108149	1	12/24/2008 1:35:35 PM
Thallium	BRL		0.0041	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
Vanadium	BRL		0.0016	0.0100 mg/L		108149	1	12/24/2008 1:35:35 PM
Zinc	BRL		0.0035	0.0200 mg/L		108149	1	12/24/2008 1:35:35 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.291		0.0230	0.200 mg/L		108148	1	12/24/2008 3:08:57 PM
Antimony	BRL		0.0063	0.0200 mg/L		108148	1	12/24/2008 3:08:57 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108148	1	12/24/2008 3:08:57 PM
Barium	0.0218		0.0016	0.0200 mg/L		108148	1	12/24/2008 3:08:57 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108148	1	12/24/2008 3:08:57 PM
Calcium	16.2		0.0110	0.100 mg/L		108148	1	12/24/2008 3:08:57 PM
Chromium	BRL		0.0075	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108148	1	12/24/2008 3:08:57 PM
Copper	BRL		0.0016	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM
Iron	0.255		0.0360	0.100 mg/L		108148	1	12/24/2008 3:08:57 PM
Lead	BRL		0.0038	0.0100 mg/L		108148	1	12/24/2008 3:08:57 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-009

Client Sample ID: KIF-TRM568.5  
 Collection Date: 12/23/2008 11:33:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	4.17		0.0190	0.100	mg/L	108148	1	12/24/2008 3:08:57 PM
Manganese	0.0288		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:08:57 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
Potassium	1.97		0.0300	0.500	mg/L	108148	1	12/24/2008 3:08:57 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 3:08:57 PM
Sodium	8.90		0.0063	1.00	mg/L	108148	1	12/24/2008 3:08:57 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 3:08:57 PM
Zinc	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:08:57 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108150	1	12/24/2008 6:41:05 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:14:11 PM

Qualifiers:

- Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-010

Client Sample ID: KIF-CRM 0.0  
 Collection Date: 12/23/2008 11:58:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>								
Residue, Suspended (TSS)	15		E160.2 1	(E160.2) 5 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>								
Analyst: DJ								
Aluminum	0.0268	J	SW6010B 0.0230	(SAMP_FILT) 0.200 mg/L		108149	1	12/24/2008 1:20:45 PM
Antimony	BRL		0.0063	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108149	1	12/24/2008 1:20:45 PM
Barium	0.0189	J	0.0016	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108149	1	12/24/2008 1:20:45 PM
Calcium	14.8		0.0110	0.100 mg/L		108149	1	12/24/2008 1:20:45 PM
Chromium	BRL		0.0075	0.0100 mg/L		108149	1	12/24/2008 3:45:16 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Copper	BRL		0.0016	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Iron	BRL		0.0360	0.100 mg/L		108149	1	12/24/2008 1:20:45 PM
Lead	BRL		0.0038	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Magnesium	3.80		0.0190	0.100 mg/L		108149	1	12/24/2008 1:20:45 PM
Manganese	0.0094	J	0.0019	0.0150 mg/L		108149	1	12/24/2008 3:45:16 PM
Nickel	BRL		0.0035	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Potassium	1.78		0.0300	0.500 mg/L		108149	1	12/24/2008 1:20:45 PM
Selenium	BRL		0.0060	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Silver	BRL		0.0003	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Sodium	8.04		0.0063	1.00 mg/L		108149	1	12/24/2008 1:20:45 PM
Thallium	0.0046	J	0.0041	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
Vanadium	BRL		0.0016	0.0100 mg/L		108149	1	12/24/2008 1:20:45 PM
Zinc	BRL		0.0035	0.0200 mg/L		108149	1	12/24/2008 1:20:45 PM
<b>METALS, TOTAL</b>								
Analyst: DJ								
Aluminum	0.265		SW6010B 0.0230	(SW3010A) 0.200 mg/L		108148	1	12/24/2008 3:13:30 PM
Antimony	BRL		0.0063	0.0200 mg/L		108148	1	12/24/2008 3:13:30 PM
Arsenic	0.0035	J	0.0031	0.0500 mg/L		108148	1	12/24/2008 3:13:30 PM
Barium	0.0215		0.0016	0.0200 mg/L		108148	1	12/24/2008 3:13:30 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108148	1	12/24/2008 3:13:30 PM
Calcium	15.9		0.0110	0.100 mg/L		108148	1	12/24/2008 3:13:30 PM
Chromium	BRL		0.0075	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108148	1	12/24/2008 3:13:30 PM
Copper	BRL		0.0016	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM
Iron	0.234		0.0360	0.100 mg/L		108148	1	12/24/2008 3:13:30 PM
Lead	BRL		0.0038	0.0100 mg/L		108148	1	12/24/2008 3:13:30 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-010

Client Sample ID: KIF-CRM 0.0  
 Collection Date: 12/23/2008 11:58:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Magnesium	4.09		0.0190	0.100	mg/L	108148	1	12/24/2008 3:13:30 PM
Manganese	0.0248		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:13:30 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
Potassium	1.92		0.0300	0.500	mg/L	108148	1	12/24/2008 3:13:30 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 3:13:30 PM
Sodium	8.67		0.0063	1.00	mg/L	108148	1	12/24/2008 3:13:30 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108148	1	12/24/2008 3:13:30 PM
Zinc	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:13:30 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108150	1	12/24/2008 6:43:00 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:22:01 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-011

Client Sample ID: KIF-CRM 2.0  
 Collection Date: 12/23/2008 12:16:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	80		1	5 mg/L		108167	1	12/24/2008 12:00:00 P
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: DJ
Aluminum	0.0302	J	0.0230	0.200 mg/L		108149	1	12/24/2008 1:39:14 PM
Antimony	BRL		0.0063	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108149	1	12/24/2008 1:39:14 PM
Barium	0.0311		0.0016	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108149	1	12/24/2008 1:39:14 PM
Calcium	22.9		0.0110	0.100 mg/L		108149	1	12/24/2008 1:39:14 PM
Chromium	BRL		0.0075	0.0100 mg/L		108149	1	12/24/2008 3:53:43 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Copper	BRL		0.0016	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Iron	0.0481	J	0.0360	0.100 mg/L		108149	1	12/24/2008 1:39:14 PM
Lead	BRL		0.0038	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Magnesium	6.30		0.0190	0.100 mg/L		108149	1	12/24/2008 1:39:14 PM
Manganese	0.0149	J	0.0019	0.0150 mg/L		108149	1	12/24/2008 3:53:43 PM
Nickel	BRL		0.0035	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Potassium	1.58		0.0300	0.500 mg/L		108149	1	12/24/2008 1:39:14 PM
Selenium	BRL		0.0060	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Silver	BRL		0.0003	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Sodium	4.50		0.0063	1.00 mg/L		108149	1	12/24/2008 1:39:14 PM
Thallium	BRL		0.0041	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
Vanadium	BRL		0.0016	0.0100 mg/L		108149	1	12/24/2008 1:39:14 PM
Zinc	BRL		0.0035	0.0200 mg/L		108149	1	12/24/2008 1:39:14 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: DJ
Aluminum	0.905		0.0230	0.200 mg/L		108148	1	12/24/2008 3:17:06 PM
Antimony	BRL		0.0063	0.0200 mg/L		108148	1	12/24/2008 3:17:06 PM
Arsenic	0.0031	J	0.0031	0.0500 mg/L		108148	1	12/24/2008 3:17:06 PM
Barium	0.0436		0.0016	0.0200 mg/L		108148	1	12/24/2008 3:17:06 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108148	1	12/24/2008 3:17:06 PM
Calcium	27.3		0.0110	0.100 mg/L		108148	1	12/24/2008 3:17:06 PM
Chromium	BRL		0.0075	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108148	1	12/24/2008 3:17:06 PM
Copper	BRL		0.0016	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM
Iron	0.607		0.0360	0.100 mg/L		108148	1	12/24/2008 3:17:06 PM
Lead	BRL		0.0038	0.0100 mg/L		108148	1	12/24/2008 3:17:06 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

**CLIENT:** Tetra Tech EM Inc.

**Client Sample ID:** KIF-CRM 2.0

**Lab Order:** 0812G73

**Collection Date:** 12/23/2008 12:16:00 PM

**Project:** TVA Kingston

**Lab ID:** 0812G73-011

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		<b>Analyst: DJ</b>		
Magnesium	7.57		0.0190	0.100	mg/L	108148	1	12/24/2008 3:17:06 PM
Manganese	0.0512		0.0019	0.0150	mg/L	108148	1	12/24/2008 3:17:06 PM
Nickel	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
Potassium	2.14		0.0300	0.500	mg/L	108148	1	12/24/2008 3:17:06 PM
Selenium	BRL		0.0060	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
Silver	BRL		0.0003	0.0100	mg/L	108148	1	12/24/2008 3:17:06 PM
Sodium	5.43		0.0063	1.00	mg/L	108148	1	12/24/2008 3:17:06 PM
Thallium	BRL		0.0041	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
Vanadium	0.0024	J	0.0016	0.0100	mg/L	108148	1	12/24/2008 3:17:06 PM
Zinc	BRL		0.0035	0.0200	mg/L	108148	1	12/24/2008 3:17:06 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		<b>Analyst: MAW</b>		
Mercury	BRL		0.00001	0.00020	mg/L	108150	1	12/24/2008 6:27:28 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		<b>Analyst: MAW</b>		
Mercury	BRL		0.00001	0.00020	mg/L	108151	1	12/24/2008 7:23:57 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 06-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812G73  
 Project: TVA Kingston  
 Lab ID: 0812G73-012

Client Sample ID: TT-SS01  
 Collection Date: 12/23/2008 4:55:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: DJ
Aluminum	26400		49.3	562	mg/Kg-dry	108096	10	12/24/2008 5:18:15 PM
Antimony	1.27	J	0.214	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Arsenic	44.8		0.169	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Barium	864		0.169	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Beryllium	6.25		0.0157	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Cadmium	0.577	J	0.0371	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Calcium	18300		220	562	mg/Kg-dry	108096	10	12/24/2008 5:18:15 PM
Chromium	41.3		0.0742	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Cobalt	17.7		0.0202	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Copper	59.9		0.0472	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Iron	12000		14.3	562	mg/Kg-dry	108096	10	12/24/2008 5:18:15 PM
Lead	20.3		0.112	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Magnesium	3900		1.32	56.2	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Manganese	66.9		0.202	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Nickel	29.4		0.0281	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Potassium	3280		1.23	112	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Selenium	3.13	J	0.450	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Silver	BRL		0.0157	2.81	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Sodium	672		4.87	112	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Thallium	4.36	J	0.202	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Vanadium	107		0.0270	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
Zinc	55.6		0.720	5.62	mg/Kg-dry	108096	1	12/24/2008 5:07:29 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0879	J	0.00478	0.137	mg/Kg-dry	108154	1	12/24/2008 2:41:24 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.18	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
Toluene	BRL		0.17	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
Ethylbenzene	BRL		0.22	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
m,p-Xylene	BRL		0.47	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
o-Xylene	BRL		0.49	1.3	ug/Kg-dry	108171	1	12/24/2008 3:25:00 PM
Surr: 4-Bromofluorobenzene	64.4		0	56-145	%REC	108171	1	12/24/2008 3:25:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	27.7		0	0	wt%		1	12/24/2008 12:00:00 P

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

Lab Order: 0812G73  
 Client: Tetra Tech EM Inc.  
 Project: TVA Kingston

**DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0812G73-001A	KIF-KWTPI	12/23/2008 11:47:00 AM	Surface Water	TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				Total Metals by ICP/MS		1/5/2009	1/5/2009
0812G73-002A	KIF-CRM 4.0	12/23/2008 2:23:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-003A	KIF-ERM 0.1	12/23/2008 2:32:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-003B				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				MERCURY, DISSOLVED		12/24/2008	12/24/2008
				Residue, Suspended (TSS)		12/24/2008	12/24/2008
0812G73-004A	KIF-CRM 5.5	12/23/2008 2:10:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-005A	KIF-ERM 2.1	12/23/2008 3:15:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-006A	KIF-ERM 4.0	12/23/2008 3:30:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-007A	TT-ERM 1.9	12/23/2008 4:55:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-008A	DUPLICATE	12/23/2008 4:57:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
				TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-009A	KIF-TRM568.5	12/23/2008 11:33:00 AM		TOTAL MERCURY		12/24/2008	12/24/2008

Lab Order: 0812G73  
 Client: Tetra Tech EM Inc.  
 Project: TVA Kingston

**DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0812G73-009A	KIF-TRM568.5	12/23/2008 11:33:00 AM	Surface Water	TOTAL METALS BY ICP		12/24/2008	12/24/2008
0812G73-009B				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				MERCURY, DISSOLVED		12/24/2008	12/24/2008
				Residue, Suspended (TSS)		12/24/2008	12/24/2008
0812G73-010A	KIF-CRM 0.0	12/23/2008 11:58:00 AM		TOTAL MERCURY		12/24/2008	12/24/2008
0812G73-010B				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				MERCURY, DISSOLVED		12/24/2008	12/24/2008
				Residue, Suspended (TSS)		12/24/2008	12/24/2008
0812G73-011A	KIF-CRM 2.0	12/23/2008 12:16:00 PM		TOTAL MERCURY		12/24/2008	12/24/2008
0812G73-011B				TOTAL METALS BY ICP		12/24/2008	12/24/2008
				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				DISSOLVED METALS BY ICP		12/24/2008	12/24/2008
				MERCURY, DISSOLVED		12/24/2008	12/24/2008
				Residue, Suspended (TSS)		12/24/2008	12/24/2008
0812G73-012A	TT-SS01	12/23/2008 4:55:00 PM	Sediment	VOLATILE ORGANICS: BTEX		12/24/2008	12/24/2008
0812G73-012B				VOLATILE ORGANICS: BTEX		12/24/2008	12/24/2008
				MERCURY		12/24/2008	12/24/2008
				PERCENT MOISTURE			12/24/2008
				TOTAL METALS BY ICP		12/23/2008	12/24/2008
				TOTAL METALS BY ICP		12/23/2008	12/24/2008



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 160.2

Sample ID: MB-108167	SampType: MBLK	TestCode: 160.2	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139624
Client ID:	Batch ID: 108167	TestNo: E160.2		Analysis Date: 12/24/2008	SeqNo: 2861338
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Residue, Suspended (TSS)	BRL	5.00									
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Sample ID: 0812G90-001ADUP	SampType: DUP	TestCode: 160.2	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139624
Client ID:	Batch ID: 108167	TestNo: E160.2		Analysis Date: 12/24/2008	SeqNo: 2861338
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Residue, Suspended (TSS)	988	10.0	0	0	0	0	0	0	960	2.87	30
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<b>Qualifiers:</b>	<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: MB-108096	SampType: MBLK	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 12/23/2008	RunNo: 139613
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/23/2008	SeqNo: 2862406

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	50.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	5.00	0	0	0	0	0	0	0	0	
Beryllium	BRL	2.50	0	0	0	0	0	0	0	0	
Cadmium	BRL	2.50	0	0	0	0	0	0	0	0	
Calcium	26.98	50.0	0	0	0	0	0	0	0	0	J
Chromium	0.1341	2.50	0	0	0	0	0	0	0	0	J
Cobalt	BRL	2.50	0	0	0	0	0	0	0	0	
Copper	0.1093	2.50	0	0	0	0	0	0	0	0	J
Iron	1.985	50.0	0	0	0	0	0	0	0	0	J
Lead	BRL	5.00	0	0	0	0	0	0	0	0	
Magnesium	1.387	50.0	0	0	0	0	0	0	0	0	J
Manganese	BRL	5.00	0	0	0	0	0	0	0	0	
Nickel	0.5571	5.00	0	0	0	0	0	0	0	0	J
Potassium	1.24	100	0	0	0	0	0	0	0	0	J
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	2.50	0	0	0	0	0	0	0	0	
Sodium	5.56	100	0	0	0	0	0	0	0	0	J
Thallium	BRL	5.00	0	0	0	0	0	0	0	0	
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	0.9846	5.00	0	0	0	0	0	0	0	0	J

Sample ID: LCS-108096	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 12/23/2008	RunNo: 139613
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/23/2008	SeqNo: 2862406

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	479.6	50.0	500	0	95.9	80	120	0	0	0	
Antimony	47.67	5.00	50	0	95.3	80	120	0	0	0	

**Qualifiers:**

<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: LCS-108096	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 12/23/2008	RunNo: 139613						
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/23/2008	SeqNo: 2862405						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.8	5.00	50	0	97.6	80	120	0	0		
Barium	49.11	5.00	50	0	98.2	80	120	0	0		
Beryllium	49.52	2.50	50	0	99	80	120	0	0		
Cadmium	48.5	2.50	50	0	97	80	120	0	0		
Calcium	541.4	50.0	500	26.98	103	80	120	0	0		
Chromium	51.95	2.50	50	0.1341	104	80	120	0	0		
Cobalt	49.42	2.50	50	0	98.8	80	120	0	0		
Copper	49.7	2.50	50	0.1093	99.2	80	120	0	0		
Iron	500	50.0	500	1.985	99.6	80	120	0	0		
Lead	48.96	5.00	50	0	97.9	80	120	0	0		
Magnesium	477.7	50.0	500	1.387	95.3	80	120	0	0		
Manganese	49.42	5.00	50	0	98.8	80	120	0	0		
Nickel	51.04	5.00	50	0.5571	101	80	120	0	0		
Potassium	451.6	100	500	1.24	90.1	80	120	0	0		
Selenium	48.13	5.00	50	0	96.3	80	120	0	0		
Silver	4.801	2.50	5	0	96	80	120	0	0		
Sodium	473.6	100	500	5.56	93.6	80	120	0	0		
Thallium	47.45	5.00	50	0	94.9	80	120	0	0		
Vanadium	49.84	5.00	50	0	99.7	80	120	0	0		
Zinc	51.44	5.00	50	0.9846	101	80	120	0	0		

Sample ID: 0812E02-007AMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/23/2008	RunNo: 139613						
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/23/2008	SeqNo: 2862409						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	3557	53.5	535.4	3056	93.5	75	125	0	0		
Antimony	61.53	5.35	53.54	27.55	63.5	75	125	0	0		S
Arsenic	54.26	5.35	53.54	7.21	87.9	75	125	0	0		
Barium	130.3	5.35	53.54	83.19	88	75	125	0	0		

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0812E02-007AMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/23/2008	RunNo: 139613						
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/23/2008	SeqNo: 2862409						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	48.69	2.68	53.54	0.5446	89.9	75	125	0	0		
Cadmium	45.28	2.68	53.54	0.1004	84.4	75	125	0	0		
Cobalt	142	2.68	53.54	100.9	76.9	75	125	0	0		
Lead	401.2	5.35	53.54	301.7	186	75	125	0	0		S
Magnesium	1315	53.5	535.4	942	69.7	75	125	0	0		S
Manganese	466	5.35	53.54	403.7	116	75	125	0	0		
Potassium	2035	107	535.4	1479	104	75	125	0	0		
Selenium	41.62	5.35	53.54	0	77.7	75	125	0	0		
Silver	5.015	2.68	5.354	0.3611	86.9	75	125	0	0		
Thallium	27.66	5.35	53.54	0	51.7	75	125	0	0		S
Vanadium	64.36	5.35	53.54	17.29	87.9	75	125	0	0		
Zinc	668.3	5.35	53.54	659.6	16.2	75	125	0	0		S

Sample ID: 0812E02-007AMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/23/2008	RunNo: 139613						
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2862441						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	18420	535	535.4	17790	118	75	125	0	0		
Chromium	6448	26.8	53.54	6391	106	75	125	0	0		
Copper	5164	26.8	53.54	5168	-7.65	75	125	0	0		S
Sodium	4847	1070	535.4	4558	54	75	125	0	0		S

Sample ID: 0812E02-007AMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/23/2008	RunNo: 139613						
Client ID:	Batch ID: 108096	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2862459						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	148400	5350	535.4	143000	1010	75	125	0	0		S
Nickel	85280	535	53.54	88350	-5720	75	125	0	0		S

Qualifiers: < Less than Result value      > Greater than Result value      B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit      E Estimated value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit      N Analyte not NELAC certified      R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit      S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0812E02-007AMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 12/23/2008		RunNo: 139613	
Client ID:		Batch ID: 108096		TestNo: SW6010B		Analysis Date: 12/23/2008		SeqNo: 2862411			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	3637	54.5	545	3056	107	75	125	3557	2.23	20	
Antimony	60.96	5.45	54.5	27.55	61.3	75	125	61.53	0.931	20	S
Arsenic	54.36	5.45	54.5	7.21	86.5	75	125	54.26	0.180	20	
Barium	146.1	5.45	54.5	83.19	115	75	125	130.3	11.4	20	
Beryllium	48.81	2.73	54.5	0.5446	88.5	75	125	48.69	0.230	20	
Cadmium	45.36	2.73	54.5	0.1004	83	75	125	45.28	0.178	20	
Cobalt	144.8	2.73	54.5	100.9	80.6	75	125	142	1.91	20	
Lead	368.9	5.45	54.5	301.7	123	75	125	401.2	8.39	20	
Magnesium	1352	54.5	545	942	75.2	75	125	1315	2.76	20	
Manganese	472.2	5.45	54.5	403.7	126	75	125	466	1.32	20	S
Potassium	2075	109	545	1479	109	75	125	2035	1.97	20	
Selenium	40.2	5.45	54.5	0	73.7	75	125	41.62	3.47	20	S
Silver	5.307	2.73	5.45	0.3611	90.8	75	125	5.015	5.66	20	
Thallium	28.13	5.45	54.5	0	51.6	75	125	27.66	1.69	20	S
Vanadium	65.58	5.45	54.5	17.29	88.6	75	125	64.36	1.87	20	
Zinc	688.6	5.45	54.5	659.6	53.2	75	125	668.3	2.99	20	S

Sample ID: 0812E02-007AMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 12/23/2008		RunNo: 139613	
Client ID:		Batch ID: 108096		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2862443			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	20310	545	545	17790	463	75	125	18420	9.76	20	S
Chromium	6605	27.3	54.5	6391	393	75	125	6448	2.41	20	S
Copper	5406	27.3	54.5	5168	437	75	125	5164	4.58	20	S
Sodium	4926	1090	545	4558	67.5	75	125	4847	1.62	20	S

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0812G73  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010B\_TAL\_S

<b>Sample ID:</b> 0812E02-007AMSD		<b>SampType:</b> MSD		<b>TestCode:</b> 6010B_TAL_		<b>Units:</b> mg/Kg-dry		<b>Prep Date:</b> 12/23/2008		<b>RunNo:</b> 139613	
<b>Client ID:</b>		<b>Batch ID:</b> 108096		<b>TestNo:</b> SW6010B				<b>Analysis Date:</b> 12/24/2008		<b>SeqNo:</b> 2862462	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	155100	5450	545	143000	2220	75	125	148400	4.40	20	S
Nickel	87620	545	54.5	88350	-1340	75	125	85280	2.70	20	S

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: MB-108149		SampType: MBLK		TestCode: 6010B_TAL_ Units: mg/L		Prep Date: 12/24/2008		RunNo: 139609			
Client ID:		Batch ID: 108149		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2861362			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	0.200	0	0	0	0	0	0	0	0	
Antimony	BRL	0.0200	0	0	0	0	0	0	0	0	
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	
Beryllium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.00500	0	0	0	0	0	0	0	0	
Calcium	BRL	0.100	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cobalt	BRL	0.0200	0	0	0	0	0	0	0	0	
Copper	BRL	0.0100	0	0	0	0	0	0	0	0	
Iron	BRL	0.100	0	0	0	0	0	0	0	0	
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Magnesium	BRL	0.100	0	0	0	0	0	0	0	0	
Manganese	BRL	0.0150	0	0	0	0	0	0	0	0	
Nickel	BRL	0.0200	0	0	0	0	0	0	0	0	
Potassium	BRL	0.500	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	
Silver	BRL	0.0100	0	0	0	0	0	0	0	0	
Sodium	BRL	1.00	0	0	0	0	0	0	0	0	
Thallium	BRL	0.0200	0	0	0	0	0	0	0	0	
Vanadium	BRL	0.0100	0	0	0	0	0	0	0	0	
Zinc	BRL	0.0200	0	0	0	0	0	0	0	0	

Sample ID: LCS-108149		SampType: LCS		TestCode: 6010B_TAL_ Units: mg/L		Prep Date: 12/24/2008		RunNo: 139609			
Client ID:		Batch ID: 108149		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2861059			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.97	0.200	10	0	99.7	80	120	0	0	0	
Antimony	1.013	0.0200	1	0	101	80	120	0	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: LCS-108149		SampType: LCS		TestCode: 6010B_TAL_		Units: mg/L		Prep Date: 12/24/2008		RunNo: 139609	
Client ID:		Batch ID: 108149		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2861059			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.025	0.0500	1	0	103	80	120	0	0		
Barium	1.002	0.0200	1	0	100	80	120	0	0		
Beryllium	1.013	0.0100	1	0	101	80	120	0	0		
Cadmium	1.018	0.00500	1	0	102	80	120	0	0		
Calcium	9.919	0.100	10	0	99.2	80	120	0	0		
Chromium	1.075	0.0100	1	0	108	80	120	0	0		
Cobalt	1.013	0.0200	1	0	101	80	120	0	0		
Copper	0.9996	0.0100	1	0	100	80	120	0	0		
Iron	10.1	0.100	10	0	101	80	120	0	0		
Lead	0.999	0.0100	1	0	99.9	80	120	0	0		
Magnesium	10.1	0.100	10	0	101	80	120	0	0		
Manganese	1.143	0.0150	1	0	114	80	120	0	0		
Nickel	1.009	0.0200	1	0	101	80	120	0	0		
Potassium	10.15	0.500	10	0	101	80	120	0	0		
Selenium	0.9936	0.0200	1	0	99.4	80	120	0	0		
Silver	0.09945	0.0100	0.1	0	99.5	80	120	0	0		
Sodium	10.03	1.00	10	0	100	80	120	0	0		
Thallium	0.9902	0.0200	1	0	99	80	120	0	0		
Vanadium	1.006	0.0100	1	0	101	80	120	0	0		
Zinc	1.011	0.0200	1	0	101	80	120	0	0		

Sample ID: 0812G73-010BMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/L		Prep Date: 12/24/2008		RunNo: 139609	
Client ID: KIF-CRM 0.0		Batch ID: 108149		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2861062			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.608	0.200	10	0.02676	95.8	75	125	0	0		
Antimony	1	0.0200	1	0	100	75	125	0	0		
Arsenic	1.013	0.0500	1	0	101	75	125	0	0		
Barium	0.9931	0.0200	1	0.01891	97.4	75	125	0	0		

**Qualifiers:**

<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: 0812G73-010BMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/L		Prep Date: 12/24/2008		RunNo: 139609	
Client ID: KIF-CRM 0.0		Batch ID: 108149		TestNo: SW6010B				Analysis Date: 12/24/2008		SeqNo: 2861062	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	0.9917	0.0100	1	0	99.2	75	125	0	0		
Cadmium	0.9935	0.00500	1	0	99.4	75	125	0	0		
Calcium	23.32	0.100	10	14.85	84.7	75	125	0	0		
Chromium	1.029	0.0100	1	0.02611	100	75	125	0	0		
Cobalt	0.9848	0.0200	1	0	98.5	75	125	0	0		
Copper	0.9755	0.0100	1	0	97.6	75	125	0	0		
Iron	9.911	0.100	10	0	99.1	75	125	0	0		
Lead	0.9794	0.0100	1	0	97.9	75	125	0	0		
Magnesium	12.93	0.100	10	3.802	91.2	75	125	0	0		
Manganese	1.194	0.0150	1	0.05757	114	75	125	0	0		
Nickel	0.9827	0.0200	1	0	98.3	75	125	0	0		
Potassium	11.78	0.500	10	1.779	100	75	125	0	0		
Selenium	0.9899	0.0200	1	0	99	75	125	0	0		
Silver	0.09719	0.0100	0.1	0	97.2	75	125	0	0		
Sodium	16.52	1.00	10	8.042	84.8	75	125	0	0		
Thallium	0.9552	0.0200	1	0.004626	95.1	75	125	0	0		
Vanadium	0.9833	0.0100	1	0	98.3	75	125	0	0		
Zinc	0.9888	0.0200	1	0	98.9	75	125	0	0		

Sample ID: 0812G73-010BMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/L		Prep Date: 12/24/2008		RunNo: 139609	
Client ID: KIF-CRM 0.0		Batch ID: 108149		TestNo: SW6010B				Analysis Date: 12/24/2008		SeqNo: 2861063	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.672	0.200	10	0.02676	96.5	75	125	9.608	0.671	20	
Antimony	1.004	0.0200	1	0	100	75	125	1	0.402	20	
Arsenic	1.025	0.0500	1	0	102	75	125	1.013	1.17	20	
Barium	0.9998	0.0200	1	0.01891	98.1	75	125	0.9931	0.672	20	
Beryllium	0.9985	0.0100	1	0	99.9	75	125	0.9917	0.684	20	
Cadmium	1.004	0.00500	1	0	100	75	125	0.9935	1.07	20	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: 0812G73-010BMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139609						
Client ID: KIF-CRM 0.0	Batch ID: 108149	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2861063						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.4	0.100	10	14.85	85.5	75	125	23.32	0.352	20	
Chromium	1.029	0.0100	1	0.02611	100	75	125	1.029	0.0155	20	
Cobalt	0.9942	0.0200	1	0	99.4	75	125	0.9848	0.943	20	
Copper	0.9825	0.0100	1	0	98.2	75	125	0.9755	0.711	20	
Iron	10.01	0.100	10	0	100	75	125	9.911	0.947	20	
Lead	0.9887	0.0100	1	0	98.9	75	125	0.9794	0.944	20	
Magnesium	12.99	0.100	10	3.802	91.9	75	125	12.93	0.511	20	
Manganese	1.178	0.0150	1	0.05757	112	75	125	1.194	1.32	20	
Nickel	0.9894	0.0200	1	0	98.9	75	125	0.9827	0.677	20	
Potassium	11.84	0.500	10	1.779	101	75	125	11.78	0.534	20	
Selenium	1.002	0.0200	1	0	100	75	125	0.9899	1.18	20	
Silver	0.09789	0.0100	0.1	0	97.9	75	125	0.09719	0.709	20	
Sodium	16.46	1.00	10	8.042	84.2	75	125	16.52	0.338	20	
Thallium	0.9679	0.0200	1	0.004626	96.3	75	125	0.9552	1.32	20	
Vanadium	0.9918	0.0100	1	0	99.2	75	125	0.9833	0.861	20	
Zinc	0.9984	0.0200	1	0	99.8	75	125	0.9888	0.959	20	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 6010B\_TAL\_W\_T

Sample ID: MB-108148	SampType: MBLK	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139622						
Client ID:	Batch ID: 108148	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2861450						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	0.200	0	0	0	0	0	0	0	0	
Antimony	BRL	0.0200	0	0	0	0	0	0	0	0	
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	
Beryllium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.00500	0	0	0	0	0	0	0	0	
Calcium	BRL	0.100	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cobalt	BRL	0.0200	0	0	0	0	0	0	0	0	
Copper	BRL	0.0100	0	0	0	0	0	0	0	0	
Iron	BRL	0.100	0	0	0	0	0	0	0	0	
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Magnesium	BRL	0.100	0	0	0	0	0	0	0	0	
Manganese	BRL	0.0150	0	0	0	0	0	0	0	0	
Nickel	BRL	0.0200	0	0	0	0	0	0	0	0	
Potassium	BRL	0.500	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	
Silver	BRL	0.0100	0	0	0	0	0	0	0	0	
Sodium	BRL	1.00	0	0	0	0	0	0	0	0	
Thallium	0.00522	0.0200	0	0	0	0	0	0	0	0	J
Vanadium	BRL	0.0100	0	0	0	0	0	0	0	0	
Zinc	BRL	0.0200	0	0	0	0	0	0	0	0	

Sample ID: LCS-108148	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139622						
Client ID:	Batch ID: 108148	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2861240						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10.18	0.200	10	0	102	85	115	0	0	0	
Antimony	1.036	0.0200	1	0	104	85	115	0	0	0	

**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_T

Sample ID: LCS-108148	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139622						
Client ID:	Batch ID: 108148	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2861240						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.058	0.0500	1	0	106	85	115	0	0		
Barium	1.024	0.0200	1	0	102	85	115	0	0		
Beryllium	1.035	0.0100	1	0	104	85	115	0	0		
Cadmium	1.046	0.00500	1	0	105	85	115	0	0		
Calcium	10.16	0.100	10	0	102	85	115	0	0		
Chromium	1.033	0.0100	1	0	103	85	115	0	0		
Cobalt	1.041	0.0200	1	0	104	85	115	0	0		
Copper	1.025	0.0100	1	0	103	85	115	0	0		
Iron	10.35	0.100	10	0	104	85	115	0	0		
Lead	1.031	0.0100	1	0	103	85	115	0	0		
Magnesium	10.32	0.100	10	0	103	85	115	0	0		
Manganese	1.148	0.0150	1	0	115	85	115	0	0		
Nickel	1.038	0.0200	1	0	104	85	115	0	0		
Potassium	10.38	0.500	10	0	104	85	115	0	0		
Selenium	1.043	0.0200	1	0	104	85	115	0	0		
Silver	0.1016	0.0100	0.1	0	102	85	115	0	0		
Sodium	9.852	1.00	10	0	98.5	85	115	0	0		
Thallium	1.02	0.0200	1	0.00522	101	85	115	0	0		
Vanadium	1.032	0.0100	1	0	103	85	115	0	0		
Zinc	1.036	0.0200	1	0	104	85	115	0	0		

Sample ID: 0812G73-006AMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139622						
Client ID: KIF-ERM 4.0	Batch ID: 108148	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2861245						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10.27	0.200	10	0.3378	99.3	75	125	0	0		
Antimony	1.02	0.0200	1	0	102	75	125	0	0		
Arsenic	1.038	0.0500	1	0	104	75	125	0	0		
Barium	1.031	0.0200	1	0.03038	100	75	125	0	0		

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_T

Sample ID: 0812G73-006AMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/L		Prep Date: 12/24/2008		RunNo: 139622	
Client ID: KIF-ERM 4.0		Batch ID: 108148		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2861245			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	1.018	0.0100	1	0	102	75	125	0	0		
Cadmium	1.022	0.00500	1	0	102	75	125	0	0		
Calcium	17.16	0.100	10	7.813	93.5	75	125	0	0		
Chromium	1.012	0.0100	1	0	101	75	125	0	0		
Cobalt	1.015	0.0200	1	0	102	75	125	0	0		
Copper	0.9997	0.0100	1	0	100	75	125	0	0		
Iron	10.4	0.100	10	0.262	101	75	125	0	0		
Lead	1.012	0.0100	1	0	101	75	125	0	0		
Magnesium	11.79	0.100	10	1.777	100	75	125	0	0		
Manganese	1.131	0.0150	1	0.1222	101	75	125	0	0		
Nickel	1.01	0.0200	1	0	101	75	125	0	0		
Potassium	11.73	0.500	10	1.354	104	75	125	0	0		
Selenium	1.027	0.0200	1	0	103	75	125	0	0		
Silver	0.09982	0.0100	0.1	0	99.8	75	125	0	0		
Sodium	11.99	1.00	10	2.528	94.7	75	125	0	0		
Thallium	0.9916	0.0200	1	0.004134	98.7	75	125	0	0		
Vanadium	1.011	0.0100	1	0	101	75	125	0	0		
Zinc	1.018	0.0200	1	0	102	75	125	0	0		

Sample ID: 0812G73-006AMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/L		Prep Date: 12/24/2008		RunNo: 139622	
Client ID: KIF-ERM 4.0		Batch ID: 108148		TestNo: SW6010B		Analysis Date: 12/24/2008		SeqNo: 2861247			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10.34	0.200	10	0.3378	100	75	125	10.27	0.721	20	
Antimony	1.03	0.0200	1	0	103	75	125	1.02	1.03	20	
Arsenic	1.054	0.0500	1	0	105	75	125	1.038	1.50	20	
Barium	1.036	0.0200	1	0.03038	101	75	125	1.031	0.526	20	
Beryllium	1.023	0.0100	1	0	102	75	125	1.018	0.512	20	
Cadmium	1.031	0.00500	1	0	103	75	125	1.022	0.895	20	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_T

Sample ID: 0812G73-006AMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139622
Client ID: KIF-ERM 4.0	Batch ID: 108148	TestNo: SW6010B		Analysis Date: 12/24/2008	SeqNo: 2861247

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	17.57	0.100	10	7.813	97.5	75	125	17.16	2.31	20	
Chromium	1.018	0.0100	1	0	102	75	125	1.012	0.574	20	
Cobalt	1.023	0.0200	1	0	102	75	125	1.015	0.764	20	
Copper	1.01	0.0100	1	0	101	75	125	0.9997	1.01	20	
Iron	10.5	0.100	10	0.262	102	75	125	10.4	0.990	20	
Lead	1.018	0.0100	1	0	102	75	125	1.012	0.586	20	
Magnesium	11.95	0.100	10	1.777	102	75	125	11.79	1.39	20	
Manganese	1.11	0.0150	1	0.1222	98.7	75	125	1.131	1.92	20	
Nickel	1.019	0.0200	1	0	102	75	125	1.01	0.946	20	
Potassium	11.86	0.500	10	1.354	105	75	125	11.73	1.12	20	
Selenium	1.035	0.0200	1	0	103	75	125	1.027	0.800	20	
Silver	0.1003	0.0100	0.1	0	100	75	125	0.09982	0.502	20	
Sodium	12.19	1.00	10	2.528	96.7	75	125	11.99	1.66	20	
Thallium	1.006	0.0200	1	0.004134	100	75	125	0.9916	1.43	20	
Vanadium	1.016	0.0100	1	0	102	75	125	1.011	0.558	20	
Zinc	1.023	0.0200	1	0	102	75	125	1.018	0.564	20	

<b>Qualifiers:</b>	<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: MB-108443	SampType: MBLK	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140089						
Client ID:	Batch ID: 108443	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870833						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	10.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	10.0	0	0	0	0	0	0	0	0	
Beryllium	BRL	1.00	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.700	0	0	0	0	0	0	0	0	
Calcium	BRL	100	0	0	0	0	0	0	0	0	
Chromium	BRL	5.00	0	0	0	0	0	0	0	0	
Cobalt	BRL	5.00	0	0	0	0	0	0	0	0	
Copper	BRL	2.00	0	0	0	0	0	0	0	0	
Iron	BRL	100	0	0	0	0	0	0	0	0	
Lead	BRL	1.00	0	0	0	0	0	0	0	0	
Magnesium	9.598	100	0	0	0	0	0	0	0	0	J
Manganese	BRL	5.00	0	0	0	0	0	0	0	0	
Nickel	BRL	5.00	0	0	0	0	0	0	0	0	
Potassium	BRL	100	0	0	0	0	0	0	0	0	
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	1.00	0	0	0	0	0	0	0	0	
Sodium	BRL	500	0	0	0	0	0	0	0	0	
Thallium	BRL	1.00	0	0	0	0	0	0	0	0	
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	BRL	10.0	0	0	0	0	0	0	0	0	

Sample ID: LCS-108443	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140089						
Client ID:	Batch ID: 108443	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870832						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1036	10.0	1000	0	104	85	115	0	0	0	
Antimony	100.3	5.00	100	0	100	85	115	0	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b>	Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b>	Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b>	RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: LCS-108443		SampType: LCS		TestCode: 6020_W		Units: ug/L		Prep Date: 1/5/2009		RunNo: 140089	
Client ID:		Batch ID: 108443		TestNo: SW6020				Analysis Date: 1/5/2009		SeqNo: 2870832	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	100.7	5.00	100	0	101	85	115	0	0		
Barium	101.9	10.0	100	0	102	85	115	0	0		
Beryllium	104.1	1.00	100	0	104	85	115	0	0		
Cadmium	102.6	0.700	100	0	103	85	115	0	0		
Calcium	1051	100	1000	0	105	80	120	0	0		
Chromium	100.1	5.00	100	0	100	85	115	0	0		
Cobalt	99.04	5.00	100	0	99	85	115	0	0		
Copper	103	2.00	100	0	103	85	115	0	0		
Iron	1031	100	1000	0	103	85	115	0	0		
Lead	100.5	1.00	100	0	101	85	115	0	0		
Magnesium	1060	100	1000	9.598	105	80	120	0	0		
Manganese	99.81	5.00	100	0	99.8	85	115	0	0		
Nickel	101.8	5.00	100	0	102	85	115	0	0		
Potassium	1041	100	1000	0	104	80	120	0	0		
Selenium	100.7	5.00	100	0	101	85	115	0	0		
Silver	10.3	1.00	10	0	103	85	115	0	0		
Sodium	1076	500	1000	0	108	80	120	0	0		
Thallium	100.6	1.00	100	0	101	85	115	0	0		
Vanadium	102	5.00	100	0	102	85	115	0	0		
Zinc	102.2	10.0	100	0	102	85	115	0	0		

Sample ID: 0812G73-001AMS		SampType: MS		TestCode: 6020_W		Units: ug/L		Prep Date: 1/5/2009		RunNo: 140089	
Client ID: KIF-KWTP1		Batch ID: 108443		TestNo: SW6020				Analysis Date: 1/5/2009		SeqNo: 2870835	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1241	10.0	1000	247.3	99.4	70	130	0	0		
Antimony	98.57	5.00	100	0	98.6	70	130	0	0		
Arsenic	100.4	5.00	100	0	100	70	130	0	0		
Barium	119.9	10.0	100	21.17	98.7	70	130	0	0		

<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: 0812G73-001AMS	SampType: MS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140089						
Client ID: KIF-KWTPI	Batch ID: 108443	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870835						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	103.1	1.00	100	0	103	70	130	0	0		
Cadmium	100.7	0.700	100	0	101	70	130	0	0		
Calcium	17120	100	1000	16480	64	70	130	0	0		S
Chromium	96.9	5.00	100	0	96.9	70	130	0	0		
Cobalt	95.19	5.00	100	0	95.2	70	130	0	0		
Copper	99.59	2.00	100	0.914	98.7	70	130	0	0		
Iron	1220	100	1000	249	97.1	70	130	0	0		
Lead	99.4	1.00	100	0.332	99.1	70	130	0	0		
Magnesium	4487	100	1000	3634	85.3	70	130	0	0		
Manganese	141.5	5.00	100	44.76	96.7	70	130	0	0		
Nickel	98.96	5.00	100	0.672	98.3	70	130	0	0		
Potassium	2641	100	1000	1891	75	70	130	0	0		
Selenium	99.98	5.00	100	0	100	70	130	0	0		
Silver	10.12	1.00	10	0	101	70	130	0	0		
Sodium	9290	500	1000	8489	80.1	70	130	0	0		
Thallium	100.2	1.00	100	0	100	70	130	0	0		
Vanadium	99.54	5.00	100	0	99.5	70	130	0	0		
Zinc	105.3	10.0	100	10.67	94.6	70	130	0	0		

Sample ID: 0812G73-001AMSD	SampType: MSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140089						
Client ID: KIF-KWTPI	Batch ID: 108443	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870835						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1254	10.0	1000	247.3	101	70	130	1241	1.04	20	
Antimony	100.7	5.00	100	0	101	70	130	98.57	2.14	20	
Arsenic	102.5	5.00	100	0	103	70	130	100.4	2.07	20	
Barium	122.4	10.0	100	21.17	101	70	130	119.9	2.06	20	
Beryllium	104.2	1.00	100	0	104	70	130	103.1	1.06	20	
Cadmium	102.6	0.700	100	0	103	70	130	100.7	1.87	20	

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: 0812G73-001AMSD	SampType: MSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140089
Client ID: KIF-KWTPI	Batch ID: 108443	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870836

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	17320	100	1000	16480	84	70	130	17120	1.16	20	
Chromium	99.07	5.00	100	0	99.1	70	130	96.9	2.21	20	
Cobalt	95.29	5.00	100	0	95.3	70	130	95.19	0.105	20	
Copper	110.3	2.00	100	0.914	109	70	130	99.59	10.2	20	
Iron	1226	100	1000	249	97.7	70	130	1220	0.491	20	
Lead	100.7	1.00	100	0.332	100	70	130	99.4	1.30	20	
Magnesium	4547	100	1000	3634	91.3	70	130	4487	1.33	20	
Manganese	143.4	5.00	100	44.76	98.6	70	130	141.5	1.33	20	
Nickel	99.61	5.00	100	0.672	98.9	70	130	98.96	0.655	20	
Potassium	2662	100	1000	1891	77.1	70	130	2641	0.792	20	
Selenium	99.46	5.00	100	0	99.5	70	130	99.98	0.521	20	
Silver	10.2	1.00	10	0	102	70	130	10.12	0.787	20	
Sodium	9417	500	1000	8489	92.8	70	130	9290	1.36	20	
Thallium	101.4	1.00	100	0	101	70	130	100.2	1.19	20	
Vanadium	101.4	5.00	100	0	101	70	130	99.54	1.85	20	
Zinc	125.5	10.0	100	10.67	115	70	130	105.3	17.5	20	

**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0812G73  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 7470A\_W\_D

<b>Sample ID:</b> MB-108150		<b>SampType:</b> MBLK		<b>TestCode:</b> 7470A_W_D		<b>Units:</b> mg/L		<b>Prep Date:</b> 12/24/2008		<b>RunNo:</b> 139643	
<b>Client ID:</b>		<b>Batch ID:</b> 108150		<b>TestNo:</b> SW7470A				<b>Analysis Date:</b> 12/24/2008		<b>SeqNo:</b> 2861741	
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	BRL	0.000200	0	0	0	0	0	0	0	0	
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<b>Sample ID:</b> LCS-108150		<b>SampType:</b> LCS		<b>TestCode:</b> 7470A_W_D		<b>Units:</b> mg/L		<b>Prep Date:</b> 12/24/2008		<b>RunNo:</b> 139643	
<b>Client ID:</b>		<b>Batch ID:</b> 108150		<b>TestNo:</b> SW7470A				<b>Analysis Date:</b> 12/24/2008		<b>SeqNo:</b> 2861742	
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	0.004924	0.000200	0.005	0	98.5	85	115	0	0		
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<b>Sample ID:</b> 0812G73-011BMS		<b>SampType:</b> MS		<b>TestCode:</b> 7470A_W_D		<b>Units:</b> mg/L		<b>Prep Date:</b> 12/24/2008		<b>RunNo:</b> 139643	
<b>Client ID:</b> KIF-CRM 2.0		<b>Batch ID:</b> 108150		<b>TestNo:</b> SW7470A				<b>Analysis Date:</b> 12/24/2008		<b>SeqNo:</b> 2861746	
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	0.004717	0.000200	0.005	0	94.3	70	130	0	0		
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<b>Sample ID:</b> 0812G73-011BMSD		<b>SampType:</b> MSD		<b>TestCode:</b> 7470A_W_D		<b>Units:</b> mg/L		<b>Prep Date:</b> 12/24/2008		<b>RunNo:</b> 139643	
<b>Client ID:</b> KIF-CRM 2.0		<b>Batch ID:</b> 108150		<b>TestNo:</b> SW7470A				<b>Analysis Date:</b> 12/24/2008		<b>SeqNo:</b> 2861747	
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	0.004823	0.000200	0.005	0	96.5	70	130	0.004717	2.22	20	
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim. Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_T

Sample ID: MB-108151	SampType: MBLK	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139644						
Client ID:	Batch ID: 108151	TestNo: SW7470A		Analysis Date: 12/24/2008	SeqNo: 2861782						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	BRL	0.000200	0	0	0	0	0	0	0		

Sample ID: LCS-108151	SampType: LCS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139644						
Client ID:	Batch ID: 108151	TestNo: SW7470A		Analysis Date: 12/24/2008	SeqNo: 2861783						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004777	0.000200	0.005	0	95.5	85	115	0	0		

Sample ID: 0812G73-006AMS	SampType: MS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139644						
Client ID: KIF-ERM 4.0	Batch ID: 108151	TestNo: SW7470A		Analysis Date: 12/24/2008	SeqNo: 2861785						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004774	0.000200	0.005	0	95.5	70	130	0	0		

Sample ID: 0812G73-006AMSD	SampType: MSD	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/24/2008	RunNo: 139644						
Client ID: KIF-ERM 4.0	Batch ID: 108151	TestNo: SW7470A		Analysis Date: 12/24/2008	SeqNo: 2861788						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004702	0.000200	0.005	0	94	70	130	0.004774	1.51	20	

**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7471A\_S

Sample ID: MB-108154	SampType: MBLK	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 12/24/2008	RunNo: 139620						
Client ID:	Batch ID: 108154	TestNo: SW7471A		Analysis Date: 12/24/2008	SeqNo: 2861176						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.100	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108154	SampType: LCS	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 12/24/2008	RunNo: 139620						
Client ID:	Batch ID: 108154	TestNo: SW7471A		Analysis Date: 12/24/2008	SeqNo: 2861177						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.3921	0.100	0.4	0	98	80	120	0	0		
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Sample ID: 0812G39-003CMS	SampType: MS	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 12/24/2008	RunNo: 139620						
Client ID:	Batch ID: 108154	TestNo: SW7471A		Analysis Date: 12/24/2008	SeqNo: 2861181						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.5018	0.123	0.4918	0.03689	94.5	70	130	0	0		
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Sample ID: 0812G39-003CMSD	SampType: MSD	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 12/24/2008	RunNo: 139620						
Client ID:	Batch ID: 108154	TestNo: SW7471A		Analysis Date: 12/24/2008	SeqNo: 2861184						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.4971	0.123	0.4938	0.03689	93.2	70	130	0.5018	0.925	30	
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: MB-108171	SampType: MBLK	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 12/24/2008	RunNo: 139632						
Client ID:	Batch ID: 108171	TestNo: SW8260B		Analysis Date: 12/24/2008	SeqNo: 2861310						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	46.26	0	50	0	92.5	56	145	0	0		

Sample ID: LCS-108171	SampType: LCS	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 12/24/2008	RunNo: 139632						
Client ID:	Batch ID: 108171	TestNo: SW8260B		Analysis Date: 12/24/2008	SeqNo: 2861381						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	57.57	1.0	50	0	115	60.4	136	0	0		
Ethylbenzene	57.07	1.0	50	0	114	66.3	139	0	0		
m,p-Xylene	112.9	1.0	100	0	113	63.8	139	0	0		
o-Xylene	57.31	1.0	50	0	115	63.8	139	0	0		
Toluene	56.73	1.0	50	0	113	60.9	138	0	0		
Surr: 4-Bromofluorobenzene	49.16	0	50	0	98.3	56	145	0	0		

Sample ID: 0812F89-001AMS	SampType: MS	TestCode: BTEX_S-MS	Units: ug/Kg-dry	Prep Date: 12/24/2008	RunNo: 139688						
Client ID:	Batch ID: 108171	TestNo: SW8260B		Analysis Date: 12/24/2008	SeqNo: 2862830						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	78	1.3	63.99	0	122	62.1	134	0	0		
Ethylbenzene	75.19	1.3	63.99	0	118	60.8	141	0	0		
m,p-Xylene	147.4	1.3	128	0	115	56.2	144	0	0		
o-Xylene	74.73	1.3	63.99	0	117	62.4	138	0	0		
Toluene	78	1.3	63.99	0	122	60.2	136	0	0		
Surr: 4-Bromofluorobenzene	63.38	0	63.99	0	99	56	145	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812G73  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: 0812F89-001AMSD		SampType: MSD		TestCode: BTEX_S-MS		Units: ug/Kg-dry		Prep Date: 12/24/2008		RunNo: 139688	
Client ID:		Batch ID: 108171		TestNo: SW8260B		Analysis Date: 12/24/2008		SeqNo: 2862832			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	71.3	1.3	63.99	0	111	62.1	134	78	8.98	20	
Ethylbenzene	67.34	1.3	63.99	0	105	60.8	141	75.19	11.0	20	
m,p-Xylene	134.4	1.3	128	0	105	56.2	144	147.4	9.24	20	
o-Xylene	68.33	1.3	63.99	0	107	62.4	138	74.73	8.95	20	
Toluene	70.38	1.3	63.99	0	110	60.2	136	78	10.3	20	
Surr: 4-Bromofluorobenzene	63.35	0	63.99	0	99	56	145	63.38	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



Data Path : C:\msdchem\1\DATA\081224\  
 Data File : V7065735.D  
 Acq On : 24 Dec 2008 2:34 pm  
 Operator :  
 Sample : 0812G73-012A 5.14  
 Misc : SAMP BTEX S MS  
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 29 11:10:58 2009  
 Quant Method : C:\msdchem\1\METHODS\MS-7 BT120108.M  
 Quant Title : 8260 Purgeable organics calibration  
 QLast Update : Tue Dec 02 12:50:18 2008  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Pentafluorobenzene	...	5.965	168	42618	50.00 ug/kg	0.00
3) 1,4-Difluorobenzene	...	6.983	114	54358	50.00 ug/kg	0.00
8) Chlorobenzene-d5	...	10.539	117	32598	50.00 ug/kg	0.00
13) 1,4-Dichlorobenzene-d4	...	12.472	152	11608	50.00 ug/kg	0.00

System Monitoring Compounds

4) Dibromofluoromethane	...	5.876	113	49844	141.14 ug/kg	0.00
Spiked Amount	50.000	Range	62 - 143	Recovery	= 282.28%#	
6) Toluene-d8	...	8.939	98	61096	46.50 ug/kg	0.00
Spiked Amount	50.000	Range	73 - 127	Recovery	= 93.00%	
12) 4-Bromofluorobenzene	...	11.576	95	10120	31.21 ug/kg	0.00
Spiked Amount	50.000	Range	58 - 127	Recovery	= 62.42%	

Target Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methyl tert-butyl ether	...	0.000	73	0		N.D.
5) Benzene	...	0.000	78	0		N.D.
7) Toluene	...	0.000	92	0		N.D.
9) Ethylbenzene	...	0.000	91	0		N.D.
10) m,p-Xylene	...	0.000	91	0		N.D.
11) o-Xylene	...	0.000	91	0		N.D.
14) Naphthalene	...	14.206	128	2257	4.38 ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sy  
 Det  
 Dat  
 Acc  
 Op  
 San  
 Mir  
 Als  
 Qu  
 Qu  
 Qu  
 QI  
 Res  
 S  
 Det  
 Dat  
 Acc  
 Op  
 San  
 Mir  
 Als  
 Qu  
 Qu  
 Qu  
 QI  
 Res

GC/MS QA-QC Check Report

Tune File : C:\msdchem\1\DATA\081224\V7065730.D

Tune Time : 24 Dec 2008 12:25 pm

Daily Calibration File : C:\msdchem\1\DATA\081224\V7065731.D

139126 193584 180478

128480

File Sample Surrogate Recovery % Internal Standard Responses

V7065731.D  
 8260 CCV 0 102 98 100 139126 193584 180478  
 128480

V7065732.D  
 MB-108171 102 98 93 126244 182242 175403  
 111711

Tune  
 V7065735.D  
 0812G73-01 282\* 93 62 42618\* 54358\* 32598\*  
 Daily 11608\*

V7065736.D  
 LCS-108171 101 100 98 137051 191012 175123  
 122850

V7065737.D  
 0812G73-01 215\* 92 64 59864\* 72766\* 43938\*  
 File 15693\*

V7065739.D  
 0812F89-00 103 99 91 116648 167678 160671  
 98442

V7065740.D  
 0812F89-00 102 97 91 117110 172959 163873  
 102126

TUNE  
 V7065741.D  
 0812F89-00 102 96 94 116623 172930 163748  
 Daily 106648

V7065742.D  
 0812F89-00 104 95 90 126845 181114 168799  
 98457

Notes) - fails 12hr time check \* - fails criteria

File Created: Fri Dec 26 14:16:35 2008 MS7

V7061

V7065

V7069

Daily  
 V706b

V706i





**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

January 16, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Suite 300  
Duluth, GA 30096

TEL: (678) 775-3104  
FAX (678) 775-3138

RE: TVA Kingston

Order No.: 0812149

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 38 samples on 12/30/2008 3:45:00 PM for the analyses presented in the following report:

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/08-06/30/09.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 08/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 126 total pages (including cover letter).

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

Sincerely,

for Blair Stout  
Project Manager



# ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704

TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

# CHAIN OF CUSTODY

Work Order: 0812144

Date: 12/29/08 Page 1 of 3

COMPANY		ADDRESS					ANALYSIS REQUESTED										Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		No # of Containers	
Tetra Tech Em Inc.		1955 EVERGON BLVD Suite 300 Duluth, GA 30096					TOTAL METAL	DISSOLVED METALS	TOTAL SUSPENDED SOLIDS	DISSOLVED SILICA	SILICA	BTEX	TCLP							
PHONE		FAX					PRESERVATION (See codes)										REMARKS			
404-395-5220		678-775-3138					N													
SAMPLED BY		SIGNATURE																		
Chris Jones / Paul Pius		[Signature]																		
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)														
1	081228-KFPRW-01	12/28/08	0900	✓		SE	✓													Sample for
2	081228-SPRRW-02		0956	✓			✓												MERCURY IN	5
3	081228-SPCRW-03		1042	✓			✓												SOLIDS AND WATER	5
4	081228-ERBBS-SS04		1218		✓		✓												for TAL metals	5
5	081228-ERPL-WS01		1310	✓		SW	✓	✓	✓	✓									AND DISSOLVED	2
6	081228-ERPL-SS05		1345		✓		✓												metals	5
7	081228-ERPR-SS06		1435		✓		✓													5
8	081228-ERER-WS02		1503	✓			✓	✓	✓											2
9	081228-ERER-SS07		1507		✓		✓													5
10	081228-ERER-SS07-DUP		1510		✓		✓													5
11	081228-ERER-WS02-DUP		1510	✓			✓	✓	✓											2
12	081228-ERER-SS08		1553		✓		✓													5
13	081228-ERER-SS08-ms/msd		1553		✓		✓													5
14	081228-EGUBR-SS09		1645	✓	✓		✓													5

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	PROJECT INFORMATION		RECEIPT	
[Signature]	12/29/08 2:00	[Signature]	12/30/08 3:45	PROJECT NAME:	TVA Kingston	Total # of Containers	61
				PROJECT #:	103DVA0170001.0084.3003	Turnaround Time Request	
				SITE ADDRESS:	714 Swan Pond Rd Nareiman, TN 37748	<input type="radio"/> Standard 5 Business Days	
				SEND REPORT TO:	Jessica Vickers, Chris Jones and Paul Pius	<input type="radio"/> 2 Business Day Rush	
				INVOICE TO:	Jones and Paul Pius	<input type="radio"/> Next Business Day Rush	
				(IF DIFFERENT FROM ABOVE)		<input checked="" type="radio"/> Same Day Rush (auth req.)	
				QUOTE #:		<input type="radio"/> Other	
				PO#:		STATE PROGRAM (if any):	
						E-mail: <input checked="" type="radio"/> Y <input type="radio"/> N; Fax? <input type="radio"/> Y <input type="radio"/> N	
						DATA PACKAGE: I II III <input checked="" type="radio"/> IV	

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT. SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water  
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original: Yellow Copy - Client





Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Tetra Tech

Work Order Number 0812I49

Checklist completed by Plum T -  
Signature

12/30/08  
Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3.5°C Cooler #2 4.0°C Cooler #3 3.7°C Cooler #4 \_\_\_\_\_ Cooler#5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by PT

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**CLIENT:** Tetra Tech EM Inc.  
**Project:** TVA Kingston  
**Lab Order:** 0812I49

**CASE NARRATIVE**

**Sample Receiving Nonconformance:**

Per Chris Jones on 12/30/08 at 4:45PM via telephone, TCLP Metals and Dissolved TAL Metals analyses are required.

Per the request of Jessica Vickers 1/7/09 17:00, samples -008 and -011 should be reanalyzed to confirm Mercury results.

The collection date not listed on Chain of Custody (COC) was taken from the sample containers for login.

Sample 0812I49-029A ("KIF-ERM2.0") was labeled as "KIF-ERM2.1" on the containers; however, the collection time matched what was indicated on the COC for sample -029. The sample was logged in according to the COC.

The containers for 0812I49-030A were labeled as "DUP;" however, the collection time matched what was indicated on the COC for sample -030. The sample was logged in according to the COC.

Sample 0812I49-038A was received but was not listed on the COC. The sample was logged in using the information present on the sample bottle labels. The sample (labeled only as MS/MSD) was placed on hold per Chris Jones via telephone on 12/31/08.

**Volatile Organic Compounds Analysis by Method 8260B:**

Percent recovery for all of the internal standard compounds on sample 0812I49-001A were outside control limits biased low due to suspected matrix interference.

**Metals Analysis by Method 6010B:**

Due to sample matrix, samples 0812I49-010C & 0812I49-018C required dilution for Tl during analysis resulting in elevated reporting limits.

Samples requiring Dissolved Silica analysis, were filtered prior to analysis.

**Mercury Analysis by Method 7470:**

Per the request of Jessica Vickers 1/3/08, duplicate samples -008 and -011 were reanalyzed for Total Mercury. Upon reanalysis, both sample results were determined to be BRL. Results of the reanalysis

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**CLIENT:** Tetra Tech EM Inc.  
**Project:** TVA Kingston  
**Lab Order:** 0812149

**CASE NARRATIVE**

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are reported due to the reproducibility of the data. All quality control measures were reviewed and no problems were detected. The variation in sample results is due to an undetected anomaly.



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-001

Client Sample ID: 081228-KFPRW-01  
 Collection Date: 12/28/2008 9:00:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.000288	0.00400	mg/L	108322	1	12/31/2008 7:59:37 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:20:24 PM
Barium	0.801		0.00455	0.500	mg/L	108325	1	12/31/2008 4:20:24 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:20:24 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:20:24 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:20:24 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:20:24 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:20:24 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	11000		5.25	59.9	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Antimony	1.06	J	0.228	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Arsenic	54.2		0.180	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Barium	188		0.180	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Beryllium	0.553	J	0.0168	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Cadmium	0.737	J	0.0396	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Calcium	2190		23.5	59.9	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Chromium	18.2		0.0791	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Cobalt	8.58		0.0216	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Copper	34.5		0.0503	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Iron	11800		15.2	599	mg/Kg-dry	108311	10	12/31/2008 2:43:28 PM
Lead	15.3		0.120	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Magnesium	713		1.40	59.9	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Manganese	48.3		0.216	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Nickel	19.3		0.0300	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Potassium	1770		1.31	120	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Selenium	6.36		0.480	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Silver	BRL		0.0168	3.00	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Sodium	174		5.19	120	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Thallium	BRL		0.216	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Vanadium	44.6		0.0288	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
Zinc	24.3		0.767	5.99	mg/Kg-dry	108311	1	12/31/2008 1:22:00 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0563	J	0.00443	0.127	mg/Kg-dry	108309	1	12/31/2008 4:18:48 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.16	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-001

Client Sample ID: 081228-KFPRW-01  
 Collection Date: 12/28/2008 9:00:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.15	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
Ethylbenzene	BRL		0.20	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
m,p-Xylene	1.6		0.42	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
o-Xylene	BRL		0.45	1.2	ug/Kg-dry	108323	1	12/31/2008 9:50:00 AM
Surr: 4-Bromofluorobenzene	63.1		0	56-145	%REC	108323	1	12/31/2008 9:50:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.2		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

- Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-002

Client Sample ID: 081228-SPRRW-02  
 Collection Date: 12/28/2008 9:56:00 AM  
 Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	0.00234	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:01:34 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: <b>TAA</b>
Arsenic	0.0862	J	0.0467	0.250	mg/L	108325	1	12/31/2008 4:24:31 PM
Barium	1.06		0.00455	0.500	mg/L	108325	1	12/31/2008 4:24:31 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:24:31 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:24:31 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:24:31 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:24:31 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:24:31 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: <b>TAA</b>
Aluminum	18600		5.61	64.0	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Antimony	1.63	J	0.243	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Arsenic	81.3		0.192	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Barium	248		0.192	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Beryllium	0.782	J	0.0179	3.20	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Cadmium	1.23	J	0.0422	3.20	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Calcium	3070		25.1	64.0	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Chromium	30.4		0.0845	3.20	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Cobalt	11.4		0.0230	3.20	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Copper	49.2		0.0537	3.20	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Iron	13900		16.3	64.0	mg/Kg-dry	108311	10	12/31/2008 2:47:34 PM
Lead	23.2		0.128	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Magnesium	1210		1.50	64.0	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Manganese	56.8		0.230	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Nickel	25.3		0.0320	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Potassium	3050		1.39	128	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Selenium	6.37	J	0.512	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Silver	BRL		0.0179	3.20	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Sodium	298		5.54	128	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Thallium	BRL		0.230	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Vanadium	71.0		0.0307	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
Zinc	42.7		0.819	6.40	mg/Kg-dry	108311	1	12/31/2008 1:25:08 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: <b>MAW</b>
Mercury	0.0973	J	0.00472	0.135	mg/Kg-dry	108309	1	12/31/2008 4:21:22 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: <b>NWH</b>
Benzene	BRL		0.18	1.3	ug/Kg-dry	108323	1	12/30/2008 10:55:00 P

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-002

Client Sample ID: 081228-SPRRW-02  
 Collection Date: 12/28/2008 9:56:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.17	1.3	ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
Ethylbenzene	BRL		0.22	1.3	ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
m,p-Xylene	BRL		0.46	1.3	ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
o-Xylene	BRL		0.49	1.3	ug/Kg-dry	108323	1	12/30/2008 10:55:00 P
Surr: 4-Bromofluorobenzene	81.7		0	56-145	%REC	108323	1	12/30/2008 10:55:00 P
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	26.1		0	0	wt%		1	12/31/2008 10:00:00 A

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-003

**Client Sample ID:** 081228-SPCRW-03  
**Collection Date:** 12/28/2008 10:42:00 AM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL		0.000288	0.00400	mg/L	108322	1	12/31/2008 8:03:30 PM
			<b>SW1311/7470A</b>	<b>(SW7470)</b>	<b>Analyst: MAW</b>			
<b>ICP METALS, TCLP</b>								
Arsenic	0.0984	J	0.0467	0.250	mg/L	108325	1	12/31/2008 4:28:38 PM
Barium	0.747		0.00455	0.500	mg/L	108325	1	12/31/2008 4:28:38 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:28:38 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:28:38 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:28:38 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:28:38 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:28:38 PM
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>	<b>Analyst: TAA</b>			
<b>METALS, TOTAL</b>								
Aluminum	14900		5.91	67.5	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Antimony	1.38	J	0.257	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Arsenic	69.8		0.203	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Barium	208		0.203	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Beryllium	1.04	J	0.0189	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Cadmium	1.06	J	0.0446	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Calcium	2570		26.5	67.5	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Chromium	27.4		0.0891	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Cobalt	11.7		0.0243	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Copper	58.5		0.0567	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Iron	9590		17.1	67.5	mg/Kg-dry	108311	10	12/31/2008 2:51:41 PM
Lead	56.9		0.135	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Magnesium	979		1.58	67.5	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Manganese	45.7		0.243	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Nickel	27.0		0.0338	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Potassium	2250		1.47	135	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Selenium	7.15		0.540	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Silver	BRL		0.0189	3.38	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Sodium	224		5.85	135	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Thallium	BRL		0.243	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Vanadium	72.9		0.0324	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
Zinc	36.9		0.864	6.75	mg/Kg-dry	108311	1	12/31/2008 1:29:12 PM
			<b>SW6010B</b>	<b>(SW3050B)</b>	<b>Analyst: TAA</b>			
<b>TOTAL MERCURY</b>								
Mercury	0.0664	J	0.00488	0.140	mg/Kg-dry	108309	1	12/31/2008 4:23:56 PM
			<b>SW7471A</b>	<b>(SW7471)</b>	<b>Analyst: MAW</b>			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL		0.17	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
			<b>SW8260B</b>	<b>(SW5035)</b>	<b>Analyst: NWH</b>			

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-003

Client Sample ID: 081228-SPCRW-03  
 Collection Date: 12/28/2008 10:42:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.16	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
Ethylbenzene	BRL		0.21	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
m,p-Xylene	BRL		0.45	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
o-Xylene	BRL		0.47	1.2	ug/Kg-dry	108323	1	12/30/2008 11:20:00 P
Surr: 4-Bromofluorobenzene	96.6		0	56-145	%REC	108323	1	12/30/2008 11:20:00 P
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	29.9		0	0	wt%		1	12/31/2008 10:00:00 A

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-004

Client Sample ID: 081228-EERBS-SS04  
 Collection Date: 12/28/2008 12:18:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL		0.000288	0.00400	mg/L	108322	1	12/31/2008 8:05:26 PM
			<b>SW1311/7470A</b>	<b>(SW7470)</b>	Analyst: MAW			
<b>ICP METALS, TCLP</b>								
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:32:45 PM
Barium	0.303	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:32:45 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:32:45 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:32:45 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:32:45 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:32:45 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:32:45 PM
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>	Analyst: TAA			
<b>METALS, TOTAL</b>								
Aluminum	13100		5.46	62.3	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Antimony	0.461	J	0.237	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Arsenic	1.34	J	0.187	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Barium	76.5		0.187	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Beryllium	0.497	J	0.0174	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Cadmium	BRL		0.0411	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Calcium	1510		24.4	62.3	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Chromium	21.0		0.0822	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Cobalt	8.49		0.0224	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Copper	12.8		0.0523	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Iron	19100		15.8	623	mg/Kg-dry	108311	10	12/31/2008 2:55:47 PM
Lead	10.1		0.125	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Magnesium	2530		1.46	62.3	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Manganese	268		0.224	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Nickel	23.5		0.0312	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Potassium	1840		1.36	125	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Selenium	2.12	J	0.498	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Silver	BRL		0.0174	3.12	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Sodium	52.2	J	5.40	125	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Thallium	BRL		0.224	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Vanadium	20.3		0.0299	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
Zinc	44.7		0.797	6.23	mg/Kg-dry	108311	1	12/31/2008 1:40:33 PM
			<b>SW6010B</b>	<b>(SW3050B)</b>	Analyst: TAA			
<b>TOTAL MERCURY</b>								
Mercury	BRL		0.00444	0.127	mg/Kg-dry	108309	1	12/31/2008 4:31:40 PM
			<b>SW7471A</b>	<b>(SW7471)</b>	Analyst: MAW			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL		0.13	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
			<b>SW8260B</b>	<b>(SW5035)</b>	Analyst: NWH			

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-004

Client Sample ID: 081228-EERBS-SS04  
 Collection Date: 12/28/2008 12:18:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.12	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
Ethylbenzene	BRL		0.16	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
m,p-Xylene	BRL		0.33	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
o-Xylene	BRL		0.35	0.92	ug/Kg-dry	108323	1	12/30/2008 11:46:00 P
Surr: 4-Bromofluorobenzene	95.8		0	56-145	%REC	108323	1	12/30/2008 11:46:00 P
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.5		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-005

Client Sample ID: 081228-ERPL-WS01  
 Collection Date: 12/28/2008 1:10:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	58		2	10	mg/L	108315	1	12/31/2008 10:15:53 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.99		0.0110	0.100	mg/L	108312	1	12/31/2008 10:18:43 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.152	J	0.0230	0.200	mg/L	108312	1	12/31/2008 9:54:57 AM
Antimony	BRL		0.0063	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
Arsenic	BRL		0.0031	0.0500	mg/L	108312	1	12/31/2008 9:54:57 AM
Barium	0.0171	J	0.0016	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
Beryllium	BRL		0.0022	0.0100	mg/L	108312	1	12/31/2008 9:54:57 AM
Cadmium	BRL		0.0025	0.0050	mg/L	108312	1	12/31/2008 9:54:57 AM
Calcium	6.83		0.0110	0.100	mg/L	108312	1	12/31/2008 9:54:57 AM
Chromium	BRL		0.0075	0.0100	mg/L	108312	1	12/31/2008 9:54:57 AM
Cobalt	BRL		0.0013	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
Copper	BRL		0.0016	0.0100	mg/L	108312	1	12/31/2008 9:54:57 AM
Iron	0.155		0.0360	0.100	mg/L	108312	1	12/31/2008 9:54:57 AM
Lead	BRL		0.0038	0.0100	mg/L	108312	1	12/31/2008 9:54:57 AM
Magnesium	2.20		0.0190	0.100	mg/L	108312	1	12/31/2008 9:54:57 AM
Manganese	0.0155		0.0019	0.0150	mg/L	108312	1	12/31/2008 9:54:57 AM
Nickel	BRL		0.0035	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
Potassium	0.993		0.0300	0.500	mg/L	108312	1	12/31/2008 9:54:57 AM
Selenium	BRL		0.0060	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
Silver	0.0004	J	0.0003	0.0100	mg/L	108312	1	12/31/2008 9:54:57 AM
Sodium	1.88		0.0063	1.00	mg/L	108312	1	12/31/2008 9:54:57 AM
Thallium	BRL		0.0041	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
Vanadium	BRL		0.0016	0.0100	mg/L	108312	1	12/31/2008 9:54:57 AM
Zinc	BRL		0.0035	0.0200	mg/L	108312	1	12/31/2008 9:54:57 AM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	5.84		0.0230	0.200	mg/L	108314	1	12/31/2008 4:08:06 PM
Antimony	BRL		0.0063	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Arsenic	0.0063	J	0.0031	0.0500	mg/L	108314	1	12/31/2008 4:08:06 PM
Barium	0.0389		0.0016	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Beryllium	BRL		0.0022	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Cadmium	BRL		0.0025	0.0050	mg/L	108314	1	12/31/2008 4:08:06 PM
Calcium	8.55		0.0110	0.100	mg/L	108314	1	12/31/2008 4:08:06 PM
Chromium	BRL		0.0075	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Cobalt	BRL		0.0013	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Copper	0.0054	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-005

Client Sample ID: 081228-ERPL-WS01  
 Collection Date: 12/28/2008 1:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	6.22		0.0360	0.100	mg/L	108314	1	12/31/2008 4:08:06 PM
Lead	0.0089	J	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Magnesium	3.11		0.0190	0.100	mg/L	108314	1	12/31/2008 4:08:06 PM
Manganese	0.0921		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:08:06 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Potassium	1.81		0.0300	0.500	mg/L	108314	1	12/31/2008 4:08:06 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Sodium	2.05		0.0063	1.00	mg/L	108314	1	12/31/2008 4:08:06 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
Vanadium	0.0150		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:08:06 PM
Zinc	0.0125	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:08:06 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00004	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:07:25 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00006	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 5:46:43 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-006

Client Sample ID: 081228-ERPL-SS05  
 Collection Date: 12/28/2008 1:15:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.000456	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:07:22 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:36:52 PM
Barium	0.188	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:36:52 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:36:52 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:36:52 PM
Lead	0.0116	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 4:36:52 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:36:52 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:36:52 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	12500		5.44	62.1	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Antimony	1.10	J	0.236	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Arsenic	27.9		0.186	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Barium	28.2		0.186	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Beryllium	0.0646	J	0.0174	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Cadmium	0.273	J	0.0410	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Calcium	976		24.4	62.1	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Chromium	27.7		0.0820	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Cobalt	4.04		0.0224	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Copper	21.0		0.0522	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Iron	36700		15.8	621	mg/Kg-dry	108311	10	12/31/2008 2:59:55 PM
Lead	45.4		0.124	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Magnesium	458		1.45	62.1	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Manganese	228		0.224	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Nickel	11.7		0.0311	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Potassium	350		1.35	124	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Selenium	2.64	J	0.497	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Silver	BRL		0.0174	3.11	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Sodium	33.7	J	5.38	124	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Thallium	BRL		0.224	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Vanadium	81.5		0.0298	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
Zinc	26.3		0.795	6.21	mg/Kg-dry	108311	1	12/31/2008 1:44:38 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.127	J	0.00462	0.132	mg/Kg-dry	108309	1	12/31/2008 4:34:14 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Benzene	BRL		0.15	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-006

Client Sample ID: 081228-ERPL-SS05  
 Collection Date: 12/28/2008 1:15:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.14	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
Ethylbenzene	BRL		0.18	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
m,p-Xylene	BRL		0.38	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
o-Xylene	BRL		0.40	1.1	ug/Kg-dry	108323	1	12/31/2008 12:11:00 A
Surr: 4-Bromofluorobenzene	96.9		0	56-145	%REC	108323	1	12/31/2008 12:11:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	25.8		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812I49  
**Project:** TVA Kingston  
**Lab ID:** 0812I49-007

**Client Sample ID:** 081228-ERPR-SS06  
**Collection Date:** 12/28/2008 2:35:00 PM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	0.000301	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:09:17 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: <b>TAA</b>
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:40:59 PM
Barium	0.327	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:40:59 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:40:59 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:40:59 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:40:59 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:40:59 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:40:59 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: <b>TAA</b>
Aluminum	14400		5.40	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Antimony	0.567	J	0.234	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Arsenic	3.29	J	0.185	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Barium	118		0.185	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Beryllium	0.685	J	0.0173	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Cadmium	BRL		0.0407	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Calcium	2140		24.2	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Chromium	26.0		0.0814	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Cobalt	18.0		0.0222	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Copper	15.6		0.0518	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Iron	24800		15.7	61.7	mg/Kg-dry	108311	10	12/31/2008 3:04:02 PM
Lead	18.2		0.123	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Magnesium	2410		1.44	61.7	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Manganese	1150		0.222	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Nickel	18.8		0.0308	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Potassium	2260		1.34	123	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Selenium	3.37	J	0.493	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Silver	BRL		0.0173	3.08	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Sodium	57.9	J	5.34	123	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Thallium	BRL		0.222	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Vanadium	28.5		0.0296	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
Zinc	35.4		0.789	6.17	mg/Kg-dry	108311	1	12/31/2008 1:47:48 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: <b>MAW</b>
Mercury	BRL		0.00452	0.129	mg/Kg-dry	108309	1	12/31/2008 4:36:48 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: <b>NWH</b>
Benzene	BRL		0.14	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-007

Client Sample ID: 081228-ERPR-SS06  
 Collection Date: 12/28/2008 2:35:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>		Analyst: <b>NWH</b>		
Toluene	BRL		0.13	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
Ethylbenzene	BRL		0.17	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
m,p-Xylene	BRL		0.36	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
o-Xylene	BRL		0.38	1.0	ug/Kg-dry	108323	1	12/31/2008 12:37:00 A
Surr: 4-Bromofluorobenzene	96.7		0	56-145	%REC	108323	1	12/31/2008 12:37:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>			Analyst: <b>LW</b>		
Percent Moisture	24.7		0	0	wt%	1	1	12/31/2008 10:00:00 A

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level	< Less than Result value
	> Greater than Result value	B Analyte detected in the associated Method Blank
	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix
		BRL Not detected at MDL



# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-008

Client Sample ID: 081228-ERER-WS02  
 Collection Date: 12/28/2008 3:03:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	161		1	5 mg/L		108315	1	12/31/2008 10:17:15 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.92		0.0110	0.100 mg/L		108312	1	12/31/2008 10:20:29 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0680	J	0.0230	0.200 mg/L		108312	1	12/31/2008 9:58:40 AM
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 9:58:40 AM
Barium	0.0197	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 9:58:40 AM
Calcium	6.42		0.0110	0.100 mg/L		108312	1	12/31/2008 9:58:40 AM
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Iron	0.0827	J	0.0360	0.100 mg/L		108312	1	12/31/2008 9:58:40 AM
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Magnesium	1.76		0.0190	0.100 mg/L		108312	1	12/31/2008 9:58:40 AM
Manganese	0.0129	J	0.0019	0.0150 mg/L		108312	1	12/31/2008 9:58:40 AM
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Potassium	1.07		0.0300	0.500 mg/L		108312	1	12/31/2008 9:58:40 AM
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Sodium	1.90		0.0063	1.00 mg/L		108312	1	12/31/2008 9:58:40 AM
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 9:58:40 AM
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 9:58:40 AM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	1.85		0.0230	0.200 mg/L		108314	1	12/31/2008 4:11:32 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:11:32 PM
Arsenic	0.0127	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:11:32 PM
Barium	0.0468		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:11:32 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:11:32 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:11:32 PM
Calcium	9.00		0.0110	0.100 mg/L		108314	1	12/31/2008 4:11:32 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:11:32 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:11:32 PM
Copper	0.0052	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:11:32 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 05-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-008

**Client Sample ID:** 081228-ERER-WS02  
**Collection Date:** 12/28/2008 3:03:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: <b>BB</b>
Iron	1.48		0.0360	0.100	mg/L	108314	1	12/31/2008 4:11:32 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:11:32 PM
Magnesium	2.38		0.0190	0.100	mg/L	108314	1	12/31/2008 4:11:32 PM
Manganese	0.0629		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:11:32 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
Potassium	1.83		0.0300	0.500	mg/L	108314	1	12/31/2008 4:11:32 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:11:32 PM
Sodium	2.27		0.0063	1.00	mg/L	108314	1	12/31/2008 4:11:32 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
Vanadium	0.0059	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:11:32 PM
Zinc	0.0473		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:11:32 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	0.00001	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:09:25 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	BRL		0.00001	0.00020	mg/L	108433	1	1/5/2009 2:01:31 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-009

Client Sample ID: 081228-ERER-SS07  
 Collection Date: 12/28/2008 3:07:00 PM  
 Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.000298	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:11:16 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:53:16 PM
Barium	0.319	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:53:16 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:53:16 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:53:16 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:53:16 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:53:16 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:53:16 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	9580		5.29	60.4	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Antimony	1.24	J	0.229	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Arsenic	19.1		0.181	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Barium	68.2		0.181	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Beryllium	0.535	J	0.0169	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Cadmium	0.141	J	0.0398	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Calcium	1030		23.7	60.4	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Chromium	54.4		0.0797	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Cobalt	33.7		0.0217	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Copper	10.9		0.0507	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Iron	28000		15.3	604	mg/Kg-dry	108311	10	12/31/2008 3:16:22 PM
Lead	71.8		0.121	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Magnesium	635		1.41	60.4	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Manganese	1410		0.217	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Nickel	11.6		0.0302	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Potassium	577		1.32	121	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Selenium	2.86	J	0.483	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Silver	BRL		0.0169	3.02	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Sodium	25.2	J	5.23	121	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Thallium	BRL		0.217	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Vanadium	41.0		0.0290	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
Zinc	31.8		0.773	6.04	mg/Kg-dry	108311	1	12/31/2008 1:51:56 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0280	J	0.00414	0.118	mg/Kg-dry	108309	1	12/31/2008 4:39:24 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.14	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812I49  
**Project:** TVA Kingston  
**Lab ID:** 0812I49-009

**Client Sample ID:** 081228-ERER-SS07  
**Collection Date:** 12/28/2008 3:07:00 PM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.13	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
Ethylbenzene	BRL		0.17	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
m,p-Xylene	BRL		0.35	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
o-Xylene	BRL		0.37	0.98	ug/Kg-dry	108323	1	12/31/2008 10:16:00 A
Surr. 4-Bromofluorobenzene	91.1		0	56-145	%REC	108323	1	12/31/2008 10:16:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	18.3		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-010

Client Sample ID: 081228-ERER-SS07-DUP  
 Collection Date: 12/28/2008 3:10:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	0.000291	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 8:17:13 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: <b>TAA</b>
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:57:25 PM
Barium	0.346	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:57:25 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:57:25 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:57:25 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:57:25 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:57:25 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:57:25 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: <b>TAA</b>
Aluminum	10100		5.29	60.4	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Antimony	1.87	J	0.229	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Arsenic	19.1		0.181	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Barium	174		0.181	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Beryllium	0.618	J	0.0169	3.02	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Cadmium	0.211	J	0.0398	3.02	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Calcium	1120		23.7	60.4	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Chromium	86.7		0.0797	3.02	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Cobalt	30.8		0.0217	3.02	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Copper	11.3		0.0507	3.02	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Iron	30100		15.3	604	mg/Kg-dry	108311	10	12/31/2008 3:20:30 PM
Lead	61.2		0.121	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Magnesium	688		1.41	60.4	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Manganese	4160		2.17	60.4	mg/Kg-dry	108311	10	12/31/2008 3:20:30 PM
Nickel	12.9		0.0302	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Potassium	534		1.32	121	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Selenium	4.29	J	0.483	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Silver	0.375	J	0.0169	3.02	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Sodium	22.5	J	5.23	121	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Thallium	BRL		2.17	60.4	mg/Kg-dry	108311	10	12/31/2008 3:20:30 PM
Vanadium	43.0		0.0290	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
Zinc	35.6		0.773	6.04	mg/Kg-dry	108311	1	12/31/2008 1:56:03 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: <b>MAW</b>
Mercury	0.0293	J	0.00444	0.127	mg/Kg-dry	108309	1	12/31/2008 4:41:58 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: <b>NWH</b>
Benzene	BRL		0.12	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-010

**Client Sample ID:** 081228-ERER-SS07-DUP  
**Collection Date:** 12/28/2008 3:10:00 PM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.11	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
Ethylbenzene	BRL		0.15	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
m,p-Xylene	BRL		0.32	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
o-Xylene	BRL		0.34	0.88	ug/Kg-dry	108323	1	12/31/2008 1:28:00 AM
Surr: 4-Bromofluorobenzene	98.0		0	56-145	%REC	108323	1	12/31/2008 1:28:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.0		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-011

Client Sample ID: 081228-ERER-WS02-DUP  
 Collection Date: 12/28/2008 3:10:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	186		1	5 mg/L		108315	1	12/31/2008 10:17:50 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.91		0.0110	0.100 mg/L		108312	1	12/31/2008 10:22:13 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0643	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:06:58 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:06:58 A
Barium	0.0205		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:06:58 A
Calcium	6.40		0.0110	0.100 mg/L		108312	1	12/31/2008 10:06:58 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Iron	0.0832	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:06:58 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Magnesium	1.76		0.0190	0.100 mg/L		108312	1	12/31/2008 10:06:58 A
Manganese	0.0120	J	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:06:58 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Potassium	1.06		0.0300	0.500 mg/L		108312	1	12/31/2008 10:06:58 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Sodium	1.90		0.0063	1.00 mg/L		108312	1	12/31/2008 10:06:58 A
Thallium	0.0047	J	0.0041	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:06:58 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:06:58 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	1.85		0.0230	0.200 mg/L		108314	1	12/31/2008 4:15:00 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:15:00 PM
Arsenic	0.0106	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:15:00 PM
Barium	0.0434		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:15:00 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:15:00 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:15:00 PM
Calcium	7.35		0.0110	0.100 mg/L		108314	1	12/31/2008 4:15:00 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:15:00 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:15:00 PM
Copper	0.0033	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:15:00 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 05-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812I49  
**Project:** TVA Kingston  
**Lab ID:** 0812I49-011

**Client Sample ID:** 081228-ERER-WS02-DUP  
**Collection Date:** 12/28/2008 3:10:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	1.49		0.0360	0.100	mg/L	108314	1	12/31/2008 4:15:00 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:15:00 PM
Magnesium	2.28		0.0190	0.100	mg/L	108314	1	12/31/2008 4:15:00 PM
Manganese	0.0585		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:15:00 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
Potassium	1.73		0.0300	0.500	mg/L	108314	1	12/31/2008 4:15:00 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:15:00 PM
Sodium	2.04		0.0063	1.00	mg/L	108314	1	12/31/2008 4:15:00 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
Vanadium	0.0051	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:15:00 PM
Zinc	0.0072	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:15:00 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00003	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:11:21 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108433	1	1/5/2009 2:09:18 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-012

**Client Sample ID:** 081228-ERER-SS08  
**Collection Date:** 12/28/2008 3:53:00 PM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	0.00413		0.000288	0.00400	mg/L	108322	1	12/31/2008 7:38:14 PM
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				
<b>ICP METALS, TCLP</b>								
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 4:07:46 PM
Barium	0.178	J	0.00455	0.500	mg/L	108325	1	12/31/2008 4:07:46 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 4:07:46 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 4:07:46 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 4:07:46 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 4:07:46 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 4:07:46 PM
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				
<b>METALS, TOTAL</b>								
Aluminum	13700		5.15	58.8	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Antimony	0.664	J	0.224	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Arsenic	3.99	J	0.176	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Barium	44.3		0.176	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Beryllium	0.117	J	0.0165	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Cadmium	BRL		0.0388	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Calcium	1420		23.1	58.8	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Chromium	18.7		0.0777	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Cobalt	4.39		0.0212	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Copper	8.74		0.0494	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Iron	23100		14.9	588	mg/Kg-dry	108311	10	12/31/2008 2:31:06 PM
Lead	13.8		0.118	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Magnesium	874		1.38	58.8	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Manganese	180		0.212	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Nickel	6.68		0.0294	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Potassium	659		1.28	118	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Selenium	2.60	J	0.471	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Silver	BRL		0.0165	2.94	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Sodium	48.2	J	5.09	118	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Thallium	BRL		0.212	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Vanadium	23.2		0.0282	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
Zinc	31.1		0.753	5.88	mg/Kg-dry	108311	1	12/31/2008 1:07:13 PM
			<b>SW6010B</b>	<b>(SW3050B)</b>				
<b>TOTAL MERCURY</b>								
Mercury	0.0649	J	0.00451	0.129	mg/Kg-dry	108309	1	12/31/2008 4:08:24 PM
			<b>SW7471A</b>	<b>(SW7471)</b>				
<b>VOLATILE ORGANICS</b>								
Benzene	BRL		0.13	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
			<b>SW8260B</b>	<b>(SW5035)</b>				

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-012

Client Sample ID: 081228-ERER-SS08  
 Collection Date: 12/28/2008 3:53:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.12	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
Ethylbenzene	BRL		0.16	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
m,p-Xylene	BRL		0.33	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
o-Xylene	BRL		0.35	0.92	ug/Kg-dry	108323	1	12/31/2008 1:53:00 AM
Surr: 4-Bromofluorobenzene	96.4		0	56-145	%REC	108323	1	12/31/2008 1:53:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	22.6		0	0	wt%		1	12/31/2008 10:00:00 A

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-013

Client Sample ID: 081228-SGUBR-SS09  
 Collection Date: 12/28/2008 4:45:00 PM  
 Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	BRL		0.000288	0.00400	mg/L	108322	1	12/31/2008 7:45:59 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: <b>TAA</b>
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 5:01:32 PM
Barium	0.288	J	0.00455	0.500	mg/L	108325	1	12/31/2008 5:01:32 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 5:01:32 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:01:32 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 5:01:32 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:01:32 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:01:32 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: <b>TAA</b>
Aluminum	16200		5.81	66.3	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Antimony	1.06	J	0.252	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Arsenic	34.5		0.199	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Barium	47.0		0.199	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Beryllium	0.346	J	0.0186	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Cadmium	0.333	J	0.0438	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Calcium	2180		26.0	66.3	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Chromium	19.5		0.0875	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Cobalt	6.46		0.0239	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Copper	35.6		0.0557	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Iron	40700		16.8	663	mg/Kg-dry	108311	10	12/31/2008 3:24:41 PM
Lead	55.5		0.133	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Magnesium	873		1.55	66.3	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Manganese	313		0.239	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Nickel	18.8		0.0332	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Potassium	581		1.45	133	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Selenium	3.23	J	0.530	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Silver	BRL		0.0186	3.32	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Sodium	30.7	J	5.74	133	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Thallium	BRL		0.239	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Vanadium	69.3		0.0318	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
Zinc	66.4		0.849	6.63	mg/Kg-dry	108311	1	12/31/2008 2:00:12 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: <b>MAW</b>
Mercury	0.212		0.00452	0.129	mg/Kg-dry	108309	1	12/31/2008 4:44:34 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: <b>NWH</b>
Benzene	BRL		0.13	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-013

Client Sample ID: 081228-SGUBR-SS09  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.12	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
Ethylbenzene	BRL		0.15	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
m,p-Xylene	BRL		0.32	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
o-Xylene	BRL		0.34	0.89	ug/Kg-dry	108323	1	12/31/2008 3:09:00 AM
Surr: 4-Bromofluorobenzene	95.2		0	56-145	%REC	108323	1	12/31/2008 3:09:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	25.2		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-014

Client Sample ID: 081228-SGUBR-WS03  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	68		1	5 mg/L		108315	1	12/31/2008 10:18:27 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.01		0.0110	0.100 mg/L		108312	1	12/31/2008 10:23:57 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:10:41 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:10:41 A
Barium	0.0319		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:10:41 A
Calcium	30.3		0.0110	0.100 mg/L		108312	1	12/31/2008 10:10:41 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:10:41 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Magnesium	9.44		0.0190	0.100 mg/L		108312	1	12/31/2008 10:10:41 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:10:41 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Potassium	1.56		0.0300	0.500 mg/L		108312	1	12/31/2008 10:10:41 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Sodium	5.84		0.0063	1.00 mg/L		108312	1	12/31/2008 10:10:41 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:10:41 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:10:41 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	2.27		0.0230	0.200 mg/L		108314	1	12/31/2008 4:18:28 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:18:28 PM
Arsenic	0.0077	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:18:28 PM
Barium	0.0514		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:18:28 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:18:28 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:18:28 PM
Calcium	34.2		0.0110	0.100 mg/L		108314	1	12/31/2008 4:18:28 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:18:28 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:18:28 PM
Copper	0.0028	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:18:28 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-014

Client Sample ID: 081228-SGUBR-WS03  
 Collection Date: 12/28/2008 4:45:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	2.51		0.0360	0.100	mg/L	108314	1	12/31/2008 4:18:28 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:18:28 PM
Magnesium	11.5		0.0190	0.100	mg/L	108314	1	12/31/2008 4:18:28 PM
Manganese	0.0715		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:18:28 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
Potassium	2.18		0.0300	0.500	mg/L	108314	1	12/31/2008 4:18:28 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:18:28 PM
Sodium	6.71		0.0063	1.00	mg/L	108314	1	12/31/2008 4:18:28 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
Vanadium	0.0062	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 4:18:28 PM
Zinc	0.0078	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:18:28 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00003	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:17:16 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00188		0.00001	0.00020	mg/L	108319	1	12/31/2008 5:56:33 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-015

Client Sample ID: 081228-KCPS-SS10  
 Collection Date: 12/28/2008 5:20:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A (SW7470)</b>		Analyst: MAW			
Mercury	0.00132	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:47:56 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B (SW3010A)</b>		Analyst: TAA			
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 5:05:40 PM
Barium	0.149	J	0.00455	0.500	mg/L	108325	1	12/31/2008 5:05:40 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 5:05:40 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:05:40 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 5:05:40 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:05:40 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:05:40 PM
<b>METALS, TOTAL</b>			<b>SW6010B (SW3050B)</b>		Analyst: TAA			
Aluminum	22600		6.00	68.5	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Antimony	1.11	J	0.260	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Arsenic	19.1		0.206	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Barium	24.5		0.206	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Beryllium	0.351	J	0.0192	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Cadmium	0.178	J	0.0452	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Calcium	1620		26.9	68.5	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Chromium	34.2		0.0905	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Cobalt	2.34	J	0.0247	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Copper	21.8		0.0576	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Iron	40800		17.4	685	mg/Kg-dry	108311	10	12/31/2008 3:28:46 PM
Lead	24.7		0.137	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Magnesium	1020		1.60	68.5	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Manganese	143		0.247	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Nickel	12.2		0.0343	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Potassium	840		1.49	137	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Selenium	3.86	J	0.548	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Silver	BRL		0.0192	3.43	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Sodium	29.7	J	5.94	137	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Thallium	BRL		0.247	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Vanadium	66.1		0.0329	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
Zinc	84.5		0.877	6.85	mg/Kg-dry	108311	1	12/31/2008 2:04:24 PM
<b>TOTAL MERCURY</b>			<b>SW7471A (SW7471)</b>		Analyst: MAW			
Mercury	0.160		0.00479	0.137	mg/Kg-dry	108309	1	12/31/2008 4:47:10 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B (SW5035)</b>		Analyst: NWH			
Benzene	BRL		0.15	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-015

Client Sample ID: 081228-KCPS-SS10  
 Collection Date: 12/28/2008 5:20:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.14	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
Ethylbenzene	BRL		0.18	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
m,p-Xylene	BRL		0.38	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
o-Xylene	BRL		0.41	1.1	ug/Kg-dry	108323	1	12/31/2008 3:35:00 AM
Surr: 4-Bromofluorobenzene	97.5		0	56-145	%REC	108323	1	12/31/2008 3:35:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	27.4		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-016

Client Sample ID: 081228-KCPS-WS04  
 Collection Date: 12/28/2008 5:25:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	969		1	5 mg/L		108315	1	12/31/2008 10:19:24 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: TAA
Silica (as Si)	1.97		0.0110	0.100 mg/L		108312	1	12/31/2008 10:25:43 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: BB
Aluminum	0.0361	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:14:31 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:14:31 A
Barium	0.0276		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:14:31 A
Calcium	23.3		0.0110	0.100 mg/L		108312	1	12/31/2008 10:14:31 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Iron	0.0398	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:14:31 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Magnesium	6.78		0.0190	0.100 mg/L		108312	1	12/31/2008 10:14:31 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:14:31 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Potassium	1.45		0.0300	0.500 mg/L		108312	1	12/31/2008 10:14:31 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Silver	0.0005	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Sodium	4.68		0.0063	1.00 mg/L		108312	1	12/31/2008 10:14:31 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:14:31 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:14:31 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	8.20		0.0230	0.200 mg/L		108314	1	12/31/2008 4:21:59 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:21:59 PM
Arsenic	0.0480	J	0.0031	0.0500 mg/L		108314	1	12/31/2008 4:21:59 PM
Barium	0.142		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:21:59 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:21:59 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:21:59 PM
Calcium	25.1		0.0110	0.100 mg/L		108314	1	12/31/2008 4:21:59 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:21:59 PM
Cobalt	0.0022	J	0.0013	0.0200 mg/L		108314	1	12/31/2008 4:21:59 PM
Copper	0.0141		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:21:59 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812I49  
**Project:** TVA Kingston  
**Lab ID:** 0812I49-016

**Client Sample ID:** 081228-KCPS-WS04  
**Collection Date:** 12/28/2008 5:25:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	3.99		0.0360	0.100	mg/L	108314	1	12/31/2008 4:21:59 PM
Lead	0.0059	J	0.0038	0.0100	mg/L	108314	1	12/31/2008 4:21:59 PM
Magnesium	7.98		0.0190	0.100	mg/L	108314	1	12/31/2008 4:21:59 PM
Manganese	0.0816		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:21:59 PM
Nickel	0.0060	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
Potassium	3.59		0.0300	0.500	mg/L	108314	1	12/31/2008 4:21:59 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:21:59 PM
Sodium	4.95		0.0063	1.00	mg/L	108314	1	12/31/2008 4:21:59 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
Vanadium	0.0261		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:21:59 PM
Zinc	0.0333		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:21:59 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00007	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:19:12 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00006	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 5:58:30 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-017

Client Sample ID: 081228-KCP-SS11  
 Collection Date: 12/28/2008 5:57:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00183	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:53:51 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 5:09:50 PM
Barium	0.145	J	0.00455	0.500	mg/L	108325	1	12/31/2008 5:09:50 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 5:09:50 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:09:50 PM
Lead	0.0188	J	0.0105	0.0500	mg/L	108325	1	12/31/2008 5:09:50 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:09:50 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:09:50 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	8140		5.33	60.8	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Antimony	0.418	J	0.231	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Arsenic	6.07	J	0.182	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Barium	17.8		0.182	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Beryllium	0.109	J	0.0170	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Cadmium	0.0423	J	0.0401	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Calcium	647		23.8	60.8	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Chromium	11.7		0.0803	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Cobalt	2.69	J	0.0219	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Copper	10.7		0.0511	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Iron	17900		15.4	608	mg/Kg-dry	108311	10	12/31/2008 3:32:52 PM
Lead	15.3		0.122	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Magnesium	379		1.42	60.8	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Manganese	112		0.219	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Nickel	5.62	J	0.0304	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Potassium	416		1.33	122	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Selenium	2.01	J	0.486	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Silver	BRL		0.0170	3.04	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Sodium	22.2	J	5.27	122	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Thallium	BRL		0.219	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Vanadium	18.8		0.0292	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
Zinc	22.9		0.778	6.08	mg/Kg-dry	108311	1	12/31/2008 2:08:30 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	BRL		0.00453	0.129	mg/Kg-dry	108309	1	12/31/2008 4:49:44 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.13	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-017

Client Sample ID: 081228-KCP-SS11  
 Collection Date: 12/28/2008 5:57:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.12	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
Ethylbenzene	BRL		0.16	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
m,p-Xylene	BRL		0.33	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
o-Xylene	BRL		0.35	0.92	ug/Kg-dry	108323	1	12/31/2008 10:42:00 A
Surr: 4-Bromofluorobenzene	92.9		0	56-145	%REC	108323	1	12/31/2008 10:42:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	23.1		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-018

Client Sample ID: 081227-DKC-SS-01  
 Collection Date: 12/27/2008 11:45:00 AM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: <b>MAW</b>
Mercury	0.00266	J	0.000288	0.00400	mg/L	108322	1	12/31/2008 7:55:47 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: <b>TAA</b>
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 5:13:57 PM
Barium	4.71		0.00455	0.500	mg/L	108325	1	12/31/2008 5:13:57 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 5:13:57 PM
Chromium	0.0540		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:13:57 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 5:13:57 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:13:57 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:13:57 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: <b>TAA</b>
Aluminum	28900		5.93	67.7	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Antimony	1.16	J	0.257	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Arsenic	45.8		0.203	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Barium	825		0.203	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Beryllium	1.89	J	0.0189	3.38	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Cadmium	0.800	J	0.0447	3.38	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Calcium	19500		26.5	67.7	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Chromium	38.1		0.0893	3.38	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Cobalt	18.7		0.0244	3.38	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Copper	69.4		0.0568	3.38	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Iron	14100		17.2	67.7	mg/Kg-dry	108311	10	12/31/2008 3:36:58 PM
Lead	24.9		0.135	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Magnesium	4300		1.58	67.7	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Manganese	67.5		0.244	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Nickel	32.3		0.0338	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Potassium	2840		1.48	135	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Selenium	6.63	J	0.541	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Silver	BRL		0.0189	3.38	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Sodium	725		5.86	135	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Thallium	BRL		2.44	67.7	mg/Kg-dry	108311	10	12/31/2008 3:36:58 PM
Vanadium	121		0.0325	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
Zinc	54.9		0.866	6.77	mg/Kg-dry	108311	1	12/31/2008 2:10:40 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: <b>MAW</b>
Mercury	0.111	J	0.00502	0.143	mg/Kg-dry	108309	1	12/31/2008 4:52:18 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: <b>JE</b>
Benzene	BRL		0.18	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-018

**Client Sample ID:** 081227-DKC-SS-01  
**Collection Date:** 12/27/2008 11:45:00 AM

**Matrix:** SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.17	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
Ethylbenzene	BRL		0.22	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
m,p-Xylene	BRL		0.46	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
o-Xylene	BRL		0.49	1.3	ug/Kg-dry	108323	1	12/31/2008 11:07:00 A
Surr: 4-Bromofluorobenzene	91.4		0	56-145	%REC	108323	1	12/31/2008 11:07:00 A
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	31.0		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-019

Client Sample ID: 081227-DKCL-SS-02  
 Collection Date: 12/27/2008 12:30:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.000288	0.00400	mg/L	108322	1	12/31/2008 7:57:42 PM
<b>ICP METALS, TCLP</b>								
			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: TAA
Arsenic	BRL		0.0467	0.250	mg/L	108325	1	12/31/2008 5:18:05 PM
Barium	0.766		0.00455	0.500	mg/L	108325	1	12/31/2008 5:18:05 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108325	1	12/31/2008 5:18:05 PM
Chromium	BRL		0.00565	0.0500	mg/L	108325	1	12/31/2008 5:18:05 PM
Lead	BRL		0.0105	0.0500	mg/L	108325	1	12/31/2008 5:18:05 PM
Selenium	BRL		0.0357	0.100	mg/L	108325	1	12/31/2008 5:18:05 PM
Silver	BRL		0.00540	0.0250	mg/L	108325	1	12/31/2008 5:18:05 PM
<b>METALS, TOTAL</b>								
			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	10500		5.10	58.2	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Antimony	1.06	J	0.221	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Arsenic	59.9		0.175	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Barium	204		0.175	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Beryllium	0.460	J	0.0163	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Cadmium	0.765	J	0.0384	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Calcium	2710		22.8	58.2	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Chromium	20.0		0.0768	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Cobalt	8.50		0.0210	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Copper	29.9		0.0489	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Iron	19300		14.8	582	mg/Kg-dry	108311	10	12/31/2008 3:41:04 PM
Lead	20.0		0.116	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Magnesium	873		1.36	58.2	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Manganese	231		0.210	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Nickel	17.1		0.0291	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Potassium	1340		1.27	116	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Selenium	5.15	J	0.466	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Silver	BRL		0.0163	2.91	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Sodium	147		5.04	116	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Thallium	BRL		0.210	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Vanadium	45.6		0.0279	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
Zinc	28.7		0.745	5.82	mg/Kg-dry	108311	1	12/31/2008 2:14:46 PM
<b>TOTAL MERCURY</b>								
			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0755	J	0.00428	0.122	mg/Kg-dry	108309	1	12/31/2008 4:54:52 PM
<b>VOLATILE ORGANICS</b>								
			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Benzene	BRL		0.16	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-019

Client Sample ID: 081227-DKCL-SS-02  
 Collection Date: 12/27/2008 12:30:00 PM

Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: NWH
Toluene	BRL		0.15	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
Ethylbenzene	BRL		0.19	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
m,p-Xylene	BRL		0.40	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
o-Xylene	BRL		0.42	1.1	ug/Kg-dry	108323	1	12/31/2008 4:51:00 AM
Surr: 4-Bromofluorobenzene	97.4		0	56-145	%REC	108323	1	12/31/2008 4:51:00 AM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	21.3		0	0	wt%		1	12/31/2008 10:00:00 A

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-020

**Client Sample ID:** KIF-TRM568.5  
**Collection Date:** 12/29/2008 11:16:00 AM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				<b>Analyst: ML</b>
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:20:00 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: TAA</b>
Silica (as Si)	1.81		0.0110	0.100 mg/L		108312	1	12/31/2008 10:30:58 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: BB</b>
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:25:09 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:25:09 A
Barium	0.0184	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:25:09 A
Calcium	14.1		0.0110	0.100 mg/L		108312	1	12/31/2008 10:25:09 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:25:09 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Magnesium	3.71		0.0190	0.100 mg/L		108312	1	12/31/2008 10:25:09 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:25:09 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Potassium	1.62		0.0300	0.500 mg/L		108312	1	12/31/2008 10:25:09 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Sodium	8.62		0.0063	1.00 mg/L		108312	1	12/31/2008 10:25:09 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:25:09 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:25:09 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				<b>Analyst: BB</b>
Aluminum	0.257		0.0230	0.200 mg/L		108314	1	12/31/2008 4:31:55 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:31:55 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:31:55 PM
Barium	0.0260		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:31:55 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:31:55 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:31:55 PM
Calcium	16.6		0.0110	0.100 mg/L		108314	1	12/31/2008 4:31:55 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:31:55 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:31:55 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:31:55 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-020

**Client Sample ID:** KIF-TRM568.5  
**Collection Date:** 12/29/2008 11:16:00 AM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.305		0.0360	0.100	mg/L	108314	1	12/31/2008 4:31:55 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:31:55 PM
Magnesium	4.69		0.0190	0.100	mg/L	108314	1	12/31/2008 4:31:55 PM
Manganese	0.0508		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:31:55 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
Potassium	2.05		0.0300	0.500	mg/L	108314	1	12/31/2008 4:31:55 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:31:55 PM
Sodium	10.8		0.0063	1.00	mg/L	108314	1	12/31/2008 4:31:55 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:31:55 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:31:55 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00001	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:21:08 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108319	1	12/31/2008 6:00:26 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

# Analytical Environmental Services, Inc.

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-021

Client Sample ID: KIF-CRM0.0  
 Collection Date: 12/29/2008 11:40:00 AM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE, SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	46		1	5 mg/L		108315	1	12/31/2008 10:20:30 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.87		0.0110	0.100 mg/L		108312	1	12/31/2008 10:32:43 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:28:56 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:28:56 A
Barium	0.0172	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:28:56 A
Calcium	14.2		0.0110	0.100 mg/L		108312	1	12/31/2008 10:28:56 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:28:56 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Magnesium	3.72		0.0190	0.100 mg/L		108312	1	12/31/2008 10:28:56 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:28:56 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Potassium	1.62		0.0300	0.500 mg/L		108312	1	12/31/2008 10:28:56 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Sodium	8.63		0.0063	1.00 mg/L		108312	1	12/31/2008 10:28:56 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:28:56 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:28:56 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.751		0.0230	0.200 mg/L		108314	1	12/31/2008 4:35:26 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:35:26 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:35:26 PM
Barium	0.0311		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:35:26 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:35:26 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:35:26 PM
Calcium	16.4		0.0110	0.100 mg/L		108314	1	12/31/2008 4:35:26 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:35:26 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:35:26 PM
Copper	0.0017	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 4:35:26 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.

Client Sample ID: KIF-CRM0.0

Lab Order: 0812I49

Collection Date: 12/29/2008 11:40:00 AM

Project: TVA Kingston

Lab ID: 0812I49-021

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	1.12		0.0360	0.100	mg/L	108314	1	12/31/2008 4:35:26 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:35:26 PM
Magnesium	4.71		0.0190	0.100	mg/L	108314	1	12/31/2008 4:35:26 PM
Manganese	0.159		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:35:26 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
Potassium	2.10		0.0300	0.500	mg/L	108314	1	12/31/2008 4:35:26 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:35:26 PM
Sodium	10.5		0.0063	1.00	mg/L	108314	1	12/31/2008 4:35:26 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:35:26 PM
Zinc	0.0063	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 4:35:26 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00001	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:23:04 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00005	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:02:22 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-022

**Client Sample ID:** KIF-CRM2.0  
**Collection Date:** 12/29/2008 12:07:00 PM  
**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	15		1	5 mg/L		108315	1	12/31/2008 10:21:02 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.94		0.0110	0.100 mg/L		108312	1	12/31/2008 10:34:30 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:32:51 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:32:51 A
Barium	0.0288		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:32:51 A
Calcium	24.7		0.0110	0.100 mg/L		108312	1	12/31/2008 10:32:51 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:32:51 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Magnesium	7.40		0.0190	0.100 mg/L		108312	1	12/31/2008 10:32:51 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:32:51 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Potassium	1.45		0.0300	0.500 mg/L		108312	1	12/31/2008 10:32:51 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Sodium	5.15		0.0063	1.00 mg/L		108312	1	12/31/2008 10:32:51 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:32:51 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:32:51 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.516		0.0230	0.200 mg/L		108314	1	12/31/2008 4:39:49 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:39:49 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:39:49 PM
Barium	0.0411		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:39:49 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:39:49 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:39:49 PM
Calcium	28.6		0.0110	0.100 mg/L		108314	1	12/31/2008 4:39:49 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:39:49 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:39:49 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:39:49 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-022

Client Sample ID: KIF-CRM2.0  
 Collection Date: 12/29/2008 12:07:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: <b>BB</b>		
Iron	0.466		0.0360	0.100	mg/L	108314	1	12/31/2008 4:39:49 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:39:49 PM
Magnesium	9.21		0.0190	0.100	mg/L	108314	1	12/31/2008 4:39:49 PM
Manganese	0.0507		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:39:49 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
Potassium	1.87		0.0300	0.500	mg/L	108314	1	12/31/2008 4:39:49 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:39:49 PM
Sodium	6.08		0.0063	1.00	mg/L	108314	1	12/31/2008 4:39:49 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:39:49 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:39:49 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	0.00009	J	0.00001	0.00020	mg/L	108389	1	1/2/2009 3:25:00 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	0.00006	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:04:18 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812I49  
**Project:** TVA Kingston  
**Lab ID:** 0812I49-023

**Client Sample ID:** TT-CRM2.5  
**Collection Date:** 12/29/2008 12:30:00 PM  
**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				<b>Analyst: ML</b>
Residue, Suspended (TSS)	13		1	5 mg/L		108315	1	12/31/2008 10:21:30 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: TAA</b>
Silica (as Si)	1.89		0.0110	0.100 mg/L		108312	1	12/31/2008 10:36:17 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: BB</b>
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:37:06 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:37:06 A
Barium	0.0280		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:37:06 A
Calcium	27.8		0.0110	0.100 mg/L		108312	1	12/31/2008 10:37:06 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:37:06 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Magnesium	8.41		0.0190	0.100 mg/L		108312	1	12/31/2008 10:37:06 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:37:06 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Potassium	1.51		0.0300	0.500 mg/L		108312	1	12/31/2008 10:37:06 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Silver	0.0007	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Sodium	5.67		0.0063	1.00 mg/L		108312	1	12/31/2008 10:37:06 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:37:06 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:37:06 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				<b>Analyst: BB</b>
Aluminum	0.355		0.0230	0.200 mg/L		108314	1	12/31/2008 4:43:29 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:43:29 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:43:29 PM
Barium	0.0384		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:43:29 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:43:29 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:43:29 PM
Calcium	31.2		0.0110	0.100 mg/L		108314	1	12/31/2008 4:43:29 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:43:29 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:43:29 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:43:29 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-023

**Client Sample ID:** TT-CRM2.5  
**Collection Date:** 12/29/2008 12:30:00 PM  
**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.328		0.0360	0.100	mg/L	108314	1	12/31/2008 4:43:29 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:43:29 PM
Magnesium	10.1		0.0190	0.100	mg/L	108314	1	12/31/2008 4:43:29 PM
Manganese	0.0495		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:43:29 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
Potassium	1.86		0.0300	0.500	mg/L	108314	1	12/31/2008 4:43:29 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
Silver	0.0004	J	0.0003	0.0100	mg/L	108314	1	12/31/2008 4:43:29 PM
Sodium	6.58		0.0063	1.00	mg/L	108314	1	12/31/2008 4:43:29 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:43:29 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:43:29 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00010	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:26:56 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00006	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:06:14 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-024

**Client Sample ID:** KIF-CRM4.0  
**Collection Date:** 12/29/2008 12:45:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				<b>Analyst: ML</b>
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:22:12 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: TAA</b>
Silica (as Si)	1.96		0.0110	0.100 mg/L		108312	1	12/31/2008 10:39:26 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: BB</b>
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:40:54 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:40:54 A
Barium	0.0286		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:40:54 A
Calcium	28.5		0.0110	0.100 mg/L		108312	1	12/31/2008 10:40:54 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:40:54 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Magnesium	8.61		0.0190	0.100 mg/L		108312	1	12/31/2008 10:40:54 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:40:54 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Potassium	1.51		0.0300	0.500 mg/L		108312	1	12/31/2008 10:40:54 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Silver	0.0003	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Sodium	5.78		0.0063	1.00 mg/L		108312	1	12/31/2008 10:40:54 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:40:54 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:40:54 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				<b>Analyst: BB</b>
Aluminum	0.355		0.0230	0.200 mg/L		108314	1	12/31/2008 4:46:59 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:46:59 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:46:59 PM
Barium	0.0374		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:46:59 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:46:59 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:46:59 PM
Calcium	31.7		0.0110	0.100 mg/L		108314	1	12/31/2008 4:46:59 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:46:59 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:46:59 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:46:59 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-024

Client Sample ID: KIF-CRM4.0  
 Collection Date: 12/29/2008 12:45:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.335		0.0360	0.100	mg/L	108314	1	12/31/2008 4:46:59 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:46:59 PM
Magnesium	10.3		0.0190	0.100	mg/L	108314	1	12/31/2008 4:46:59 PM
Manganese	0.0473		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:46:59 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
Potassium	1.84		0.0300	0.500	mg/L	108314	1	12/31/2008 4:46:59 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:46:59 PM
Sodium	6.63		0.0063	1.00	mg/L	108314	1	12/31/2008 4:46:59 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:46:59 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:46:59 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00003	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:28:52 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00016	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:08:10 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-025

Client Sample ID: KIF-CRM5.5  
 Collection Date: 12/29/2008 1:00:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	9		1	5 mg/L		108315	1	12/31/2008 10:22:37 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.95		0.0110	0.100 mg/L		108312	1	12/31/2008 10:41:14 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 10:47:50 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:47:50 A
Barium	0.0292		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:47:50 A
Calcium	30.2		0.0110	0.100 mg/L		108312	1	12/31/2008 10:47:50 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 10:47:50 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Magnesium	9.14		0.0190	0.100 mg/L		108312	1	12/31/2008 10:47:50 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:47:50 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Potassium	1.56		0.0300	0.500 mg/L		108312	1	12/31/2008 10:47:50 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Silver	0.0003	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Sodium	6.14		0.0063	1.00 mg/L		108312	1	12/31/2008 10:47:50 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:47:50 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:47:50 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.308		0.0230	0.200 mg/L		108314	1	12/31/2008 4:50:29 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:50:29 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:50:29 PM
Barium	0.0379		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:50:29 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:50:29 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:50:29 PM
Calcium	34.1		0.0110	0.100 mg/L		108314	1	12/31/2008 4:50:29 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:50:29 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:50:29 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:50:29 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-025

Client Sample ID: KIF-CRM5.5  
 Collection Date: 12/29/2008 1:00:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: <b>BB</b>		
Iron	0.294		0.0360	0.100	mg/L	108314	1	12/31/2008 4:50:29 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:50:29 PM
Magnesium	11.1		0.0190	0.100	mg/L	108314	1	12/31/2008 4:50:29 PM
Manganese	0.0518		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:50:29 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
Potassium	1.90		0.0300	0.500	mg/L	108314	1	12/31/2008 4:50:29 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:50:29 PM
Sodium	7.08		0.0063	1.00	mg/L	108314	1	12/31/2008 4:50:29 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:50:29 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:50:29 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	0.00023		0.00001	0.00020	mg/L	108369	1	1/2/2009 3:30:48 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: <b>MAW</b>		
Mercury	0.00003	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:10:07 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-026

**Client Sample ID:** KIF-ERM0.1  
**Collection Date:** 12/29/2008 1:15:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				<b>Analyst: ML</b>
Residue, Suspended (TSS)	9		1	5 mg/L		108315	1	12/31/2008 10:23:07 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: TAA</b>
Silica (as Si)	1.94		0.0110	0.100 mg/L		108312	1	12/31/2008 10:43:01 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: BB</b>
Aluminum	0.0265	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:51:34 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:51:34 A
Barium	0.0240		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:51:34 A
Calcium	13.3		0.0110	0.100 mg/L		108312	1	12/31/2008 10:51:34 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Iron	0.0376	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:51:34 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Magnesium	3.92		0.0190	0.100 mg/L		108312	1	12/31/2008 10:51:34 A
Manganese	0.0126	J	0.0019	0.0150 mg/L		108312	1	12/31/2008 10:51:34 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Potassium	1.18		0.0300	0.500 mg/L		108312	1	12/31/2008 10:51:34 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Silver	0.0004	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Sodium	3.18		0.0063	1.00 mg/L		108312	1	12/31/2008 10:51:34 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:51:34 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:51:34 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				<b>Analyst: BB</b>
Aluminum	0.400		0.0230	0.200 mg/L		108314	1	12/31/2008 4:53:59 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:53:59 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:53:59 PM
Barium	0.0320		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:53:59 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:53:59 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:53:59 PM
Calcium	14.7		0.0110	0.100 mg/L		108314	1	12/31/2008 4:53:59 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:53:59 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:53:59 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:53:59 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.

Client Sample ID: KIF-ERM0.1

Lab Order: 0812149

Collection Date: 12/29/2008 1:15:00 PM

Project: TVA Kingston

Lab ID: 0812149-026

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.323		0.0360	0.100	mg/L	108314	1	12/31/2008 4:53:59 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:53:59 PM
Magnesium	4.63		0.0190	0.100	mg/L	108314	1	12/31/2008 4:53:59 PM
Manganese	0.0427		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:53:59 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
Potassium	1.47		0.0300	0.500	mg/L	108314	1	12/31/2008 4:53:59 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:53:59 PM
Sodium	3.35		0.0063	1.00	mg/L	108314	1	12/31/2008 4:53:59 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:53:59 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:53:59 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00002	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:32:44 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00001	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:12:03 PM

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-027

Client Sample ID: KIF-ERM-1.75  
 Collection Date: 12/29/2008 1:30:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	13		1	5 mg/L		108315	1	12/31/2008 10:23:32 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.85		0.0110	0.100 mg/L		108312	1	12/31/2008 10:44:47 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0439	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:55:14 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:55:14 A
Barium	0.0223		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:55:14 A
Calcium	6.12		0.0110	0.100 mg/L		108312	1	12/31/2008 10:55:14 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Iron	0.0569	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:55:14 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Magnesium	1.54		0.0190	0.100 mg/L		108312	1	12/31/2008 10:55:14 A
Manganese	0.0221		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:55:14 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Potassium	1.03		0.0300	0.500 mg/L		108312	1	12/31/2008 10:55:14 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Sodium	1.95		0.0063	1.00 mg/L		108312	1	12/31/2008 10:55:14 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:55:14 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:55:14 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.587		0.0230	0.200 mg/L		108314	1	12/31/2008 4:57:26 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 4:57:26 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 4:57:26 PM
Barium	0.0328		0.0016	0.0200 mg/L		108314	1	12/31/2008 4:57:26 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 4:57:26 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 4:57:26 PM
Calcium	6.83		0.0110	0.100 mg/L		108314	1	12/31/2008 4:57:26 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 4:57:26 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 4:57:26 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 4:57:26 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-027

Client Sample ID: KIF-ERM-1.75  
 Collection Date: 12/29/2008 1:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	0.414		0.0360	0.100	mg/L	108314	1	12/31/2008 4:57:26 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 4:57:26 PM
Magnesium	1.87		0.0190	0.100	mg/L	108314	1	12/31/2008 4:57:26 PM
Manganese	0.0408		0.0019	0.0150	mg/L	108314	1	12/31/2008 4:57:26 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
Potassium	1.34		0.0300	0.500	mg/L	108314	1	12/31/2008 4:57:26 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 4:57:26 PM
Sodium	2.03		0.0063	1.00	mg/L	108314	1	12/31/2008 4:57:26 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 4:57:26 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 4:57:26 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00016	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:34:39 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL		0.00001	0.00020	mg/L	108319	1	12/31/2008 6:17:55 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-028

Client Sample ID: KIF-ERM4.0  
 Collection Date: 12/29/2008 1:50:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:24:03 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.07		0.0110	0.100 mg/L		108312	1	12/31/2008 10:13:21 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0441	J	0.0230	0.200 mg/L		108312	1	12/31/2008 9:43:17 AM
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 9:43:17 AM
Barium	0.0226		0.0016	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 9:43:17 AM
Calcium	6.42		0.0110	0.100 mg/L		108312	1	12/31/2008 9:43:17 AM
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Iron	0.0621	J	0.0360	0.100 mg/L		108312	1	12/31/2008 9:43:17 AM
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Magnesium	1.64		0.0190	0.100 mg/L		108312	1	12/31/2008 9:43:17 AM
Manganese	0.0275		0.0019	0.0150 mg/L		108312	1	12/31/2008 9:43:17 AM
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Potassium	1.16		0.0300	0.500 mg/L		108312	1	12/31/2008 9:43:17 AM
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Sodium	2.02		0.0063	1.00 mg/L		108312	1	12/31/2008 9:43:17 AM
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 9:43:17 AM
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 9:43:17 AM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.582		0.0230	0.200 mg/L		108314	1	12/31/2008 3:57:19 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 3:57:19 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 3:57:19 PM
Barium	0.0325		0.0016	0.0200 mg/L		108314	1	12/31/2008 3:57:19 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 3:57:19 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 3:57:19 PM
Calcium	6.92		0.0110	0.100 mg/L		108314	1	12/31/2008 3:57:19 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 3:57:19 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 3:57:19 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 3:57:19 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-028

Client Sample ID: KIF-ERM4.0  
 Collection Date: 12/29/2008 1:50:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.397		0.0360	0.100	mg/L	108314	1	12/31/2008 3:57:19 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 3:57:19 PM
Magnesium	1.92		0.0190	0.100	mg/L	108314	1	12/31/2008 3:57:19 PM
Manganese	0.0442		0.0019	0.0150	mg/L	108314	1	12/31/2008 3:57:19 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
Potassium	1.41		0.0300	0.500	mg/L	108314	1	12/31/2008 3:57:19 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 3:57:19 PM
Sodium	2.09		0.0063	1.00	mg/L	108314	1	12/31/2008 3:57:19 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 3:57:19 PM
Zinc	0.0041	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 3:57:19 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00021		0.00001	0.00020	mg/L	108369	1	1/2/2009 2:59:37 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00005	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 5:38:52 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-029

Client Sample ID: KIF-ERM2.0  
 Collection Date: 12/29/2008 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	22		1	5 mg/L		108315	1	12/31/2008 10:24:28 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.86		0.0110	0.100 mg/L		108312	1	12/31/2008 10:46:31 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0411	J	0.0230	0.200 mg/L		108312	1	12/31/2008 10:58:54 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 10:58:54 A
Barium	0.0218		0.0016	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 10:58:54 A
Calcium	5.87		0.0110	0.100 mg/L		108312	1	12/31/2008 10:58:54 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Iron	0.0598	J	0.0360	0.100 mg/L		108312	1	12/31/2008 10:58:54 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Magnesium	1.47		0.0190	0.100 mg/L		108312	1	12/31/2008 10:58:54 A
Manganese	0.0227		0.0019	0.0150 mg/L		108312	1	12/31/2008 10:58:54 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Potassium	1.02		0.0300	0.500 mg/L		108312	1	12/31/2008 10:58:54 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Silver	0.0007	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Sodium	1.91		0.0063	1.00 mg/L		108312	1	12/31/2008 10:58:54 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 10:58:54 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 10:58:54 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.995		0.0230	0.200 mg/L		108314	1	12/31/2008 5:00:52 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 5:00:52 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 5:00:52 PM
Barium	0.0377		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:00:52 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 5:00:52 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 5:00:52 PM
Calcium	6.81		0.0110	0.100 mg/L		108314	1	12/31/2008 5:00:52 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 5:00:52 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 5:00:52 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 5:00:52 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.

Client Sample ID: KIF-ERM2.0

Lab Order: 0812149

Collection Date: 12/29/2008 2:15:00 PM

Project: TVA Kingston

Lab ID: 0812149-029

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.643		0.0360	0.100	mg/L	108314	1	12/31/2008 5:00:52 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 5:00:52 PM
Magnesium	1.87		0.0190	0.100	mg/L	108314	1	12/31/2008 5:00:52 PM
Manganese	0.0446		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:00:52 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
Potassium	1.44		0.0300	0.500	mg/L	108314	1	12/31/2008 5:00:52 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 5:00:52 PM
Sodium	2.06		0.0063	1.00	mg/L	108314	1	12/31/2008 5:00:52 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
Vanadium	0.0023	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:00:52 PM
Zinc	0.0047	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:00:52 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108369	1	1/2/2009 3:40:32 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00003	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:19:52 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-030

Client Sample ID: KIF-ERM2.0-DUP  
 Collection Date: 12/29/2008 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	17		1	5 mg/L		108315	1	12/31/2008 10:25:00 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.84		0.0110	0.100 mg/L		108312	1	12/31/2008 10:48:15 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0420	J	0.0230	0.200 mg/L		108312	1	12/31/2008 11:05:35 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 11:05:35 A
Barium	0.0219		0.0016	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 11:05:35 A
Calcium	6.29		0.0110	0.100 mg/L		108312	1	12/31/2008 11:05:35 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Iron	0.0583	J	0.0360	0.100 mg/L		108312	1	12/31/2008 11:05:35 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Magnesium	1.47		0.0190	0.100 mg/L		108312	1	12/31/2008 11:05:35 A
Manganese	0.0238		0.0019	0.0150 mg/L		108312	1	12/31/2008 11:05:35 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Potassium	1.03		0.0300	0.500 mg/L		108312	1	12/31/2008 11:05:35 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Sodium	1.91		0.0063	1.00 mg/L		108312	1	12/31/2008 11:05:35 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:05:35 A
Zinc	0.0067	J	0.0035	0.0200 mg/L		108312	1	12/31/2008 11:05:35 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.998		0.0230	0.200 mg/L		108314	1	12/31/2008 5:04:18 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 5:04:18 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 5:04:18 PM
Barium	0.0375		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:04:18 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 5:04:18 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 5:04:18 PM
Calcium	6.71		0.0110	0.100 mg/L		108314	1	12/31/2008 5:04:18 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 5:04:18 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 5:04:18 PM
Copper	0.0020	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:04:18 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-030

Client Sample ID: KIF-ERM2.0-DUP  
 Collection Date: 12/29/2008 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	0.625		0.0360	0.100	mg/L	108314	1	12/31/2008 5:04:18 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 5:04:18 PM
Magnesium	1.83		0.0190	0.100	mg/L	108314	1	12/31/2008 5:04:18 PM
Manganese	0.0437		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:04:18 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
Potassium	1.42		0.0300	0.500	mg/L	108314	1	12/31/2008 5:04:18 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 5:04:18 PM
Sodium	2.02		0.0063	1.00	mg/L	108314	1	12/31/2008 5:04:18 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
Vanadium	0.0022	J	0.0016	0.0100	mg/L	108314	1	12/31/2008 5:04:18 PM
Zinc	0.0041	J	0.0035	0.0200	mg/L	108314	1	12/31/2008 5:04:18 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	BRL		0.00001	0.00020	mg/L	108369	1	1/2/2009 3:42:29 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00007	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:21:47 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812I49  
 Project: TVA Kingston  
 Lab ID: 0812I49-031

Client Sample ID: KWTPI-WS01  
 Collection Date: 12/29/2008 3:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	10		1	5 mg/L		108315	1	12/31/2008 10:25:29 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: TAA
Silica (as Si)	1.94		0.0110	0.100 mg/L		108312	1	12/31/2008 10:53:32 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILTER)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 11:16:04 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 11:16:04 A
Barium	0.0192	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 11:16:04 A
Calcium	14.2		0.0110	0.100 mg/L		108312	1	12/31/2008 11:16:04 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 11:16:04 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Magnesium	3.67		0.0190	0.100 mg/L		108312	1	12/31/2008 11:16:04 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 11:16:04 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Potassium	1.60		0.0300	0.500 mg/L		108312	1	12/31/2008 11:16:04 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Sodium	8.36		0.0063	1.00 mg/L		108312	1	12/31/2008 11:16:04 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:16:04 A
Zinc	0.0337		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:16:04 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.423		0.0230	0.200 mg/L		108314	1	12/31/2008 5:14:14 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 5:14:14 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 5:14:14 PM
Barium	0.0258		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:14:14 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 5:14:14 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 5:14:14 PM
Calcium	15.5		0.0110	0.100 mg/L		108314	1	12/31/2008 5:14:14 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 5:14:14 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 5:14:14 PM
Copper	0.0044	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:14:14 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812I49  
**Project:** TVA Kingston  
**Lab ID:** 0812I49-031

**Client Sample ID:** KWTP1-WS01  
**Collection Date:** 12/29/2008 3:15:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	0.512		0.0360	0.100	mg/L	108314	1	12/31/2008 5:14:14 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 5:14:14 PM
Magnesium	4.34		0.0190	0.100	mg/L	108314	1	12/31/2008 5:14:14 PM
Manganese	0.106		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:14:14 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
Potassium	1.90		0.0300	0.500	mg/L	108314	1	12/31/2008 5:14:14 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 5:14:14 PM
Sodium	9.45		0.0063	1.00	mg/L	108314	1	12/31/2008 5:14:14 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 5:14:14 PM
Zinc	0.0712		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:14:14 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00014	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:44:24 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00041		0.00001	0.00020	mg/L	108319	1	12/31/2008 6:23:47 PM

**Qualifiers:**

- Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-032

Client Sample ID: KWTDW-WS02  
 Collection Date: 12/29/2008 3:20:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	BRL		1	5 mg/L		108315	1	12/31/2008 10:25:59 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.12		0.0110	0.100 mg/L		108312	1	12/31/2008 10:55:17 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 11:20:24 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 11:20:24 A
Barium	0.0179	J	0.0016	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 11:20:24 A
Calcium	14.0		0.0110	0.100 mg/L		108312	1	12/31/2008 11:20:24 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Copper	0.0037	J	0.0016	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 11:20:24 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Magnesium	3.66		0.0190	0.100 mg/L		108312	1	12/31/2008 11:20:24 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 11:20:24 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Potassium	1.64		0.0300	0.500 mg/L		108312	1	12/31/2008 11:20:24 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Sodium	11.6		0.0063	1.00 mg/L		108312	1	12/31/2008 11:20:24 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:20:24 A
Zinc	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:20:24 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.0427	J	0.0230	0.200 mg/L		108314	1	12/31/2008 5:18:42 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 5:18:42 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 5:18:42 PM
Barium	0.0217		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:18:42 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 5:18:42 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 5:18:42 PM
Calcium	15.8		0.0110	0.100 mg/L		108314	1	12/31/2008 5:18:42 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 5:18:42 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 5:18:42 PM
Copper	0.0055	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:18:42 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-032

Client Sample ID: KWTDW-WS02  
 Collection Date: 12/29/2008 3:20:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	BRL		0.0360	0.100	mg/L	108314	1	12/31/2008 5:18:42 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 5:18:42 PM
Magnesium	4.41		0.0190	0.100	mg/L	108314	1	12/31/2008 5:18:42 PM
Manganese	BRL		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:18:42 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
Potassium	1.89		0.0300	0.500	mg/L	108314	1	12/31/2008 5:18:42 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 5:18:42 PM
Sodium	16.1		0.0063	1.00	mg/L	108314	1	12/31/2008 5:18:42 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 5:18:42 PM
Zinc	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:18:42 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00003	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:46:23 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00008	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:25:43 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 -> Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-033

Client Sample ID: RWWTI-WS04  
 Collection Date: 12/29/2008 4:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	8		1	5 mg/L		108315	1	12/31/2008 10:26:27 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.03		0.0110	0.100 mg/L		108312	1	12/31/2008 10:57:03 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	BRL		0.0230	0.200 mg/L		108312	1	12/31/2008 11:24:18 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 11:24:18 A
Barium	0.0251		0.0016	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 11:24:18 A
Calcium	17.9		0.0110	0.100 mg/L		108312	1	12/31/2008 11:24:18 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 11:24:18 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Magnesium	5.87		0.0190	0.100 mg/L		108312	1	12/31/2008 11:24:18 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 11:24:18 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Potassium	1.49		0.0300	0.500 mg/L		108312	1	12/31/2008 11:24:18 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Silver	0.0003	J	0.0003	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Sodium	6.37		0.0063	1.00 mg/L		108312	1	12/31/2008 11:24:18 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:24:18 A
Zinc	0.0633		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:24:18 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.149	J	0.0230	0.200 mg/L		108314	1	12/31/2008 5:22:13 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 5:22:13 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 5:22:13 PM
Barium	0.0316		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:22:13 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 5:22:13 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 5:22:13 PM
Calcium	19.8		0.0110	0.100 mg/L		108314	1	12/31/2008 5:22:13 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 5:22:13 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 5:22:13 PM
Copper	0.0036	J	0.0016	0.0100 mg/L		108314	1	12/31/2008 5:22:13 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-033

Client Sample ID: RWWTI-WS04  
 Collection Date: 12/29/2008 4:30:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>		Analyst: BB		
Iron	0.175		0.0360	0.100	mg/L	108314	1	12/31/2008 5:22:13 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 5:22:13 PM
Magnesium	6.87		0.0190	0.100	mg/L	108314	1	12/31/2008 5:22:13 PM
Manganese	0.0496		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:22:13 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
Potassium	1.77		0.0300	0.500	mg/L	108314	1	12/31/2008 5:22:13 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 5:22:13 PM
Sodium	7.27		0.0063	1.00	mg/L	108314	1	12/31/2008 5:22:13 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 5:22:13 PM
Zinc	0.0991		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:22:13 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00004	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:48:18 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>		Analyst: MAW		
Mercury	0.00014	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:27:39 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-034

Client Sample ID: RWDW-WS03  
 Collection Date: 12/29/2008 4:35:00 PM  
 Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	BRL		1	5 mg/L		108315	1	12/31/2008 10:26:54 A
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.14		0.0110	0.100 mg/L		108312	1	12/31/2008 10:58:51 A
<b>METALS, DISSOLVED</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Aluminum	0.0235	J	0.0230	0.200 mg/L		108312	1	12/31/2008 11:28:02 A
Antimony	BRL		0.0063	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Arsenic	BRL		0.0031	0.0500 mg/L		108312	1	12/31/2008 11:28:02 A
Barium	0.0248		0.0016	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Beryllium	BRL		0.0022	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Cadmium	BRL		0.0025	0.0050 mg/L		108312	1	12/31/2008 11:28:02 A
Calcium	17.9		0.0110	0.100 mg/L		108312	1	12/31/2008 11:28:02 A
Chromium	BRL		0.0075	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Cobalt	BRL		0.0013	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Copper	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Iron	BRL		0.0360	0.100 mg/L		108312	1	12/31/2008 11:28:02 A
Lead	BRL		0.0038	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Magnesium	5.87		0.0190	0.100 mg/L		108312	1	12/31/2008 11:28:02 A
Manganese	BRL		0.0019	0.0150 mg/L		108312	1	12/31/2008 11:28:02 A
Nickel	BRL		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Potassium	1.64		0.0300	0.500 mg/L		108312	1	12/31/2008 11:28:02 A
Selenium	BRL		0.0060	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Silver	BRL		0.0003	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Sodium	7.30		0.0063	1.00 mg/L		108312	1	12/31/2008 11:28:02 A
Thallium	BRL		0.0041	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
Vanadium	BRL		0.0016	0.0100 mg/L		108312	1	12/31/2008 11:28:02 A
Zinc	0.0240		0.0035	0.0200 mg/L		108312	1	12/31/2008 11:28:02 A
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Aluminum	0.0326	J	0.0230	0.200 mg/L		108314	1	12/31/2008 5:25:43 PM
Antimony	BRL		0.0063	0.0200 mg/L		108314	1	12/31/2008 5:25:43 PM
Arsenic	BRL		0.0031	0.0500 mg/L		108314	1	12/31/2008 5:25:43 PM
Barium	0.0295		0.0016	0.0200 mg/L		108314	1	12/31/2008 5:25:43 PM
Beryllium	BRL		0.0022	0.0100 mg/L		108314	1	12/31/2008 5:25:43 PM
Cadmium	BRL		0.0025	0.0050 mg/L		108314	1	12/31/2008 5:25:43 PM
Calcium	20.0		0.0110	0.100 mg/L		108314	1	12/31/2008 5:25:43 PM
Chromium	BRL		0.0075	0.0100 mg/L		108314	1	12/31/2008 5:25:43 PM
Cobalt	BRL		0.0013	0.0200 mg/L		108314	1	12/31/2008 5:25:43 PM
Copper	BRL		0.0016	0.0100 mg/L		108314	1	12/31/2008 5:25:43 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0812149  
**Project:** TVA Kingston  
**Lab ID:** 0812149-034

**Client Sample ID:** RWDW-WS03  
**Collection Date:** 12/29/2008 4:35:00 PM

**Matrix:** SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Iron	BRL		0.0360	0.100	mg/L	108314	1	12/31/2008 5:25:43 PM
Lead	BRL		0.0038	0.0100	mg/L	108314	1	12/31/2008 5:25:43 PM
Magnesium	6.97		0.0190	0.100	mg/L	108314	1	12/31/2008 5:25:43 PM
Manganese	BRL		0.0019	0.0150	mg/L	108314	1	12/31/2008 5:25:43 PM
Nickel	BRL		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
Potassium	1.92		0.0300	0.500	mg/L	108314	1	12/31/2008 5:25:43 PM
Selenium	BRL		0.0060	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
Silver	BRL		0.0003	0.0100	mg/L	108314	1	12/31/2008 5:25:43 PM
Sodium	8.31		0.0063	1.00	mg/L	108314	1	12/31/2008 5:25:43 PM
Thallium	BRL		0.0041	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
Vanadium	BRL		0.0016	0.0100	mg/L	108314	1	12/31/2008 5:25:43 PM
Zinc	0.0321		0.0035	0.0200	mg/L	108314	1	12/31/2008 5:25:43 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00002	J	0.00001	0.00020	mg/L	108369	1	1/2/2009 3:50:14 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	0.00005	J	0.00001	0.00020	mg/L	108319	1	12/31/2008 6:29:34 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-035

Client Sample ID: TRIP BLANK1  
 Collection Date: 12/30/2008  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: PV
Benzene	BRL		0.22	1.0 ug/L	108303	1	12/30/2008 6:37:00 PM	
Toluene	BRL		0.26	1.0 ug/L	108303	1	12/30/2008 6:37:00 PM	
Ethylbenzene	BRL		0.37	1.0 ug/L	108303	1	12/30/2008 6:37:00 PM	
m,p-Xylene	BRL		0.60	1.0 ug/L	108303	1	12/30/2008 6:37:00 PM	
o-Xylene	BRL		0.29	1.0 ug/L	108303	1	12/30/2008 6:37:00 PM	
Surr: 4-Bromofluorobenzene	101		0	64.1-129 %REC	108303	1	12/30/2008 6:37:00 PM	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-036

Client Sample ID: TRIP BLANK2  
 Collection Date: 12/30/2008

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: PV
Benzene	BRL		0.22	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
Toluene	BRL		0.26	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108303	1	12/30/2008 6:12:00 PM
Surr: 4-Bromofluorobenzene	98.0		0	64.1-129	%REC	108303	1	12/30/2008 6:12:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 02-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0812149  
 Project: TVA Kingston  
 Lab ID: 0812149-037

Client Sample ID: TRIP BLANK3  
 Collection Date: 12/30/2008  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>					Analyst: PV
Benzene	BRL		0.22	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
Toluene	BRL		0.26	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108303	1	12/30/2008 5:47:00 PM
Surr: 4-Bromofluorobenzene	100		0	64.1-129	%REC	108303	1	12/30/2008 5:47:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 1311\_HG

Sample ID: MB-108322	SampType: MBLK	TestCode: 1311_HG	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139962						
Client ID:	Batch ID: 108322	TestNo: SW1311/7470		Analysis Date: 12/31/2008	SeqNo: 2868331						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0007737	0.00400	0	0	0	0	0	0	0	0	J
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Sample ID: LCS-108322	SampType: LCS	TestCode: 1311_HG	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139962						
Client ID:	Batch ID: 108322	TestNo: SW1311/7470		Analysis Date: 12/31/2008	SeqNo: 2868332						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.04206	0.00400	0.04	0.0007737	103	80	120	0	0		
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Sample ID: 0812149-012BMS	SampType: MS	TestCode: 1311_HG	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139962						
Client ID: 081228-ERER-SS08	Batch ID: 108322	TestNo: SW1311/7470		Analysis Date: 12/31/2008	SeqNo: 2868334						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.04217	0.00400	0.04	0.004126	95.1	80	120	0	0		
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Sample ID: 0812149-012BMSD	SampType: MSD	TestCode: 1311_HG	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139962						
Client ID: 081228-ERER-SS08	Batch ID: 108322	TestNo: SW1311/7470		Analysis Date: 12/31/2008	SeqNo: 2868335						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.04202	0.00400	0.04	0.004126	94.7	80	120	0.04217	0.360	20	
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**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: MB-108325		SampType: MBLK		TestCode: 1311_M		Units: mg/L		Prep Date: 12/31/2008		RunNo: 139935	
Client ID:		Batch ID: 108325		TestNo: SW1311/6010		Analysis Date: 12/31/2008		SeqNo: 2868189			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	BRL	0.250	0	0	0	0	0	0	0		
Barium	0.00778	0.500	0	0	0	0	0	0	0		J
Cadmium	BRL	0.0250	0	0	0	0	0	0	0		
Chromium	BRL	0.0500	0	0	0	0	0	0	0		
Lead	BRL	0.0500	0	0	0	0	0	0	0		
Selenium	BRL	0.100	0	0	0	0	0	0	0		
Silver	BRL	0.0250	0	0	0	0	0	0	0		

Sample ID: LCS-108325		SampType: LCS		TestCode: 1311_M		Units: mg/L		Prep Date: 12/31/2008		RunNo: 139935	
Client ID:		Batch ID: 108325		TestNo: SW1311/6010		Analysis Date: 12/31/2008		SeqNo: 2868186			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.015	0.250	5	0	100	85	115	0	0		
Barium	5	0.500	5	0.00778	99.8	80	120	0	0		
Cadmium	5.045	0.0250	5	0	101	85	115	0	0		
Chromium	5.16	0.0500	5	0	103	85	115	0	0		
Lead	5.06	0.0500	5	0	101	85	115	0	0		
Selenium	4.997	0.100	5	0	99.9	85	115	0	0		
Silver	0.5164	0.0250	0.5	0	103	85	115	0	0		

Sample ID: 0812149-012BMS		SampType: MS		TestCode: 1311_M		Units: mg/L		Prep Date: 12/31/2008		RunNo: 139935	
Client ID: 081228-ERER-SS08		Batch ID: 108325		TestNo: SW1311/6010		Analysis Date: 12/31/2008		SeqNo: 2868191			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.235	0.250	5	0	105	50	150	0	0		
Barium	5.021	0.500	5	0.1777	96.9	50	150	0	0		
Cadmium	5.002	0.0250	5	0	100	50	150	0	0		
Chromium	5.022	0.0500	5	0	100	50	150	0	0		
Lead	5.004	0.0500	5	0	100	50	150	0	0		

Qualifiers:	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: 0812149-012BMS	SampType: MS	TestCode: 1311_M	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139935						
Client ID: 081228-ERER-SS08	Batch ID: 108325	TestNo: SW1311/6010		Analysis Date: 12/31/2008	SeqNo: 2868191						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Selenium	5.26	0.100	5	0	105	50	150	0	0		
Silver	0.5044	0.0250	0.5	0	101	50	150	0	0		

Sample ID: 0812149-012BMSSD	SampType: MSD	TestCode: 1311_M	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139935						
Client ID: 081228-ERER-SS08	Batch ID: 108325	TestNo: SW1311/6010		Analysis Date: 12/31/2008	SeqNo: 2868192						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	5.21	0.250	5	0	104	50	150	5.235	0.466	30	
Barium	5.015	0.500	5	0.1777	96.7	50	150	5.021	0.135	30	
Cadmium	4.97	0.0250	5	0	99.4	50	150	5.002	0.645	30	
Chromium	4.981	0.0500	5	0	99.6	50	150	5.022	0.826	30	
Lead	4.965	0.0500	5	0	99.3	50	150	5.004	0.770	30	
Selenium	5.227	0.100	5	0	105	50	150	5.26	0.625	30	
Silver	0.5094	0.0250	0.5	0	102	50	150	0.5044	0.986	30	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2

Sample ID: MB-108315	SampType: MBLK	TestCode: 160.2	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139915						
Client ID:	Batch ID: 108315	TestNo: E160.2		Analysis Date: 12/31/2008	SeqNo: 2867576						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Residue, Suspended (TSS)	BRL	5.00									
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Sample ID: 0812149-005BDUP	SampType: DUP	TestCode: 160.2	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139915						
Client ID: 081228-ERPL-WS01	Batch ID: 108315	TestNo: E160.2		Analysis Date: 12/31/2008	SeqNo: 2867576						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Residue, Suspended (TSS)	57	10.0	0	0	0	0	0	0	58	1.74	30
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812I49  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_SI\_W

Sample ID: MB-108312	SampType: MBLK	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139887						
Client ID:	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867600						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	BRL	0.100	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108312	SampType: LCS	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139887						
Client ID:	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867599						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	1.132	0.100	1	0	113	80	120	0	0		
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Sample ID: 0812I49-028BMS	SampType: MS	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139887						
Client ID: KIF-ERM4.0	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867602						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	3.089	0.100	1	2.069	102	75	125	0	0		
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Sample ID: 0812I49-028BMSD	SampType: MSD	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139887						
Client ID: KIF-ERM4.0	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867603						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	3.04	0.100	1	2.069	97.1	75	125	3.089	1.57	20	
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<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: MB-108311	SampType: MBLK	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 12/31/2008	RunNo: 139920
Client ID:	Batch ID: 108311	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867914

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	50.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	5.00	0	0	0	0	0	0	0	0	
Beryllium	BRL	2.50	0	0	0	0	0	0	0	0	
Cadmium	BRL	2.50	0	0	0	0	0	0	0	0	
Calcium	BRL	50.0	0	0	0	0	0	0	0	0	
Chromium	BRL	2.50	0	0	0	0	0	0	0	0	
Cobalt	BRL	2.50	0	0	0	0	0	0	0	0	
Copper	0.08143	2.50	0	0	0	0	0	0	0	0	J
Iron	BRL	50.0	0	0	0	0	0	0	0	0	
Lead	BRL	5.00	0	0	0	0	0	0	0	0	
Magnesium	BRL	50.0	0	0	0	0	0	0	0	0	
Manganese	0.1901	5.00	0	0	0	0	0	0	0	0	J
Nickel	BRL	5.00	0	0	0	0	0	0	0	0	
Potassium	2.63	100	0	0	0	0	0	0	0	0	J
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	2.50	0	0	0	0	0	0	0	0	
Sodium	7.542	100	0	0	0	0	0	0	0	0	J
Thallium	BRL	5.00	0	0	0	0	0	0	0	0	
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	BRL	5.00	0	0	0	0	0	0	0	0	

Sample ID: LCS-108311	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 12/31/2008	RunNo: 139920
Client ID:	Batch ID: 108311	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867913

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	474.4	50.0	500	0	94.9	80	120	0	0	0	
Antimony	45.35	5.00	50	0	90.7	80	120	0	0	0	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: LCS-108311		SampType: LCS		TestCode: 6010B_TAL_		Units: mg/Kg		Prep Date: 12/31/2008		RunNo: 139920	
Client ID:		Batch ID: 108311		TestNo: SW6010B		Analysis Date: 12/31/2008		SeqNo: 2867913			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.46	5.00	50	0	92.9	80	120	0	0		
Barium	46.58	5.00	50	0	93.2	80	120	0	0		
Beryllium	45.65	2.50	50	0	91.3	80	120	0	0		
Cadmium	45.5	2.50	50	0	91	80	120	0	0		
Calcium	477.4	50.0	500	0	95.5	80	120	0	0		
Chromium	48.21	2.50	50	0	96.4	80	120	0	0		
Cobalt	46.96	2.50	50	0	93.9	80	120	0	0		
Copper	47.43	2.50	50	0.08143	94.7	80	120	0	0		
Iron	474.7	50.0	500	0	94.9	80	120	0	0		
Lead	46.36	5.00	50	0	92.7	80	120	0	0		
Magnesium	471.8	50.0	500	0	94.4	80	120	0	0		
Manganese	47	5.00	50	0.1901	93.6	80	120	0	0		
Nickel	46.45	5.00	50	0	92.9	80	120	0	0		
Potassium	458.2	100	500	2.63	91.1	80	120	0	0		
Selenium	44.31	5.00	50	0	88.6	80	120	0	0		
Silver	4.727	2.50	5	0	94.5	80	120	0	0		
Sodium	465.7	100	500	7.542	91.6	80	120	0	0		
Thallium	45.97	5.00	50	0	91.9	80	120	0	0		
Vanadium	47.48	5.00	50	0	95	80	120	0	0		
Zinc	45.95	5.00	50	0	91.9	80	120	0	0		

Sample ID: 0812149-012CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 12/31/2008		RunNo: 139920	
Client ID: 081228-ERER-SS08		Batch ID: 108311		TestNo: SW6010B		Analysis Date: 12/31/2008		SeqNo: 2867916			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	15180	58.8	588.5	13700	251	75	125	0	0		S
Antimony	34.84	5.88	58.85	0.6642	58.1	75	125	0	0		S
Arsenic	54.33	5.88	58.85	3.991	85.5	75	125	0	0		
Barium	96.14	5.88	58.85	44.29	88.1	75	125	0	0		

Qualifiers:	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0812149-012CMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/31/2008	RunNo: 139920
Client ID: 081228-ERER-SS08	Batch ID: 108311	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867916

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	51.64	2.94	58.85	0.1169	87.6	75	125	0	0		
Cadmium	51.68	2.94	58.85	0	87.8	75	125	0	0		
Calcium	1841	58.8	588.5	1416	72.2	75	125	0	0		S
Chromium	71.65	2.94	58.85	18.7	90	75	125	0	0		
Cobalt	55.64	2.94	58.85	4.393	87.1	75	125	0	0		
Copper	64.09	2.94	58.85	8.739	94.1	75	125	0	0		
Lead	64.36	5.88	58.85	13.76	86	75	125	0	0		
Magnesium	1442	58.8	588.5	873.9	96.5	75	125	0	0		
Manganese	281.6	5.88	58.85	179.9	173	75	125	0	0		S
Nickel	58.02	5.88	58.85	6.683	87.2	75	125	0	0		
Potassium	1127	118	588.5	659.5	79.5	75	125	0	0		
Selenium	51	5.88	58.85	2.596	82.2	75	125	0	0		
Silver	5.324	2.94	5.885	0	90.5	75	125	0	0		
Sodium	563.2	118	588.5	48.16	87.5	75	125	0	0		
Thallium	47.54	5.88	58.85	0	80.8	75	125	0	0		
Vanadium	75.25	5.88	58.85	23.23	88.4	75	125	0	0		
Zinc	86.77	5.88	58.85	31.07	94.7	75	125	0	0		

Sample ID: 0812149-012CMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/31/2008	RunNo: 139920
Client ID: 081228-ERER-SS08	Batch ID: 108311	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867998

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	22720	588	588.5	23140	-71.2	75	125	0	0		S

Sample ID: 0812149-012CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 12/31/2008	RunNo: 139920
Client ID: 081228-ERER-SS08	Batch ID: 108311	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867917

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	14570	58.9	588.9	13700	147	75	125	15180	4.14	20	S

Qualifiers:	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0812149-012CMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 12/31/2008		RunNo: 139920	
Client ID: 081228-ERER-SS08		Batch ID: 108311		TestNo: SW6010B				Analysis Date: 12/31/2008		SeqNo: 2867917	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	33.74	5.89	58.89	0.6642	56.2	75	125	34.84	3.22	20	S
Arsenic	56.09	5.89	58.89	3.991	88.5	75	125	54.33	3.20	20	
Barium	129	5.89	58.89	44.29	144	75	125	96.14	29.2	20	SR
Beryllium	53.07	2.94	58.89	0.1169	89.9	75	125	51.64	2.74	20	
Cadmium	52.34	2.94	58.89	0	88.9	75	125	51.68	1.28	20	
Calcium	1864	58.9	588.9	1416	76.1	75	125	1841	1.27	20	
Chromium	73.39	2.94	58.89	18.7	92.9	75	125	71.65	2.39	20	
Cobalt	56.44	2.94	58.89	4.393	88.4	75	125	55.64	1.42	20	
Copper	67.66	2.94	58.89	8.739	100	75	125	64.09	5.42	20	
Lead	65.88	5.89	58.89	13.76	88.5	75	125	64.36	2.33	20	
Magnesium	1352	58.9	588.9	873.9	81.3	75	125	1442	6.41	20	
Manganese	455.1	5.89	58.89	179.9	467	75	125	281.6	47.1	20	SR
Nickel	58.42	5.89	58.89	6.683	87.8	75	125	58.02	0.672	20	
Potassium	1222	118	588.9	659.5	95.5	75	125	1127	8.08	20	
Selenium	50.1	5.89	58.89	2.596	80.7	75	125	51	1.77	20	
Silver	5.566	2.94	5.889	0	94.5	75	125	5.324	4.44	20	
Sodium	612.4	118	588.9	48.16	95.8	75	125	563.2	8.36	20	
Thallium	47.46	5.89	58.89	0	80.6	75	125	47.54	0.163	20	
Vanadium	78.47	5.89	58.89	23.23	93.8	75	125	75.25	4.20	20	
Zinc	91.84	5.89	58.89	31.07	103	75	125	86.77	5.68	20	

Sample ID: 0812149-012CMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 12/31/2008		RunNo: 139920	
Client ID: 081228-ERER-SS08		Batch ID: 108311		TestNo: SW6010B				Analysis Date: 12/31/2008		SeqNo: 2867999	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	23540	589	588.9	23140	66.7	75	125	22720	3.51	20	S

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: MB-108312	SampType: MBLK	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139916
Client ID:	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867541

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	0.200	0	0	0	0	0	0	0	0	
Antimony	BRL	0.0200	0	0	0	0	0	0	0	0	
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	
Beryllium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.00500	0	0	0	0	0	0	0	0	
Calcium	BRL	0.100	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cobalt	BRL	0.0200	0	0	0	0	0	0	0	0	
Copper	BRL	0.0100	0	0	0	0	0	0	0	0	
Iron	BRL	0.100	0	0	0	0	0	0	0	0	
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Magnesium	BRL	0.100	0	0	0	0	0	0	0	0	
Manganese	BRL	0.0150	0	0	0	0	0	0	0	0	
Nickel	BRL	0.0200	0	0	0	0	0	0	0	0	
Potassium	BRL	0.500	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	
Silver	0.0003368	0.0100	0	0	0	0	0	0	0	0	J
Sodium	BRL	1.00	0	0	0	0	0	0	0	0	
Thallium	BRL	0.0200	0	0	0	0	0	0	0	0	
Vanadium	BRL	0.0100	0	0	0	0	0	0	0	0	
Zinc	BRL	0.0200	0	0	0	0	0	0	0	0	

Sample ID: LCS-108312	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139916
Client ID:	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867540

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.757	0.200	10	0	97.6	80	120	0	0	0	
Antimony	0.998	0.0200	1	0	99.8	80	120	0	0	0	

**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix.
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: LCS-108312		SampType: LCS		TestCode: 6010B_TAL_ Units: mg/L		Prep Date: 12/31/2008		RunNo: 139916			
Client ID:		Batch ID: 108312		TestNo: SW6010B		Analysis Date: 12/31/2008		SeqNo: 2867540			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.994	0.0500	1	0	99.4	80	120	0	0		
Barium	0.9719	0.0200	1	0	97.2	80	120	0	0		
Beryllium	0.9737	0.0100	1	0	97.4	80	120	0	0		
Cadmium	0.9835	0.00500	1	0	98.3	80	120	0	0		
Calcium	9.985	0.100	10	0	99.8	80	120	0	0		
Chromium	0.9723	0.0100	1	0	97.2	80	120	0	0		
Cobalt	0.9823	0.0200	1	0	98.2	80	120	0	0		
Copper	0.9613	0.0100	1	0	96.1	80	120	0	0		
Iron	9.79	0.100	10	0	97.9	80	120	0	0		
Lead	0.9809	0.0100	1	0	98.1	80	120	0	0		
Magnesium	9.813	0.100	10	0	98.1	80	120	0	0		
Manganese	0.9803	0.0150	1	0	98	80	120	0	0		
Nickel	0.985	0.0200	1	0	98.5	80	120	0	0		
Potassium	10.04	0.500	10	0	100	80	120	0	0		
Selenium	1	0.0200	1	0	100	80	120	0	0		
Silver	0.09905	0.0100	0.1	0.0003368	98.7	80	120	0	0		
Sodium	9.695	1.00	10	0	97	80	120	0	0		
Thallium	0.981	0.0200	1	0	98.1	80	120	0	0		
Vanadium	0.9775	0.0100	1	0	97.8	80	120	0	0		
Zinc	0.9869	0.0200	1	0	98.7	80	120	0	0		

Sample ID: 0812149-028BMS		SampType: MS		TestCode: 6010B_TAL_ Units: mg/L		Prep Date: 12/31/2008		RunNo: 139916			
Client ID: KIF-ERM4.0		Batch ID: 108312		TestNo: SW6010B		Analysis Date: 12/31/2008		SeqNo: 2867543			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.822	0.200	10	0.04407	97.8	75	125	0	0		
Antimony	1.002	0.0200	1	0	100	75	125	0	0		
Arsenic	1.016	0.0500	1	0	102	75	125	0	0		
Barium	1.006	0.0200	1	0.02265	98.4	75	125	0	0		

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: 0812149-028BMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139916
Client ID: KIF-ERM4.0	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867543

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	0.9929	0.0100	1	0	99.3	75	125	0	0		
Cadmium	1.001	0.00500	1	0	100	75	125	0	0		
Calcium	15.5	0.100	10	6.421	90.8	75	125	0	0		
Chromium	0.9744	0.0100	1	0	97.4	75	125	0	0		
Cobalt	0.9984	0.0200	1	0	99.8	75	125	0	0		
Copper	0.9861	0.0100	1	0	98.6	75	125	0	0		
Iron	9.976	0.100	10	0.06209	99.1	75	125	0	0		
Lead	0.9881	0.0100	1	0	98.8	75	125	0	0		
Magnesium	11.4	0.100	10	1.639	97.6	75	125	0	0		
Manganese	1.021	0.0150	1	0.02748	99.3	75	125	0	0		
Nickel	0.993	0.0200	1	0	99.3	75	125	0	0		
Potassium	11.18	0.500	10	1.162	100	75	125	0	0		
Selenium	1.014	0.0200	1	0	101	75	125	0	0		
Silver	0.1004	0.0100	0.1	0	100	75	125	0	0		
Sodium	11.57	1.00	10	2.021	95.5	75	125	0	0		
Thallium	0.9876	0.0200	1	0	98.8	75	125	0	0		
Vanadium	0.9923	0.0100	1	0	99.2	75	125	0	0		
Zinc	0.9927	0.0200	1	0	99.3	75	125	0	0		

Sample ID: 0812149-028BMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139916
Client ID: KIF-ERM4.0	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867544

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.688	0.200	10	0.04407	96.4	75	125	9.822	1.38	20	
Antimony	0.9824	0.0200	1	0	98.2	75	125	1.002	1.96	20	
Arsenic	1.002	0.0500	1	0	100	75	125	1.016	1.31	20	
Barium	0.9928	0.0200	1	0.02265	97	75	125	1.006	1.34	20	
Beryllium	0.9782	0.0100	1	0	97.8	75	125	0.9929	1.49	20	
Cadmium	0.9826	0.00500	1	0	98.3	75	125	1.001	1.81	20	

<b>Qualifiers:</b>	<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812I49  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_D

Sample ID: 0812I49-028BMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139916						
Client ID: KIF-ERM4.0	Batch ID: 108312	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2867544						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	15.42	0.100	10	6.421	90	75	125	15.5	0.532	20	
Chromium	0.9608	0.0100	1	0	96.1	75	125	0.9744	1.41	20	
Cobalt	0.981	0.0200	1	0	98.1	75	125	0.9984	1.77	20	
Copper	0.9768	0.0100	1	0	97.7	75	125	0.9861	0.941	20	
Iron	9.825	0.100	10	0.06209	97.6	75	125	9.976	1.53	20	
Lead	0.9747	0.0100	1	0	97.5	75	125	0.9881	1.36	20	
Magnesium	11.25	0.100	10	1.639	96.1	75	125	11.4	1.36	20	
Manganese	1.006	0.0150	1	0.02748	97.9	75	125	1.021	1.46	20	
Nickel	0.9812	0.0200	1	0	98.1	75	125	0.993	1.20	20	
Potassium	11.05	0.500	10	1.162	98.9	75	125	11.18	1.21	20	
Selenium	0.9993	0.0200	1	0	99.9	75	125	1.014	1.45	20	
Silver	0.09863	0.0100	0.1	0	98.6	75	125	0.1004	1.81	20	
Sodium	11.4	1.00	10	2.021	93.8	75	125	11.57	1.45	20	
Thallium	0.9759	0.0200	1	0	97.6	75	125	0.9876	1.18	20	
Vanadium	0.9782	0.0100	1	0	97.8	75	125	0.9923	1.43	20	
Zinc	0.9773	0.0200	1	0	97.7	75	125	0.9927	1.57	20	

Qualifiers:	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_T

Sample ID: MB-108314	SampType: MBLK	TestCode: 6010B_TAL_ Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955							
Client ID:	Batch ID: 108314	TestNo: SW6010B	Analysis Date: 12/31/2008	SeqNo: 2868118							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	0.200	0	0	0	0	0	0	0	0	
Antimony	BRL	0.0200	0	0	0	0	0	0	0	0	
Arsenic	BRL	0.0500	0	0	0	0	0	0	0	0	
Barium	BRL	0.0200	0	0	0	0	0	0	0	0	
Beryllium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.00500	0	0	0	0	0	0	0	0	
Calcium	BRL	0.100	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0100	0	0	0	0	0	0	0	0	
Cobalt	BRL	0.0200	0	0	0	0	0	0	0	0	
Copper	BRL	0.0100	0	0	0	0	0	0	0	0	
Iron	BRL	0.100	0	0	0	0	0	0	0	0	
Lead	BRL	0.0100	0	0	0	0	0	0	0	0	
Magnesium	BRL	0.100	0	0	0	0	0	0	0	0	
Manganese	BRL	0.0150	0	0	0	0	0	0	0	0	
Nickel	BRL	0.0200	0	0	0	0	0	0	0	0	
Potassium	BRL	0.500	0	0	0	0	0	0	0	0	
Selenium	BRL	0.0200	0	0	0	0	0	0	0	0	
Silver	BRL	0.0100	0	0	0	0	0	0	0	0	
Sodium	BRL	1.00	0	0	0	0	0	0	0	0	
Thallium	BRL	0.0200	0	0	0	0	0	0	0	0	
Vanadium	BRL	0.0100	0	0	0	0	0	0	0	0	
Zinc	BRL	0.0200	0	0	0	0	0	0	0	0	

Sample ID: LCS-108314	SampType: LCS	TestCode: 6010B_TAL_ Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955							
Client ID:	Batch ID: 108314	TestNo: SW6010B	Analysis Date: 12/31/2008	SeqNo: 2868117							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.532	0.200	10	0	95.3	85	115	0	0	0	
Antimony	1.013	0.0200	1	0	101	85	115	0	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812I49  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 6010B\_TAL\_W\_T

Sample ID: LCS-108314	SampType: LCS	TestCode: 6010B_TAL	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955						
Client ID:	Batch ID: 108314	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2868117						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.02	0.0500	1	0	102	85	115	0	0		
Barium	1.016	0.0200	1	0	102	85	115	0	0		
Beryllium	1.023	0.0100	1	0	102	85	115	0	0		
Cadmium	1.019	0.00500	1	0	102	85	115	0	0		
Calcium	9.522	0.100	10	0	95.2	85	115	0	0		
Chromium	1.027	0.0100	1	0	103	85	115	0	0		
Cobalt	1.021	0.0200	1	0	102	85	115	0	0		
Copper	1.016	0.0100	1	0	102	85	115	0	0		
Iron	10.05	0.100	10	0	101	85	115	0	0		
Lead	1.006	0.0100	1	0	101	85	115	0	0		
Magnesium	10.18	0.100	10	0	102	85	115	0	0		
Manganese	1.022	0.0150	1	0	102	85	115	0	0		
Nickel	1.018	0.0200	1	0	102	85	115	0	0		
Potassium	9.935	0.500	10	0	99.4	85	115	0	0		
Selenium	1.013	0.0200	1	0	101	85	115	0	0		
Silver	0.1023	0.0100	0.1	0	102	85	115	0	0		
Sodium	9.803	1.00	10	0	98	85	115	0	0		
Thallium	0.9986	0.0200	1	0	99.9	85	115	0	0		
Vanadium	1.026	0.0100	1	0	103	85	115	0	0		
Zinc	1.015	0.0200	1	0	102	85	115	0	0		

Sample ID: 0812I49-028AMS	SampType: MS	TestCode: 6010B_TAL	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955						
Client ID: KIF-ERM4.0	Batch ID: 108314	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2868120						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.878	0.200	10	0.5824	93	75	125	0	0		
Antimony	1.005	0.0200	1	0	100	75	125	0	0		
Arsenic	1.02	0.0500	1	0	102	75	125	0	0		
Barium	1.035	0.0200	1	0.03254	100	75	125	0	0		

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812I49  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_T

Sample ID: 0812I49-028AMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955
Client ID: KIF-ERM4.0	Batch ID: 108314	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2868120

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	1.012	0.0100	1	0	101	75	125	0	0		
Cadmium	1.01	0.00500	1	0	101	75	125	0	0		
Calcium	15.93	0.100	10	6.919	90.1	75	125	0	0		
Chromium	1.017	0.0100	1	0	102	75	125	0	0		
Cobalt	1.008	0.0200	1	0	101	75	125	0	0		
Copper	1.002	0.0100	1	0	100	75	125	0	0		
Iron	10.4	0.100	10	0.3966	100	75	125	0	0		
Lead	0.9891	0.0100	1	0	98.9	75	125	0	0		
Magnesium	11.91	0.100	10	1.919	100	75	125	0	0		
Manganese	1.053	0.0150	1	0.04417	101	75	125	0	0		
Nickel	1.009	0.0200	1	0	101	75	125	0	0		
Potassium	11.14	0.500	10	1.406	97.3	75	125	0	0		
Selenium	1.008	0.0200	1	0	101	75	125	0	0		
Silver	0.1013	0.0100	0.1	0	101	75	125	0	0		
Sodium	12.88	1.00	10	2.091	108	75	125	0	0		
Thallium	0.98	0.0200	1	0	98	75	125	0	0		
Vanadium	1.014	0.0100	1	0	101	75	125	0	0		
Zinc	1.002	0.0200	1	0.004078	99.8	75	125	0	0		

Sample ID: 0812I49-028AMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955
Client ID: KIF-ERM4.0	Batch ID: 108314	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2868121

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9.905	0.200	10	0.5824	93.2	75	125	9.878	0.279	20	
Antimony	1.014	0.0200	1	0	101	75	125	1.005	0.899	20	
Arsenic	1.026	0.0500	1	0	103	75	125	1.02	0.546	20	
Barium	1.037	0.0200	1	0.03254	100	75	125	1.035	0.172	20	
Beryllium	1.019	0.0100	1	0	102	75	125	1.012	0.710	20	
Cadmium	1.016	0.00500	1	0	102	75	125	1.01	0.558	20	

<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value
	BRL Below Reporting Limit	E Estimated value above quantitation range
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		B Analyte detected in the associated Method Blank
		H Holding times for preparation or analysis exceeded
		R RPD outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_W\_T

Sample ID: 0812149-028AMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139955
Client ID: KIF-ERM4.0	Batch ID: 108314	TestNo: SW6010B		Analysis Date: 12/31/2008	SeqNo: 2868121

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	15.9	0.100	10	6.919	89.8	75	125	15.93	0.168	20	
Chromium	1.021	0.0100	1	0	102	75	125	1.017	0.318	20	
Cobalt	1.016	0.0200	1	0	102	75	125	1.008	0.703	20	
Copper	1.005	0.0100	1	0	101	75	125	1.002	0.346	20	
Iron	10.47	0.100	10	0.3966	101	75	125	10.4	0.682	20	
Lead	1.001	0.0100	1	0	100	75	125	0.9891	1.23	20	
Magnesium	11.95	0.100	10	1.919	100	75	125	11.91	0.319	20	
Manganese	1.061	0.0150	1	0.04417	102	75	125	1.053	0.737	20	
Nickel	1.011	0.0200	1	0	101	75	125	1.009	0.205	20	
Potassium	11.23	0.500	10	1.406	98.2	75	125	11.14	0.790	20	
Selenium	1.017	0.0200	1	0	102	75	125	1.008	0.860	20	
Silver	0.1021	0.0100	0.1	0	102	75	125	0.1013	0.704	20	
Sodium	12.88	1.00	10	2.091	108	75	125	12.88	0.0613	20	
Thallium	0.9874	0.0200	1	0	98.7	75	125	0.98	0.752	20	
Vanadium	1.018	0.0100	1	0	102	75	125	1.014	0.339	20	
Zinc	1.013	0.0200	1	0.004078	101	75	125	1.002	1.10	20	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_D

Sample ID: MB-108369	SampType: MBLK	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/2/2009	RunNo: 139994						
Client ID:	Batch ID: 108369	TestNo: SW7470A		Analysis Date: 1/2/2009	SeqNo: 2869073						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.00005742	0.000200	0	0	0	0	0	0	0	0	J
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Sample ID: LCS-108369	SampType: LCS	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/2/2009	RunNo: 139994						
Client ID:	Batch ID: 108369	TestNo: SW7470A		Analysis Date: 1/2/2009	SeqNo: 2869074						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.005037	0.000200	0.005	0.00005742	99.6	85	115	0	0		
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Sample ID: 0812149-028BMS	SampType: MS	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/2/2009	RunNo: 139994						
Client ID: KIF-ERM4.0	Batch ID: 108369	TestNo: SW7470A		Analysis Date: 1/2/2009	SeqNo: 2869076						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.005035	0.000200	0.005	0.0002061	96.6	70	130	0	0		
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Sample ID: 0812149-028BMSD	SampType: MSD	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/2/2009	RunNo: 139994						
Client ID: KIF-ERM4.0	Batch ID: 108369	TestNo: SW7470A		Analysis Date: 1/2/2009	SeqNo: 2869077						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.005301	0.000200	0.005	0.0002061	102	70	130	0.005035	5.15	20	
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<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value
	BRL Below Reporting Limit	E Estimated value above quantitation range
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		B Analyte detected in the associated Method Blank
		H Holding times for preparation or analysis exceeded
		R RPD outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812I49  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_T

Sample ID: MB-108319	SampType: MBLK	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139929						
Client ID:	Batch ID: 108319	TestNo: SW7470A		Analysis Date: 12/31/2008	SeqNo: 2868228						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00006869	0.000200	0	0	0	0	0	0	0		J

Sample ID: MB-108433	SampType: MBLK	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/5/2009	RunNo: 140055						
Client ID:	Batch ID: 108433	TestNo: SW7470A		Analysis Date: 1/5/2009	SeqNo: 2870466						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	BRL	0.000200	0	0	0	0	0	0	0		

Sample ID: LCS-108319	SampType: LCS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139929						
Client ID:	Batch ID: 108319	TestNo: SW7470A		Analysis Date: 12/31/2008	SeqNo: 2868229						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005387	0.000200	0.005	0.00006869	106	85	115	0	0		

Sample ID: LCS-108433	SampType: LCS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/5/2009	RunNo: 140055						
Client ID:	Batch ID: 108433	TestNo: SW7470A		Analysis Date: 1/5/2009	SeqNo: 2870467						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004711	0.000200	0.005	0	94.2	85	115	0	0		

Sample ID: 0812I49-028AMS	SampType: MS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139929						
Client ID: KIF-ERM4.0	Batch ID: 108319	TestNo: SW7470A		Analysis Date: 12/31/2008	SeqNo: 2868231						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005991	0.000200	0.005	0.00004938	119	70	130	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_T

Sample ID: 0812149-008AMS	SampType: MS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/5/2009	RunNo: 140055						
Client ID: 081228-ERER-WS02	Batch ID: 108433	TestNo: SW7470A		Analysis Date: 1/5/2009	SeqNo: 2870469						
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	0.004738	0.000200	0.005	0	94.8	70	130	0	0	
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Sample ID: 0812149-028AMSD	SampType: MSD	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 12/31/2008	RunNo: 139929						
Client ID: KIF-ERM4.0	Batch ID: 108319	TestNo: SW7470A		Analysis Date: 12/31/2008	SeqNo: 2868232						
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	0.005321	0.000200	0.005	0.00004938	105	70	130	0.005991	11.8	20
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Sample ID: 0812149-008AMSD	SampType: MSD	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/5/2009	RunNo: 140055						
Client ID: 081228-ERER-WS02	Batch ID: 108433	TestNo: SW7470A		Analysis Date: 1/5/2009	SeqNo: 2870470						
<b>Analyte</b>	<b>Result</b>	<b>RPT Limit</b>	<b>SPK value</b>	<b>SPK Ref Val</b>	<b>%REC</b>	<b>LowLimit</b>	<b>HighLimit</b>	<b>RPD Ref Val</b>	<b>%RPD</b>	<b>RPDLimit</b>	<b>Qual</b>

Mercury	0.004627	0.000200	0.005	0	92.5	70	130	0.004738	2.37	20
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7471A\_S

Sample ID: MB-108309	SampType: MBLK	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 12/31/2008	RunNo: 139959						
Client ID:	Batch ID: 108309	TestNo: SW7471A		Analysis Date: 12/31/2008	SeqNo: 2868139						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.100	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108309	SampType: LCS	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 12/31/2008	RunNo: 139959						
Client ID:	Batch ID: 108309	TestNo: SW7471A		Analysis Date: 12/31/2008	SeqNo: 2868141						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.3405	0.100	0.4	0	85.1	80	120	0	0		
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Sample ID: 0812149-012CMS	SampType: MS	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 12/31/2008	RunNo: 139959						
Client ID: 081228-ERER-SS08	Batch ID: 108309	TestNo: SW7471A		Analysis Date: 12/31/2008	SeqNo: 2868145						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.567	0.129	0.5149	0.06495	97.5	70	130	0	0		
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Sample ID: 0812149-012CMSD	SampType: MSD	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 12/31/2008	RunNo: 139959						
Client ID: 081228-ERER-SS08	Batch ID: 108309	TestNo: SW7471A		Analysis Date: 12/31/2008	SeqNo: 2868147						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.5508	0.129	0.516	0.06495	94.2	70	130	0.567	2.90	30	
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: MB-108323	SampType: MBLK	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 12/30/2008	RunNo: 139917
Client ID:	Batch ID: 108323	TestNo: SW8260B		Analysis Date: 12/31/2008	SeqNo: 2867386

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	46.06	0	50	0	92.1	56	145	0	0		

Sample ID: LCS-108323	SampType: LCS	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 12/30/2008	RunNo: 139927
Client ID:	Batch ID: 108323	TestNo: SW8260B		Analysis Date: 12/31/2008	SeqNo: 2867660

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	52.8	1.0	50	0	106	60.4	136	0	0		
Ethylbenzene	57.55	1.0	50	0	115	66.3	139	0	0		
m,p-Xylene	115.3	1.0	100	0	115	63.8	139	0	0		
o-Xylene	58.14	1.0	50	0	116	63.8	139	0	0		
Toluene	54.28	1.0	50	0	109	60.9	138	0	0		
Surr: 4-Bromofluorobenzene	48.33	0	50	0	96.7	56	145	0	0		

Sample ID: 0812149-012AMS	SampType: MS	TestCode: BTEX_S-MS	Units: ug/Kg-dry	Prep Date: 12/30/2008	RunNo: 139927
Client ID: 081228-ERER-SS08	Batch ID: 108323	TestNo: SW8260B		Analysis Date: 12/31/2008	SeqNo: 2867688

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	43.92	0.94	47.03	0	93.4	62.1	134	0	0		
Ethylbenzene	46.76	0.94	47.03	0	99.4	60.8	141	0	0		
m,p-Xylene	93.06	0.94	94.07	0	98.9	56.2	144	0	0		
o-Xylene	47.03	0.94	47.03	0	100	62.4	138	0	0		
Toluene	45.65	0.94	47.03	0	97.1	60.2	136	0	0		
Surr: 4-Bromofluorobenzene	46.04	0	47.03	0	97.9	56	145	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: 0812149-012AMSD	SampType: MSD	TestCode: BTEX_S-MS	Units: ug/Kg-dry	Prep Date: 12/30/2008	RunNo: 139917						
Client ID: 081228-ERER-SS08	Batch ID: 108323	TestNo: SW8260B		Analysis Date: 12/31/2008	SeqNo: 2867375						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	49.15	1.0	50.57	0	97.2	62.1	134	43.92	11.2	20	
Ethylbenzene	51.46	1.0	50.57	0	102	60.8	141	46.76	9.56	20	
m,p-Xylene	103.4	1.0	101.1	0	102	56.2	144	93.08	10.5	20	
o-Xylene	51.58	1.0	50.57	0	102	62.4	138	47.03	9.22	20	
Toluene	49.46	1.0	50.57	0	97.8	60.2	136	45.65	8.02	20	
Surr: 4-Bromofluorobenzene	49.46	0	50.57	0	97.8	56	145	46.04	0	0	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: MB-108303	SampType: MBLK	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 12/30/2008	RunNo: 139888						
Client ID:	Batch ID: 108303	TestNo: SW8260B		Analysis Date: 12/30/2008	SeqNo: 2866826						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	46.8	0	50	0	93.6	64.1	129	0	0		

Sample ID: LCS-108303	SampType: LCS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 12/30/2008	RunNo: 139888						
Client ID:	Batch ID: 108303	TestNo: SW8260B		Analysis Date: 12/30/2008	SeqNo: 2866824						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	45.95	1.0	50	0	91.9	65.4	134	0	0		
Ethylbenzene	46.57	1.0	50	0	93.1	69.9	132	0	0		
m,p-Xylene	96.65	1.0	100	0	96.6	69	134	0	0		
o-Xylene	48.94	1.0	50	0	97.9	70.2	133	0	0		
Toluene	46.31	1.0	50	0	92.6	70.6	133	0	0		
Surr: 4-Bromofluorobenzene	52.3	0	50	0	105	64.1	129	0	0		

Sample ID: 0812G21-004AMS	SampType: MS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 12/30/2008	RunNo: 139888						
Client ID:	Batch ID: 108303	TestNo: SW8260B		Analysis Date: 12/30/2008	SeqNo: 2867237						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	2172	50	2500	0	86.9	52.6	141	0	0		
Ethylbenzene	2320	50	2500	0	92.8	59.7	138	0	0		
m,p-Xylene	4817	50	5000	0	92.3	55.8	140	0	0		
o-Xylene	2220	50	2500	0	88.8	60.7	138	0	0		
Toluene	2188	50	2500	0	87.5	53.1	147	0	0		
Surr: 4-Bromofluorobenzene	2610	0	2500	0	104	64.1	129	0	0		

Qualifiers:	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0812149  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: 0812G21-004AMSD	SampType: MSD	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 12/30/2008	RunNo: 139888						
Client ID:	Batch ID: 108303	TestNo: SW8260B		Analysis Date: 12/30/2008	SeqNo: 2867337						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	2218	50	2500	0	88.7	52.6	141	2172	2.07	20	
Ethylbenzene	2170	50	2500	0	86.8	59.7	138	2320	6.66	20	
m,p-Xylene	4332	50	5000	0	86.6	55.8	140	4617	6.36	20	
o-Xylene	2220	50	2500	0	88.8	60.7	138	2220	0	20	
Toluene	2216	50	2500	0	88.6	53.1	147	2188	1.27	20	
Surr: 4-Bromofluorobenzene	2478	0	2500	0	99.1	64.1	129	2610	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## Laboratory Report

Prepared For:

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta, GA 30340

Attention: Mr. Justin Sasser

Report Number: ARL0989

January 05, 2009

Project: 0812149

Project #:[none]

P.O. No. 8264

We appreciate the opportunity to provide the analytical support for your project. The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Approved:

*Elizabeth Bryant*

Project Manager

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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

## ANALYTICAL REPORT FOR SAMPLES

<u>Sample ID</u>	<u>Laboratory ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
081228-KFPRW-01	ARL0989-01	Soil/Sediment	12/28/08 09:00	12/31/08 12:45
081228-SPRRW-02	ARL0989-02	Soil/Sediment	12/28/08 09:56	12/31/08 12:45
081228-SPCRW-03	ARL0989-03	Soil/Sediment	12/28/08 10:42	12/31/08 12:45
081228-EERBS-SS04	ARL0989-04	Soil/Sediment	12/28/08 12:18	12/31/08 12:45
081228-ERPL-SS05	ARL0989-05	Soil/Sediment	12/28/08 13:15	12/31/08 12:45
081228-ERPR-SS06	ARL0989-06	Soil/Sediment	12/28/08 14:35	12/31/08 12:45
081228-ERER-SS07	ARL0989-07	Soil/Sediment	12/28/08 15:07	12/31/08 12:45
081228-ERER-SS07-DUP	ARL0989-08	Soil/Sediment	12/28/08 15:10	12/31/08 12:45
081228-ERER-SS08	ARL0989-09	Soil/Sediment	12/28/08 15:53	12/31/08 12:45
081228-SGUBR-SS09	ARL0989-10	Soil/Sediment	12/28/08 16:45	12/31/08 12:45
081228-KCPS-SS10	ARL0989-11	Soil/Sediment	12/28/08 17:20	12/31/08 12:45
081228-KCP-SS11	ARL0989-12	Soil/Sediment	12/28/08 17:57	12/31/08 12:45
081228-DKC-SS01	ARL0989-13	Soil/Sediment	12/27/08 11:45	12/31/08 12:45
081228-DKCL-SS02	ARL0989-14	Soil/Sediment	12/27/08 12:30	12/31/08 12:45



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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-01

Client ID: 081228-KFPRW-01

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 9:00:00AM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	80.5	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A801004	SSM
<b>Metals</b>										
Silicon	489	1.23	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:31	A812970	FBS
Silica	1050	2.63	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:31	[CALC]	FBS



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Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-02

Client ID: 081228-SPRRW-02

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 9:58:00AM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	72.8	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	85.9	1.35	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:38	A812970	FBS
Silica	184	2.90	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:38	[CALC]	FBS



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January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-03

Client ID: 081228-SPCRW-03

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 10:42:00AM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	70.6	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	38.1	0.56	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:45	A812970	FBS
Silica	81.5	1.20	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:45	[CALC]	FBS





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January 05, 2009

Report No.: ARL0889

Lab Number ID: ARL0889-04

Client ID: 081228-EERBS-S504

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 12:18:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	78.9	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	123	1.26	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 14:53	A812970	FBS
Silica	263	2.70	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 14:53	[CALC]	FBS



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Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-05

Client ID: 081228-ERPL-SS05

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 1:18:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	77.0	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	89.7	1.29	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:10	A812970	FBS
Silica	192	2.77	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:10	[CALC]	FBS



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January 05, 2009

Report No.: ARL0889  
Client ID: 081228-ERPR-SS08  
Date/Time Sampled: 12/28/2008 2:35:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0889-06  
Date/Time Received: 12/31/2008 1:08:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	77.4		0.04% by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	90.2	1.27	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:17	A812970	FBS
Silica	193	2.71	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:17	[CALC]	FBS



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January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-07

Client ID: 081228-ERER-SS07

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 3:07:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	84.2	0.04%	by Weight	SOP Moisture	1		1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	150	1.19	mg/kg dry wt. dry	EPA 6010B	1		1/02/09 8:30	1/02/09 15:24	A812970	FBS
Silica	320	2.54	mg/kg dry	EPA 6010	1		1/02/09 8:30	1/02/09 15:24	[CALC]	FBS



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Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-ERER-SS07-DUP  
Date/Time Sampled: 12/29/2008 3:10:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-08  
Date/Time Received: 12/31/2008 1:08:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	82.2		0.04% by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A801004	SSM
<b>Metals</b>										
Silicon	107		1.21 mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:31	A812970	FBS
Silica	228		2.59 mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:31	[CALC]	FBS



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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-09

Client ID: 081228-ERER-SS08

Date/Time Received: 12/31/2008 1:08:00PM

Date/Time Sampled: 12/28/2008 3:53:00PM

Matrix: Sol/Sediment

Analyte	Result	RL	Units	Method	Qual	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	78.8	0.04% by Weight		SOP Moisture	1		1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	111	1.27	mg/kg dry wt. dry	EPA 6010B	1		1/02/09 8:30	1/02/09 15:38	A812970	FBS
Silica	238	2.71	mg/kg dry	EPA 6010	1		1/02/09 8:30	1/02/09 15:38	[CALC]	FBS



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Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989  
Client ID: 081228-SGUBR-SS09  
Date/Time Sampled: 12/28/2008 4:45:00PM  
Matrix: Soil/Sediment

Lab Number ID: ARL0989-10  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Inf.
<b>General Chemistry</b>										
% Solids	77.6	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	108	1.28	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:43	A812970	FBS
Silica	232	2.70	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:43	[CALC]	FBS



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-11

Client ID: 081228-KCPS-S810

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 8:20:00PM

Matrix: Sol/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	IntL
<b>General Chemistry</b>										
% Solids	75.7	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	110	1.30	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:50	A812970	FBS
Silica	235	2.79	mg/kg dry	EPA 8010		1	1/02/09 8:30	1/02/09 15:50	[CALC]	FBS





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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-12

Client ID: 081228-KCP-SS11

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/28/2008 5:57:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	76.7	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	137	1.27	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 15:57	A812970	FBS
Silica	292	2.72	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 15:57	[CALC]	FBS



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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0889  
Client ID: 081228-DKC-SS01  
Date/Time Sampled: 12/27/2008 11:45:00AM  
Matrix: Soil/Sediment

Lab Number ID: ARL0889-13  
Date/Time Received: 12/31/2008 1:06:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	67.8	0.04% by Weight		SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A901004	SSM
<b>Metals</b>										
Silicon	18.7	0.59	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 16:06	A812970	FBS
Silica	40.1	1.25	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 16:06	[CALC]	FBS



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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

Lab Number ID: ARL0989-14

Client ID: 081228-DKCL-S802

Date/Time Received: 12/31/2008 1:06:00PM

Date/Time Sampled: 12/27/2008 12:30:00PM

Matrix: Soil/Sediment

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	81.0	0.04%	by Weight	SOP Moisture		1	1/02/09 14:20	1/02/09 14:20	A801004	SSM
<b>Metals</b>										
Silicon	496	1.20	mg/kg dry wt. dry	EPA 6010B		1	1/02/09 8:30	1/02/09 16:09	A812970	FBS
Silica	1080	2.58	mg/kg dry	EPA 6010		1	1/02/09 8:30	1/02/09 16:09	[CALC]	FBS



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Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

## General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A901004 - % Solids</b>										
<b>Duplicate (A901004-DUP1)</b> <b>Source: ARL0955-05</b> <b>Prepared &amp; Analyzed: 01/02/09</b>										
% Solids	81.6	0.04 % by Weight			82.7			1	12	
<b>Duplicate (A901004-DUP2)</b> <b>Source: ARL0955-06</b> <b>Prepared &amp; Analyzed: 01/02/09</b>										
% Solids	92.7	0.04 % by Weight			93.0			0.3	12	



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3785 Presidential Parkway, Ste. #111  
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Attention: Mr. Justin Sasser

January 05, 2009

Report No.: ARL0989

## Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A812970 - EPA 3050B</b>										
<b>Blank (A812970-BLK1)</b> Prepared & Analyzed: 01/02/09										
Silicon	ND	4.00mg/kg	dry wt.							
<b>LCS (A812970-BS1)</b> Prepared & Analyzed: 01/02/09										
Silicon	95.7	4.00mg/kg	dry wt.	100.00	96	75-125				
<b>Duplicate (A812970-DUP1)</b> Source: ARL0989-09 Prepared & Analyzed: 01/02/09										
Silicon	196	1.27mg/kg	dry wt.	111				55	20	QR-05
<b>Matrix Spike (A812970-MS1)</b> Source: ARL0989-09 Prepared & Analyzed: 01/02/09										
Silicon	313	1.27mg/kg	dry wt.	31.716	111	636	75-125			QR-04
<b>Matrix Spike Dup (A812970-MSD1)</b> Source: ARL0989-09 Prepared & Analyzed: 01/02/09										
Silicon	272	1.27mg/kg	dry wt.	31.716	111	507	75-125	23	20	QM-02
<b>Post Spike (A812970-PS1)</b> Source: ARL0989-09 Prepared & Analyzed: 01/02/09										
Silicon	6.06		mg/L	1.0000	3.50	258	75-125			QM-02



**ANALYTICAL SERVICES, INC.**

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Attention: Mr. Justin Sasser

January 05, 2009

**Laboratory Certifications**

Code	Description	Number	Expires
NC	North Carolina	381	12/31/2008
NELAC	NELAC certification	E87315	06/30/2009



## ANALYTICAL SERVICES, INC.

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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 05, 2009

### Legend

#### Definition of Laboratory Terms

- ND** - None Detected at the Reporting Limit
- TIC** - Tentatively Identified Compound
- CFU** - Colony Forming Units
- SOP** - Method run per ASI Standard Operating Procedure
- RL** - Reporting Limit
- DF** - Dilution Factor
  - - Analyte not included in the NELAC list of certified analytes.

#### Sample Information

N-Nitrosodiphenylamine breaks down to diphenylamine in the GCMS; both analytes are reported as N-Nitrosodiphenylamine. ASI is not NELAC certified for N-Nitrosodiphenylamine.

Phthalic acid and phthalic anhydride are reported as dimethyl phthalate

Maleic acid and maleic anhydride are reported as dimethyl malate

1,2-Diphenylhydrazine breaks down to azobenzene in the GCMS; both analytes are reported as azobenzene

#### Definition of Qualifiers

- QR-05** The RPD for the sample and sample duplicate are outside established control limits due to the non-homogeneity of the sample matrix.
- QR-04** The RPD result for the MSMSD exceeded the established QC control limits. Sample results for the QC batch were accepted based on LCS recovery.
- QM-02** The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

**Note: Unless otherwise noted, all results are reported on an as received basis.**









# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## LOG-IN CHECKLIST

Printed: 12/31/2008 1:15:56PM

Attn: Mr. Justin Sasser

Client: Analytical Environment Services Inc.  
Project: 0812149  
Date Received: 12/31/08 13:06

Work Order: ARL0989  
Logged In By: Charles Hawks

NPDES:

### OBSERVATIONS

#Samples: 14

#Containers: 15

Minimum Temp(C): 12.0

Maximum Temp(C): 12.0

Custody Seal(s):

### CHECKLIST ITEMS

COC included with Samples	YES
Sample Container(s) Intact	YES
Chain of Custody Complete	NO
Sample Container(s) Match COC	YES
Custody seal Intact	NO
Temperature in Compliance	YES
Sufficient Sample Volume for Analysis	YES
Zero Headspace Maintained for VOA Analyses	YES
Samples labeled preserved (If Applicable)	YES
Samples received within Allowable Hold Times	YES
Samples Received on Ice	YES
Preservation Confirmed	YES

*Project Requires report to the MDL.  
The sample type was not listed on the COC. CFH.*

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\081230\  
 Data File : V7065892.D  
 Acq On : 30 Dec 2008 10:30 pm  
 Operator :  
 Sample : 0812I49-001A 6.18g  
 Misc : SAMP BTEX S-MS  
 ALS Vial : 33 Sample Multiplier: 1

Quant Time: Dec 31 08:40:20 2008  
 Quant Method : C:\msdchem\1\METHODS\MS-7 BT120108.M  
 Quant Title : 8260 Purgeable organics calibration  
 QLast Update : Tue Dec 02 12:50:18 2008  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	...	5.962	168	4101	50.00 ug/kg	0.00
3) 1,4-Difluorobenzene	...	6.980	114	6598	50.00 ug/kg	0.00
8) Chlorobenzene-d5	...	10.530	117	6170	50.00 ug/kg	0.00
13) 1,4-Dichlorobenzene-d4	...	12.475	152	2230	50.00 ug/kg	0.00
System Monitoring Compounds						
4) Dibromofluoromethane	...	5.867	113	671	15.65 ug/kg	0.00
Spiked Amount	50.000	Range	62 - 143	Recovery	=	31.30%#
6) Toluene-d8	...	8.939	98	8047	50.45 ug/kg	0.00
Spiked Amount	50.000	Range	73 - 127	Recovery	=	100.90%
12) 4-Bromofluorobenzene	...	11.577	95	2499	40.72 ug/kg	0.00
Spiked Amount	50.000	Range	58 - 127	Recovery	=	81.44%
Target Compounds						
2) Methyl tert-butyl ether	...	0.000	73	0	N.D.	
5) Benzene	...	0.000	78	0	N.D.	
7) Toluene	...	0.000	92	0	N.D.	
9) Ethylbenzene	...	0.000	91	0	N.D.	
10) m,p-Xylene	...	0.000	91	0	N.D.	
11) o-Xylene	...	0.000	91	0	N.D.	
14) Naphthalene	...	14.203	128	3026	30.58 ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

1  
 Sy  
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 Dat  
 Acq  
 QI  
 Sat  
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 MS-7 BT120108.M Wed Dec 31 08:51:48 2008

GC/MS QA-QC Check Report

File : C:\msdchem\1\DATA\081230\V7065887.D

Time : 30 Dec 2008 8:23 pm

Daily Calibration File : C:\msdchem\1\DATA\081230\V7065889.D

182561 241211 210252

137783

File	Sample	Surrogate Recovery %			Internal Standard Responses		
V7065891.D	MBTEX CCV	96	95	98	182816	241159	214240
				147032			
V7065892.D	0812I49-00	31*	101	81	4101*	6598*	6170*
				2230*			
V7065893.D	0812I49-00	137	89	82	125384	152699	109753
				58084*			
V7065894.D	0812I49-00	102	92	97	162835	213493	190010
				123158			
V7065895.D	0812I49-00	100	92	96	167708	228701	207949
				136225			
V7065896.D	0812I49-00	102	93	97	167898	226239	206544
				135823			
V7065897.D	0812I49-00	100	94	97	170207	228514	207978
				138654			
V7065898.D	0812I49-00	0*	99	47*	782*	3150*	2641*
				0*			
V7065899.D	0812I49-01	99	94	98	154175	211483	191155
				119947			
V7065900.D	0812I49-01	101	93	96	163567	220331	198229
				133685			
V7065901.D	0812I49-01	105	115	94	5753*	7919*	10133*
				6776*			
V7065902.D	0812I49-01	103	96	98	123237	163346	146951
				101646			
V7065903.D	0812I49-01	101	92	95	148932	201104	182380
				119526			
V7065904.D	0812I49-01	104	94	97	156469	206356	192192
				128021			

V7065905.D  
0812I49-01 0\* 38\* 0\* 0\* 1417\* 829\*  
0\*

V7065906.D  
0812I49-01 248\* 85 60 61322\* 75687\* 36622\*  
11301\*

V7065907.D  
0812I49-01 104 93 97 147910 199338 181339  
118026

V7065909.D  
MB-108323 101 94 92 137763 184946 166217  
106475

(0000s) - fails 12hr time check \* - fails criteria

Created: Wed Dec 31 08:53:35 2008 MS7

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065

V7065



GC/MS QA-QC Check Report

File Name : C:\msdchem\1\DATA\081231\V7065911.D

Run Time : 31 Dec 2008 8:05 am

Calibration File : C:\msdchem\1\DATA\081231\V7065912.D

162064 211920 188615

131160

File	Sample	Surrogate	Recovery %	Internal Standard Responses
V7065912.D	MBTEX CCV	101	97 99 131160	162064 211920 188615
V7065914.D	LCS-108323	98	95 97 127757	156320 210023 186268
V7065915.D	0812I49-00	260*	84 63 10891*	50023* 62631* 32841*
V7065916.D	0812I49-00	102	95 91 100208	144731 198694 179003
V7065917.D	0812I49-01	100	95 93 113393	141588 193441 180692
V7065918.D	0812I49-01	100	94 91 98319	140689 192329 172703
V7065919.D	0812I49-01	100	96 98 128179	154774 207001 187090
V7065920.D	0812H98-01	99	95 95 111646	139831 189791 175630
V7065923.D	0812I52-00	100	95 100 124903	141561 195531 180388
V7065924.D	0812I52-00	98	96 106 127769	139010 190639 178236
V7065925.D	0812I52-00	99	93 98 116139	132587 184638 169252
V7065926.D	0812I52-00	100	93 101 127994	147758 198670 185319
V7065927.D	0812I52-00	98	95 106 129576	138882 188096 176947
V7065928.D	0812I52-00	98	95 101 127636	146579 200906 185703

V706S929.D

0812I72-00 90 236\* 58 188131 291051 230461  
13613\*

(Totals) - fails 12hr time check \* - fails criteria

Created: Fri Jan 02 12:38:37 2009 MS7

V706E

V706E

V706E

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**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

January 07, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Suite 300  
Duluth, GA 30096

TEL: (678) 775-3104  
FAX: (678) 775-3138

RE: TVA Kingston

Order No.: 0901058

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 7 samples on 1/3/2009 11:20:00 AM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/08-06/30/09.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 08/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 55 total pages (including cover letter).

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

Sincerely,

Blair Stout  
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704

AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 0701058

Date: 1/2/09 Page 1 of 1

COMPANY: <b>TETRA TECH Em Inc</b>		ADDRESS: <b>1955 EVERGREEN BLVD Suite 300 Duluth, GA 30096</b>			ANALYSIS REQUESTED							Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		No. of Containers			
PHONE: <b>JESSICA VICKERS 678-775-3104 / 678-983-6655</b>		FAX: <b>678-775-3139</b>			TAL METALS TAL METALS DISSOLVED METALS TOTAL SUSPENDED SOLIDS DISSOLVED SILICA SILICA BTEX TCDF							REMARKS					
SAMPLED BY: <b>Paul Prays</b>		SIGNATURE: <i>[Signature]</i>			PRESERVATION (See codes)												
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)											
		DATE	TIME														
1	090102-ERB-SS-D1	1/2/09	1300		✓	SO	✓									Sample for	5
2	090102-ERB-SS-02		1415		✓	SO	✓									mercury in solids	5
3	090102-ERB-WS-01		1415	✓		SW	✓	✓	✓	✓						AND WATER for	2
4	090102-CRB-SS-01		1545		✓	SO	✓				✓	✓	✓			TAL METALS AND	5
5	090102-CRB-SS-02		1650		✓	SO	✓				✓	✓	✓			DISSOLVED METALS	5
6	090102-CRB-WS-01	✓	1650	✓		SW	✓	✓	✓	✓						↓	2
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION							RECEIPT		
1: <i>[Signature]</i>		1/2/09 2000		1: <b>FEDEX</b>		1/2/09 2030		PROJECT NAME: <b>TVA Kingston</b>							Total # of Containers: <b>24</b>		
2:				2: <i>[Signature]</i>		1/3/09 11:20		PROJECT #: <b>10SDX90T#0001.0094.3003</b>							Turnaround Time Request		
3:				3:				SITE ADDRESS: <b>714 SWAN POND RD NALLIMAN, TN 37748</b>							<input type="radio"/> Standard 5 Business Days <input type="radio"/> 2 Business Day Rush <input type="radio"/> Next Business Day Rush <input checked="" type="radio"/> Same Day Rush (with req.) <input type="radio"/> Other		
SPECIAL INSTRUCTIONS/COMMENTS: <b>Di Di Fung DD.FUNG@Heml.com</b> <b>Paul Prays paul.prays@Heml.com</b> <b>JESSICA VICKERS JESSICA.VICKERS@Heml.com</b>				SHIPMENT METHOD				INVOICE TO: <b>AND Paul Prays</b>							STATE PROGRAM (if any):		
				OUT: / / VIA:				(IF DIFFERENT FROM ABOVE)							E-mail: <input checked="" type="radio"/> Y/N; Fax? <input type="radio"/> Y/N		
				IN: / / VIA:				QUOTE #: _____ PO#: _____							DATA PACKAGE: I <input checked="" type="radio"/> II <input type="radio"/> III <input type="radio"/> IV <input type="radio"/>		
				CLIENT: <b>FedEx</b> UPS MAIL COURIER													
				GREYHOUND OTHER													

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCED AS STANDARD TAT.  
 SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)  
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Tetra Tech

Work Order Number 0901058

Checklist completed by Mpe Signature 1/3/9 Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 33° Cooler #2  Cooler #3  Cooler #4  Cooler#5  Cooler #6

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted?  Checked by MJ

Sample Condition: Good  Other(Explain) Broken vial

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**CLIENT:** Tetra Tech EM Inc.  
**Project:** TVA Kingston  
**Lab Order:** 0901058

**CASE NARRATIVE**

1/3/09 10a.m. - Per Jessica Vickers, via phone, water samples for metals analysis were placed on hold until 1/5/2009.

1/5/09 - Per Jessica Vickers, the laboratory proceeded with same day TAT analysis for metals by Method 6020.

TCLP was listed on the Chain of Custody (COC). Per the project history TCLP RCRA 8 Metals were logged in for analysis where TCLP was requested.

Samples requiring Dissolved Silica analysis were filtered prior to analysis.

Total Metals Analysis by Method 6020:

Matrix spike and/or matrix spike duplicate analyses were not performed with Batch 108425 due to insufficient sample volume.

Dissolved Metals Analysis by Method 6020:

LCS-108437 recovery for Zinc was outside control limits biased high. Target analyte was not detected in the analytical samples and data is reportable with high bias.

Due to sample matrix, sample 0901058-006B required a 2X dilution of Chromium during analysis resulting in elevated reporting limits.

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-001

Client Sample ID: 090102-ERB-SS-01  
 Collection Date: 1/2/2009 1:00:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL		0.000288	0.00400	mg/L	108467	1	1/6/2009 5:39:42 PM
			SW1311/7470A	(SW7470)	Analyst: MAW			
<b>ICP METALS, TCLP</b>								
Arsenic	BRL		0.0467	0.250	mg/L	108476	1	1/6/2009 2:35:15 PM
Barium	0.211	J	0.00455	0.500	mg/L	108476	1	1/6/2009 2:35:15 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108476	1	1/6/2009 2:35:15 PM
Chromium	BRL		0.00565	0.0500	mg/L	108476	1	1/6/2009 2:35:15 PM
Lead	0.0628		0.0105	0.0500	mg/L	108476	1	1/6/2009 2:35:15 PM
Selenium	0.0403	J	0.0357	0.100	mg/L	108476	1	1/6/2009 2:35:15 PM
Silver	BRL		0.00540	0.0250	mg/L	108476	1	1/6/2009 2:35:15 PM
			SW1311/6010B	(SW3010A)	Analyst: BB			
<b>METALS, TOTAL</b>								
Aluminum	2170		4.86	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Antimony	BRL		0.211	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Arsenic	1.06	J	0.166	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Barium	24.5		0.166	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Beryllium	0.225	J	0.0155	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Cadmium	0.110	J	0.0366	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Calcium	348		21.8	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Chromium	4.19		0.0733	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Cobalt	3.23		0.0200	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Copper	4.26		0.0466	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Iron	4880		1.41	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Lead	6.57		0.111	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Magnesium	240		1.30	55.5	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Manganese	61.1		0.999	27.7	mg/Kg-dry	108408	5	1/3/2009 4:02:16 PM
Nickel	6.76		0.0277	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Potassium	213		1.21	111	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Selenium	1.04	J	0.444	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Silver	BRL		0.0155	2.77	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Sodium	34.9	J	4.81	111	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Thallium	BRL		0.200	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Vanadium	5.01	J	0.0266	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
Zinc	20.9		0.710	5.55	mg/Kg-dry	108408	1	1/3/2009 3:04:10 PM
			SW6010B	(SW3050B)	Analyst: TAA			
<b>TOTAL MERCURY</b>								
Mercury	0.00745	J	0.00472	0.135	mg/Kg-dry	108411	1	1/3/2009 5:30:33 PM
			SW7471A	(SW7471)	Analyst: JY			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL		0.16	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
			SW8260B	(SW5035)	Analyst: JE			

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-001

Client Sample ID: 090102-ERB-SS-01  
 Collection Date: 1/2/2009 1:00:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.15	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
Ethylbenzene	BRL		0.19	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
m,p-Xylene	BRL		0.40	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
o-Xylene	BRL		0.43	1.1	ug/Kg-dry	108416	1	1/3/2009 3:30:00 PM
Surr: 4-Bromofluorobenzene	89.0		0	56-145	%REC	108416	1	1/3/2009 3:30:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	26.9		0	0	wt%		1	1/3/2009 11:30:00 AM

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-002

Client Sample ID: 090102-ERB-SS-02  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00288	0.00400	mg/L	108467	1	1/6/2009 5:41:39 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL		0.0467	0.250	mg/L	108476	1	1/6/2009 2:47:57 PM
Barium	0.367	J	0.00455	0.500	mg/L	108476	1	1/6/2009 2:47:57 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108476	1	1/6/2009 2:47:57 PM
Chromium	BRL		0.00565	0.0500	mg/L	108476	1	1/6/2009 2:47:57 PM
Lead	0.0576		0.0105	0.0500	mg/L	108476	1	1/6/2009 2:47:57 PM
Selenium	0.0648	J	0.0357	0.100	mg/L	108476	1	1/6/2009 2:47:57 PM
Silver	BRL		0.00540	0.0250	mg/L	108476	1	1/6/2009 2:47:57 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	3280		4.76	54.3	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Antimony	0.425	J	0.206	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Arsenic	15.9		0.163	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Barium	39.9		0.163	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Beryllium	0.293	J	0.0152	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Cadmium	0.355	J	0.0358	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Calcium	1950		21.3	54.3	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Chromium	11.9		0.0717	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Cobalt	6.71		0.0195	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Copper	23.2		0.0456	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Iron	7620		6.89	271	mg/Kg-dry	108408	5	1/3/2009 4:14:42 PM
Lead	18.8		0.109	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Magnesium	514		1.27	54.3	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Manganese	225		0.977	27.1	mg/Kg-dry	108408	5	1/3/2009 4:14:42 PM
Nickel	8.49		0.0271	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Potassium	226		1.18	109	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Selenium	1.47	J	0.434	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Silver	BRL		0.0152	2.71	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Sodium	21.2	J	4.70	109	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Thallium	BRL		0.195	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Vanadium	9.20		0.0261	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
Zinc	68.5		0.695	5.43	mg/Kg-dry	108408	1	1/3/2009 3:08:17 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: JY
Mercury	0.00964	J	0.00487	0.139	mg/Kg-dry	108411	1	1/3/2009 5:32:48 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	1.9		0.16	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-002

Client Sample ID: 090102-ERB-SS-02  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				<b>Analyst: JE</b>
Toluene	2.0		0.15	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
Ethylbenzene	BRL		0.20	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
m,p-Xylene	BRL		0.41	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
o-Xylene	BRL		0.44	1.2	ug/Kg-dry	108416	1	1/3/2009 3:55:00 PM
Surr: 4-Bromofluorobenzene	81.7		0	56-145	%REC	108416	1	1/3/2009 3:55:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					<b>Analyst: LW</b>
Percent Moisture	28.6		0	0	wt%		1	1/3/2009 11:30:00 AM

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-003

Client Sample ID: 090102-ERB-WS-01  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	6	J	2	10	mg/L	108414	1	1/3/2009 1:24:11 PM
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	2.03		0.0110	0.100	mg/L	108410	1	1/5/2009 12:50:41 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	132		5.12	10.0	ug/L	108425	1	1/5/2009 3:45:06 PM
Antimony	BRL		0.490	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Arsenic	BRL		0.880	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Barium	29.3		0.700	10.0	ug/L	108425	1	1/5/2009 3:45:06 PM
Beryllium	BRL		0.210	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Cadmium	BRL		0.0970	0.700	ug/L	108425	1	1/5/2009 3:45:06 PM
Calcium	8900		14.1	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Chromium	BRL		0.660	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Cobalt	BRL		0.620	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Copper	0.819	J	0.730	2.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Iron	195		9.32	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Lead	0.237	J	0.170	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Magnesium	2320		7.83	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Manganese	34.5		0.620	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Nickel	1.34	J	0.650	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Potassium	1220		7.74	100	ug/L	108425	1	1/5/2009 3:45:06 PM
Selenium	BRL		1.06	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Silver	BRL		0.0630	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Sodium	2680		7.81	500	ug/L	108425	1	1/5/2009 3:45:06 PM
Thallium	BRL		0.0620	1.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Vanadium	BRL		0.670	5.00	ug/L	108425	1	1/5/2009 3:45:06 PM
Zinc	13.6		2.33	10.0	ug/L	108425	1	1/5/2009 3:45:06 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	33.6		5.12	10.0	ug/L	108437	1	1/5/2009 5:05:51 PM
Antimony	BRL		0.490	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Arsenic	BRL		0.880	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Barium	25.2		0.700	10.0	ug/L	108437	1	1/5/2009 5:05:51 PM
Beryllium	BRL		0.210	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Cadmium	BRL		0.0970	0.700	ug/L	108437	1	1/5/2009 5:05:51 PM
Calcium	7970		14.1	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Chromium	BRL		0.660	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Cobalt	BRL		0.620	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Copper	BRL		0.730	2.00	ug/L	108437	1	1/5/2009 5:05:51 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-003

Client Sample ID: 090102-ERB-WS-01  
 Collection Date: 1/2/2009 2:15:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>								
			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Iron	39.8	J	9.32	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Lead	BRL		0.170	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Magnesium	1940		7.83	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Manganese	5.69		0.620	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Nickel	1.09	J	0.650	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Potassium	1150		7.74	100	ug/L	108437	1	1/5/2009 5:05:51 PM
Selenium	BRL		1.08	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Silver	BRL		0.0630	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Sodium	2490		7.81	500	ug/L	108437	1	1/5/2009 5:05:51 PM
Thallium	BRL		0.0620	1.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Vanadium	BRL		0.670	5.00	ug/L	108437	1	1/5/2009 5:05:51 PM
Zinc	2.52	J	2.33	10.0	ug/L	108437	1	1/5/2009 5:05:51 PM
<b>MERCURY, DISSOLVED</b>								
			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: JY
Mercury	BRL		0.00001	0.00020	mg/L	108412	1	1/3/2009 4:04:01 PM
<b>MERCURY, TOTAL</b>								
			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: JY
Mercury	BRL		0.00001	0.00020	mg/L	108413	1	1/3/2009 4:42:38 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-004

Client Sample ID: 090102-CRB-SS-01  
 Collection Date: 1/2/2009 3:45:00 PM  
 Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.000288	0.00400	mg/L	108467	1	1/6/2009 5:43:39 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL		0.0467	0.250	mg/L	108476	1	1/6/2009 2:52:25 PM
Barium	0.186	J	0.00455	0.500	mg/L	108476	1	1/6/2009 2:52:25 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108476	1	1/6/2009 2:52:25 PM
Chromium	BRL		0.00565	0.0500	mg/L	108476	1	1/6/2009 2:52:25 PM
Lead	0.0139	J	0.0105	0.0500	mg/L	108476	1	1/6/2009 2:52:25 PM
Selenium	BRL		0.0357	0.100	mg/L	108476	1	1/6/2009 2:52:25 PM
Silver	BRL		0.00540	0.0250	mg/L	108476	1	1/6/2009 2:52:25 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	6190		4.33	49.4	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Antimony	0.460	J	0.188	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Arsenic	4.32	J	0.148	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Barium	29.8		0.148	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Beryllium	BRL		0.0138	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Cadmium	0.0404	J	0.0326	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Calcium	954		19.4	49.4	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Chromium	17.8		0.0652	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Cobalt	3.88		0.0178	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Copper	5.90		0.0415	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Iron	15900		6.28	247	mg/Kg-dry	108408	5	1/3/2009 4:18:49 PM
Lead	14.2		0.0988	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Magnesium	411		1.16	49.4	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Manganese	388		0.889	24.7	mg/Kg-dry	108408	5	1/3/2009 4:18:49 PM
Nickel	3.80	J	0.0247	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Potassium	401		1.08	98.8	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Selenium	1.98	J	0.395	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Silver	BRL		0.0138	2.47	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Sodium	20.1	J	4.28	98.8	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Thallium	BRL		0.178	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Vanadium	17.8		0.0237	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
Zinc	17.7		0.633	4.94	mg/Kg-dry	108408	1	1/3/2009 3:12:30 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: JY
Mercury	0.0201	J	0.00423	0.121	mg/Kg-dry	108411	1	1/3/2009 5:21:45 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.18	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-004

Client Sample ID: 090102-CRB-SS-01  
 Collection Date: 1/2/2009 3:45:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.17	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
Ethylbenzene	BRL		0.22	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
m,p-Xylene	BRL		0.46	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
o-Xylene	BRL		0.48	1.3	ug/Kg-dry	108416	1	1/3/2009 4:21:00 PM
Sum: 4-Bromofluorobenzene	93.3		0	56-145	%REC	108416	1	1/3/2009 4:21:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	18.5		0	0	wt%		1	1/3/2009 11:30:00 AM

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-005

Client Sample ID: 090102-CRB-SS-02  
 Collection Date: 1/2/2009 4:50:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.000288	0.00400	mg/L	108467	1	1/6/2009 5:45:35 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL		0.0467	0.250	mg/L	108476	1	1/6/2009 2:57:06 PM
Barium	0.695		0.00455	0.500	mg/L	108476	1	1/6/2009 2:57:06 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108476	1	1/6/2009 2:57:06 PM
Chromium	BRL		0.00565	0.0500	mg/L	108476	1	1/6/2009 2:57:06 PM
Lead	0.0155	J	0.0105	0.0500	mg/L	108476	1	1/6/2009 2:57:06 PM
Selenium	BRL		0.0357	0.100	mg/L	108476	1	1/6/2009 2:57:06 PM
Silver	BRL		0.00540	0.0250	mg/L	108476	1	1/6/2009 2:57:06 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	5910		4.81	54.9	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Antimony	0.962	J	0.209	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Arsenic	11.1		0.165	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Barium	95.1		0.165	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Beryllium	0.216	J	0.0154	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Cadmium	0.161	J	0.0362	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Calcium	916		21.5	54.9	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Chromium	31.1		0.0724	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Cobalt	8.04		0.0198	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Copper	6.16		0.0461	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Iron	23100		6.97	274	mg/Kg-dry	108408	5	1/3/2009 3:45:40 PM
Lead	27.2		0.110	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Magnesium	426		1.28	54.9	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Manganese	1230		0.988	27.4	mg/Kg-dry	108408	5	1/3/2009 3:45:40 PM
Nickel	6.66		0.0274	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Potassium	321		1.20	110	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Selenium	3.04	J	0.439	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Silver	0.0594	J	0.0154	2.74	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Sodium	21.8	J	4.75	110	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Thallium	BRL		0.198	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Vanadium	36.3		0.0263	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
Zinc	24.6		0.702	5.49	mg/Kg-dry	108408	1	1/3/2009 2:47:13 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: JY
Mercury	0.0215	J	0.00438	0.125	mg/Kg-dry	108411	1	1/3/2009 5:34:58 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.14	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-005

Client Sample ID: 090102-CRB-SS-02  
 Collection Date: 1/2/2009 4:50:00 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.13	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
Ethylbenzene	BRL		0.17	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
m,p-Xylene	BRL		0.36	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
o-Xylene	BRL		0.38	0.99	ug/Kg-dry	108416	1	1/3/2009 4:46:00 PM
Surr: 4-Bromofluorobenzene	86.2		0	56-145	%REC	108416	1	1/3/2009 4:46:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: LW
Percent Moisture	21.6		0	0	wt%		1	1/3/2009 11:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-006

Client Sample ID: 090102-CRB-WS-01  
 Collection Date: 1/2/2009 4:50:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	7	J	2	10	mg/L	108414	1	1/3/2009 1:24:44 PM
<b>TOTAL SILICON</b>			<b>SW60108</b>	<b>(SAMP_FILT)</b>				Analyst: TAA
Silica (as Si)	1.33		0.0110	0.100	mg/L	108410	1	1/5/2009 12:56:01 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	120		5.12	10.0	ug/L	108425	1	1/5/2009 3:56:33 PM
Antimony	BRL		0.490	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Arsenic	BRL		0.880	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Barium	34.8		0.700	10.0	ug/L	108425	1	1/5/2009 3:56:33 PM
Beryllium	BRL		0.210	1.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Cadmium	BRL		0.0970	0.700	ug/L	108425	1	1/5/2009 3:56:33 PM
Calcium	36800		14.1	100	ug/L	108425	1	1/5/2009 3:56:33 PM
Chromium	BRL		0.660	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Cobalt	BRL		0.620	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Copper	1.18	J	0.730	2.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Iron	121		9.32	100	ug/L	108425	1	1/5/2009 3:56:33 PM
Lead	0.262	J	0.170	1.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Magnesium	10300		7.83	100	ug/L	108425	1	1/5/2009 3:56:33 PM
Manganese	30.7		0.620	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Nickel	1.28	J	0.650	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Potassium	1700		7.74	100	ug/L	108425	1	1/5/2009 3:56:33 PM
Selenium	BRL		1.06	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Silver	BRL		0.0630	1.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Sodium	7490		7.81	500	ug/L	108425	1	1/5/2009 3:56:33 PM
Thallium	BRL		0.0620	1.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Vanadium	BRL		0.670	5.00	ug/L	108425	1	1/5/2009 3:56:33 PM
Zinc	18.0		2.33	10.0	ug/L	108425	1	1/5/2009 3:56:33 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	30.6		5.12	10.0	ug/L	108437	1	1/5/2009 4:19:27 PM
Antimony	BRL		0.490	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Arsenic	BRL		0.880	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Barium	32.2		0.700	10.0	ug/L	108437	1	1/5/2009 4:19:27 PM
Beryllium	BRL		0.210	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Cadmium	BRL		0.0970	0.700	ug/L	108437	1	1/5/2009 4:19:27 PM
Calcium	35500		14.1	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Chromium	BRL		1.32	10.0	ug/L	108437	2	1/5/2009 5:46:26 PM
Cobalt	BRL		0.620	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Copper	2.04		0.730	2.00	ug/L	108437	1	1/5/2009 4:19:27 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-006

Client Sample ID: 090102-CRB-WS-01  
 Collection Date: 1/2/2009 4:50:00 PM

Matrix: SURFACE WATER

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>								
			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Iron	18.7	J	9.32	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Lead	BRL		0.170	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Magnesium	9840		7.83	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Manganese	BRL		0.620	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Nickel	1.10	J	0.650	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Potassium	1740		7.74	100	ug/L	108437	1	1/5/2009 4:19:27 PM
Selenium	BRL		1.06	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Silver	BRL		0.0630	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Sodium	7260		7.81	500	ug/L	108437	1	1/5/2009 4:19:27 PM
Thallium	0.107	J	0.0620	1.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Vanadium	BRL		0.670	5.00	ug/L	108437	1	1/5/2009 4:19:27 PM
Zinc	7.39	J	2.33	10.0	ug/L	108437	1	1/5/2009 4:19:27 PM
<b>MERCURY, DISSOLVED</b>								
			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: JY
Mercury	BRL		0.00001	0.00020	mg/L	108412	1	1/3/2009 3:58:13 PM
<b>MERCURY, TOTAL</b>								
			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: JY
Mercury	BRL		0.00001	0.00020	mg/L	108413	1	1/3/2009 4:13:51 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level < Less than Result value  
 > Greater than Result value B Analyte detected in the associated Method Blank  
 E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 08-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901058  
 Project: TVA Kingston  
 Lab ID: 0901058-007

Client Sample ID: TRIP BLANK  
 Collection Date: 1/3/2009  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: JE
Benzene	BRL		0.22	1.0 ug/L		108417	1	1/3/2009 2:01:00 PM
Toluene	BRL		0.26	1.0 ug/L		108417	1	1/3/2009 2:01:00 PM
Ethylbenzene	BRL		0.37	1.0 ug/L		108417	1	1/3/2009 2:01:00 PM
m,p-Xylene	BRL		0.60	1.0 ug/L		108417	1	1/3/2009 2:01:00 PM
o-Xylene	BRL		0.29	1.0 ug/L		108417	1	1/3/2009 2:01:00 PM
Surr: 4-Bromofluorobenzene	93.7		0	64.1-129 %REC		108417	1	1/3/2009 2:01:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level	<	Less than Result value
	>	Greater than Result value	B	Analyte detected in the associated Method Blank
	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix
			BRL	Not detected at MDL

Lab Order: 0901058  
 Client: Tetra Tech EM Inc.  
 Project: TVA Kingston

**DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0901058-001A	090102-ERB-SS-01	1/2/2009 1:00:00 PM	Soil	VOLATILE ORGANICS: BTEX		1/3/2009	1/3/2009
0901058-001B				PERCENT MOISTURE		1/3/2009	
0901058-001C				MERCURY		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
0901058-001E				ICP METALS, TCLP Leached		1/6/2009	1/6/2009
				MERCURY, TCLP Leached		1/6/2009	1/6/2009
0901058-002A	090102-ERB-SS-02	1/2/2009 2:15:00 PM		VOLATILE ORGANICS: BTEX		1/3/2009	1/3/2009
0901058-002B				PERCENT MOISTURE			1/3/2009
0901058-002C				MERCURY		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
0901058-002E				ICP METALS, TCLP Leached		1/6/2009	1/6/2009
				MERCURY, TCLP Leached		1/6/2009	1/6/2009
0901058-003A	090102-ERB-WS-01		Surface Water	TOTAL MERCURY		1/3/2009	1/3/2009
				Total Metals by ICP/MS		1/5/2009	1/5/2009
				Total Silicon		1/3/2009	1/5/2009
0901058-003B				Dissolved Metals by ICP/MS		1/5/2009	1/5/2009
				MERCURY, DISSOLVED		1/3/2009	1/3/2009
	Residue, Suspended (TSS)	1/3/2009	1/3/2009				
				Total Silicon		1/3/2009	1/5/2009
0901058-004A	090102-CRB-SS-01	1/2/2009 3:45:00 PM	Soil	VOLATILE ORGANICS: BTEX		1/3/2009	1/3/2009
0901058-004B				PERCENT MOISTURE			1/3/2009
0901058-004C				MERCURY		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
0901058-004E				ICP METALS, TCLP Leached		1/6/2009	1/6/2009
				MERCURY, TCLP Leached		1/6/2009	1/6/2009

Lab Order: 0901058  
 Client: Tetra Tech EM Inc.  
 Project: TVA Kingston

**DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0901058-005A	090102-CRB-SS-02	1/2/2009 4:50:00 PM	Soil	VOLATILE ORGANICS: BTEX		1/3/2009	1/3/2009
0901058-005B				PERCENT MOISTURE			1/3/2009
0901058-005C				MERCURY		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
				TOTAL METALS BY ICP		1/3/2009	1/3/2009
0901058-005E				ICP METALS, TCLP Leached		1/6/2009	1/6/2009
				MERCURY, TCLP Leached		1/6/2009	1/6/2009
0901058-006A	090102-CRB-WS-01		Surface Water	TOTAL MERCURY		1/3/2009	1/3/2009
				Total Metals by ICP/MS		1/5/2009	1/5/2009
				Total Silicon		1/3/2009	1/5/2009
0901058-006B				Dissolved Metals by ICP/MS		1/5/2009	1/5/2009
				Dissolved Metals by ICP/MS		1/5/2009	1/5/2009
				MERCURY, DISSOLVED		1/3/2009	1/3/2009
				Residue, Suspended (TSS)		1/3/2009	1/3/2009
				Total Silicon		1/3/2009	1/5/2009
0901058-007A	TRIP BLANK	1/3/2009	Aqueous	VOLATILE ORGANICS: BTEX		1/3/2009	1/3/2009

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 1311\_HG

Sample ID: MB-108467	SampType: MBLK	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140162						
Client ID:	Batch ID: 108467	TestNo: SW1311/7470		Analysis Date: 1/6/2009	SeqNo: 2872255						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.00400	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108467	SampType: LCS	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140162						
Client ID:	Batch ID: 108467	TestNo: SW1311/7470		Analysis Date: 1/6/2009	SeqNo: 2872258						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.03867	0.00400	0.04	0	96.7	80	120	0	0		
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Sample ID: 0812159-001AMS	SampType: MS	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140162						
Client ID:	Batch ID: 108467	TestNo: SW1311/7470		Analysis Date: 1/6/2009	SeqNo: 2872258						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.0379	0.00400	0.04	0	94.7	80	120	0	0		
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Sample ID: 0812159-001AMSD	SampType: MSD	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140162						
Client ID:	Batch ID: 108467	TestNo: SW1311/7470		Analysis Date: 1/6/2009	SeqNo: 2872259						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.03817	0.00400	0.04	0	95.4	80	120	0.0379	0.733	20	
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Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: MB-108476		SampType: MBLK	TestCode: 1311_M		Units: mg/L	Prep Date: 1/6/2009			RunNo: 140145		
Client ID:		Batch ID: 108476	TestNo: SW1311/6010			Analysis Date: 1/6/2009			SeqNo: 2871843		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	BRL	0.250	0	0	0	0	0	0	0		
Barium	0.013	0.500	0	0	0	0	0	0	0		J
Cadmium	BRL	0.0250	0	0	0	0	0	0	0		
Chromium	BRL	0.0500	0	0	0	0	0	0	0		
Lead	0.03221	0.0500	0	0	0	0	0	0	0		J
Selenium	0.09064	0.100	0	0	0	0	0	0	0		J
Silver	BRL	0.0250	0	0	0	0	0	0	0		

Sample ID: LCS-108476		SampType: LCS	TestCode: 1311_M		Units: mg/L	Prep Date: 1/6/2009			RunNo: 140145		
Client ID:		Batch ID: 108476	TestNo: SW1311/6010			Analysis Date: 1/6/2009			SeqNo: 2871840		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.048	0.250	5	0	101	85	115	0	0		
Barium	4.736	0.500	5	0.013	94.5	80	120	0	0		
Cadmium	4.878	0.0250	5	0	97.8	85	115	0	0		
Chromium	4.996	0.0500	5	0	99.9	85	115	0	0		
Lead	4.697	0.0500	5	0.03221	93.3	85	115	0	0		
Selenium	4.9	0.100	5	0.09064	96.2	85	115	0	0		
Silver	0.4667	0.0250	0.5	0	93.3	85	115	0	0		

Sample ID: 0901058-001EMS		SampType: MS	TestCode: 1311_M		Units: mg/L	Prep Date: 1/6/2009			RunNo: 140145		
Client ID: 090102-ERB-SS-01		Batch ID: 108476	TestNo: SW1311/6010			Analysis Date: 1/6/2009			SeqNo: 2871847		
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.027	0.250	5	0	101	50	150	0	0		
Barium	4.94	0.500	5	0.2112	94.6	50	150	0	0		
Cadmium	4.884	0.0250	5	0	97.7	50	150	0	0		
Chromium	4.981	0.0500	5	0	99.6	50	150	0	0		
Lead	4.771	0.0500	5	0.06278	94.2	50	150	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: 0901058-001EMS	SampType: MS	TestCode: 1311_M	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140145						
Client ID: 090102-ERB-SS-01	Batch ID: 108476	TestNo: SW1311/6010		Analysis Date: 1/6/2009	SeqNo: 2871847						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Selenium	4.935	0.100	5	0.04033	97.9	50	150	0	0		
Silver	0.4647	0.0250	0.5	0	92.9	50	150	0	0		

Sample ID: 0901058-001EMSD	SampType: MSD	TestCode: 1311_M	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140145						
Client ID: 090102-ERB-SS-01	Batch ID: 108476	TestNo: SW1311/6010		Analysis Date: 1/6/2009	SeqNo: 2871849						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	5.098	0.250	5	0	102	50	150	5.027	1.39	30	
Barium	4.983	0.500	5	0.2112	95.4	50	150	4.94	0.882	30	
Cadmium	4.915	0.0250	5	0	98.3	50	150	4.884	0.638	30	
Chromium	5.023	0.0500	5	0	100	50	150	4.981	0.851	30	
Lead	4.836	0.0500	5	0.06278	95.5	50	150	4.771	1.35	30	
Selenium	5.104	0.100	5	0.04033	101	50	150	4.935	3.37	30	
Silver	0.4693	0.0250	0.5	0	93.9	50	150	0.4647	0.971	30	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901058  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2**

Sample ID: <b>MB-108414</b>	SampType: <b>MBLK</b>	TestCode: <b>160.2</b>	Units: <b>mg/L</b>	Prep Date: <b>1/3/2009</b>	RunNo: <b>140014</b>						
Client ID:	Batch ID: <b>108414</b>	TestNo: <b>E160.2</b>		Analysis Date: <b>1/3/2009</b>	SeqNo: <b>2869349</b>						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Residue, Suspended (TSS)	BRL	5.00
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Sample ID: <b>0901056-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>160.2</b>	Units: <b>mg/L</b>	Prep Date: <b>1/3/2009</b>	RunNo: <b>140014</b>						
Client ID:	Batch ID: <b>108414</b>	TestNo: <b>E160.2</b>		Analysis Date: <b>1/3/2009</b>	SeqNo: <b>2869348</b>						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Residue, Suspended (TSS)	556	10.0	0	0	0	0	0	549	1.27	30
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<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_SI\_W

Sample ID: MB-108410	SampType: MBLK	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140062						
Client ID:	Batch ID: 108410	TestNo: SW6010B		Analysis Date: 1/5/2009	SeqNo: 2870442						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	BRL	0.100	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108410	SampType: LCS	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140062						
Client ID:	Batch ID: 108410	TestNo: SW6010B		Analysis Date: 1/5/2009	SeqNo: 2870441						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	1.112	0.100	1	0	111	80	120	0	0		
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Sample ID: 0901058-003BMS	SampType: MS	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140062						
Client ID: 090102-ERB-WS-01	Batch ID: 108410	TestNo: SW6010B		Analysis Date: 1/5/2009	SeqNo: 2870446						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	3.031	0.100	1	2.025	101	75	125	0	0		
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Sample ID: 0901058-003BMSD	SampType: MSD	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140062						
Client ID: 090102-ERB-WS-01	Batch ID: 108410	TestNo: SW6010B		Analysis Date: 1/5/2009	SeqNo: 2870447						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	3.074	0.100	1	2.025	105	75	125	3.031	1.41	20	
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<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: MB-108408	SampType: MBLK	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 1/3/2009	RunNo: 140019						
Client ID:	Batch ID: 108408	TestNo: SW6010B		Analysis Date: 1/3/2009	SeqNo: 2869463						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	50.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	5.00	0	0	0	0	0	0	0	0	
Beryllium	BRL	2.50	0	0	0	0	0	0	0	0	
Cadmium	BRL	2.50	0	0	0	0	0	0	0	0	
Calcium	BRL	50.0	0	0	0	0	0	0	0	0	
Chromium	0.07318	2.50	0	0	0	0	0	0	0	0	J
Cobalt	BRL	2.50	0	0	0	0	0	0	0	0	
Copper	0.1363	2.50	0	0	0	0	0	0	0	0	J
Iron	BRL	50.0	0	0	0	0	0	0	0	0	
Lead	BRL	5.00	0	0	0	0	0	0	0	0	
Magnesium	BRL	50.0	0	0	0	0	0	0	0	0	
Manganese	BRL	5.00	0	0	0	0	0	0	0	0	
Nickel	0.03272	5.00	0	0	0	0	0	0	0	0	J
Potassium	4.026	100	0	0	0	0	0	0	0	0	J
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	0.01872	2.50	0	0	0	0	0	0	0	0	J
Sodium	6.45	100	0	0	0	0	0	0	0	0	J
Thallium	BRL	5.00	0	0	0	0	0	0	0	0	
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	BRL	5.00	0	0	0	0	0	0	0	0	

Sample ID: LCS-108408	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 1/3/2009	RunNo: 140019						
Client ID:	Batch ID: 108408	TestNo: SW6010B		Analysis Date: 1/3/2009	SeqNo: 2869462						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	494.7	50.0	500	0	98.9	80	120	0	0	0	
Antimony	47.78	5.00	50	0	95.6	80	120	0	0	0	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901058  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010B\_TAL\_S

Sample ID: LCS-108408	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 1/3/2009	RunNo: 140019
Client ID:	Batch ID: 108408	TestNo: SW6010B		Analysis Date: 1/3/2009	SeqNo: 2869462

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.11	5.00	50	0	98.2	80	120	0	0		
Barium	49.05	5.00	50	0	98.1	80	120	0	0		
Beryllium	47.62	2.50	50	0	95.2	80	120	0	0		
Cadmium	47.86	2.50	50	0	95.7	80	120	0	0		
Calcium	523.8	50.0	500	0	105	80	120	0	0		
Chromium	49.63	2.50	50	0.07318	99.1	80	120	0	0		
Cobalt	49.37	2.50	50	0	98.7	80	120	0	0		
Copper	49.14	2.50	50	0.1363	98	80	120	0	0		
Iron	506.6	50.0	500	0	101	80	120	0	0		
Lead	48.15	5.00	50	0	96.3	80	120	0	0		
Magnesium	495.1	50.0	500	0	99	80	120	0	0		
Manganese	49.12	5.00	50	0	98.2	80	120	0	0		
Nickel	48.74	5.00	50	0.03272	97.4	80	120	0	0		
Potassium	518.3	100	500	4.026	103	80	120	0	0		
Selenium	47.09	5.00	50	0	94.2	80	120	0	0		
Silver	4.844	2.50	5	0.01872	96.5	80	120	0	0		
Sodium	523.6	100	500	6.45	103	80	120	0	0		
Thallium	48.04	5.00	50	0	96.1	80	120	0	0		
Vanadium	48.43	5.00	50	0	96.9	80	120	0	0		
Zinc	48.88	5.00	50	0	97.8	80	120	0	0		

Sample ID: 0901058-005CMS	SampType: MS	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/3/2009	RunNo: 140019
Client ID: 090102-CRB-SS-02	Batch ID: 108408	TestNo: SW6010B		Analysis Date: 1/3/2009	SeqNo: 2869465

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7595	56.1	561.1	5911	300	75	125	0	0		S
Antimony	31.74	5.61	56.11	0.9616	54.9	75	125	0	0		S
Arsenic	58.47	5.61	56.11	11.06	84.5	75	125	0	0		
Barium	163.2	5.61	56.11	95.11	121	75	125	0	0		

**Qualifiers:** < Less than Result value      > Greater than Result value      B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit      E Estimated value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit      N Analyte not NELAC certified      R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit      S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0901058-005CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/3/2009		RunNo: 140019	
Client ID: 090102-CRB-SS-02		Batch ID: 108408		TestNo: SW6010B		Analysis Date: 1/3/2009		SeqNo: 2869465			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	49.56	2.81	56.11	0.2157	87.9	75	125	0	0		
Cadmium	48.95	2.81	56.11	0.1607	87	75	125	0	0		
Calcium	1452	56.1	561.1	916.5	95.5	75	125	0	0		
Chromium	80.16	2.81	56.11	31.08	87.5	75	125	0	0		
Cobalt	58.52	2.81	56.11	8.037	90	75	125	0	0		
Copper	59.47	2.81	56.11	6.161	95	75	125	0	0		
Lead	75.55	5.61	56.11	27.23	86.1	75	125	0	0		
Magnesium	1020	56.1	561.1	426.5	106	75	125	0	0		
Manganese	1303	5.61	56.11	1108	348	75	125	0	0		S
Nickel	56.24	5.61	56.11	6.665	88.4	75	125	0	0		
Potassium	853.3	112	561.1	320.6	94.9	75	125	0	0		
Selenium	49.82	5.61	56.11	3.045	83.4	75	125	0	0		
Silver	5.004	2.81	5.611	0.06936	87.9	75	125	0	0		
Sodium	541.8	112	561.1	21.76	92.7	75	125	0	0		
Thallium	42.58	5.61	56.11	0	75.9	75	125	0	0		
Vanadium	73.32	5.61	56.11	36.28	66	75	125	0	0		S
Zinc	89.56	5.61	56.11	24.61	116	75	125	0	0		

Sample ID: 0901058-005CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/3/2009		RunNo: 140019	
Client ID: 090102-CRB-SS-02		Batch ID: 108408		TestNo: SW6010B		Analysis Date: 1/3/2009		SeqNo: 2869503			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16370	281	561.1	23090	-1200	75	125	0	0		S

Sample ID: 0901058-005CMSD		SampType: MSD		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/3/2009		RunNo: 140019	
Client ID: 090102-CRB-SS-02		Batch ID: 108408		TestNo: SW6010B		Analysis Date: 1/3/2009		SeqNo: 2869466			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8077	57.2	571.7	5911	379	75	125	7595	6.15	20	S

**Qualifiers:**

<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0901058-005CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/3/2009	RunNo: 140019
Client ID: 090102-CRB-SS-02	Batch ID: 108408	TestNo: SW6010B		Analysis Date: 1/3/2009	SeqNo: 2869466

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	33.63	5.72	57.17	0.9816	57.1	75	125	31.74	5.79	20	S
Arsenic	61.88	5.72	57.17	11.06	88.9	75	125	58.47	5.67	20	
Barium	172.4	5.72	57.17	95.11	135	75	125	163.2	5.51	20	S
Beryllium	51.63	2.86	57.17	0.2157	89.9	75	125	49.56	4.08	20	
Cadmium	51.05	2.86	57.17	0.1607	89	75	125	48.95	4.19	20	
Calcium	1523	57.2	571.7	916.5	106	75	125	1452	4.78	20	
Chromium	87.77	2.86	57.17	31.08	99.1	75	125	80.16	9.06	20	
Cobalt	59.91	2.86	57.17	8.037	90.7	75	125	58.52	2.35	20	
Copper	61.44	2.86	57.17	6.161	96.7	75	125	59.47	3.26	20	
Lead	88.9	5.72	57.17	27.23	108	75	125	75.55	16.2	20	
Magnesium	1075	57.2	571.7	426.5	113	75	125	1020	5.25	20	
Manganese	1385	5.72	57.17	1108	484	75	125	1303	6.09	20	S
Nickel	58.72	5.72	57.17	6.665	91	75	125	56.24	4.31	20	
Potassium	929.3	114	571.7	320.6	106	75	125	853.3	8.52	20	
Selenium	52.04	5.72	57.17	3.045	85.7	75	125	49.82	4.36	20	
Silver	5.2	2.86	5.717	0.06936	89.7	75	125	5.004	3.84	20	
Sodium	563.1	114	571.7	21.76	94.7	75	125	541.8	3.86	20	
Thallium	44.17	5.72	57.17	0	77.3	75	125	42.58	3.65	20	
Vanadium	77.55	5.72	57.17	36.28	72.2	75	125	73.32	5.61	20	S
Zinc	82.21	5.72	57.17	24.61	101	75	125	89.56	8.56	20	

Sample ID: 0901058-005CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/3/2009	RunNo: 140019
Client ID: 090102-CRB-SS-02	Batch ID: 108408	TestNo: SW6010B		Analysis Date: 1/3/2009	SeqNo: 2869504

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16920	286	571.7	23090	-1080	75	125	16370	3.29	20	S

Qualifiers: < Less than Result value      > Greater than Result value      B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit      E Estimated value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit      N Analyte not NELAC certified      R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit      S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.

Work Order: 0901058

Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: MB-108425	SampType: MBLK	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140085
Client ID:	Batch ID: 108425	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870810

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	10.0	0	0	0	0	0	0	0		
Antimony	BRL	5.00	0	0	0	0	0	0	0		
Arsenic	BRL	5.00	0	0	0	0	0	0	0		
Barium	BRL	10.0	0	0	0	0	0	0	0		
Beryllium	BRL	1.00	0	0	0	0	0	0	0		
Cadmium	BRL	0.700	0	0	0	0	0	0	0		
Calcium	BRL	100	0	0	0	0	0	0	0		
Chromium	BRL	5.00	0	0	0	0	0	0	0		
Cobalt	BRL	5.00	0	0	0	0	0	0	0		
Copper	BRL	2.00	0	0	0	0	0	0	0		
Iron	BRL	100	0	0	0	0	0	0	0		
Lead	BRL	1.00	0	0	0	0	0	0	0		
Magnesium	8.408	100	0	0	0	0	0	0	0		J
Manganese	BRL	5.00	0	0	0	0	0	0	0		
Nickel	BRL	5.00	0	0	0	0	0	0	0		
Potassium	BRL	100	0	0	0	0	0	0	0		
Selenium	BRL	5.00	0	0	0	0	0	0	0		
Silver	BRL	1.00	0	0	0	0	0	0	0		
Sodium	BRL	500	0	0	0	0	0	0	0		
Thallium	BRL	1.00	0	0	0	0	0	0	0		
Vanadium	BRL	5.00	0	0	0	0	0	0	0		
Zinc	BRL	10.0	0	0	0	0	0	0	0		

Sample ID: LCS-108425	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140085
Client ID:	Batch ID: 108425	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870766

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1082	10.0	1000	0	108	85	115	0	0		
Antimony	99.35	5.00	100	0	99.4	85	115	0	0		

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: LC8-108425	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140085
Client ID:	Batch ID: 108425	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870766

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	99.93	5.00	100	0	99.9	85	115	0	0		
Barium	100.2	10.0	100	0	100	85	115	0	0		
Beryllium	104.1	1.00	100	0	104	85	115	0	0		
Cadmium	101.2	0.700	100	0	101	85	115	0	0		
Calcium	1017	100	1000	0	102	80	120	0	0		
Chromium	98.51	5.00	100	0	98.5	85	115	0	0		
Cobalt	97.42	5.00	100	0	97.4	85	115	0	0		
Copper	100.8	2.00	100	0	101	85	115	0	0		
Iron	1011	100	1000	0	101	85	115	0	0		
Lead	98.33	1.00	100	0	98.3	85	115	0	0		
Magnesium	1115	100	1000	8.408	111	80	120	0	0		
Manganese	98.99	5.00	100	0	99	85	115	0	0		
Nickel	100.2	5.00	100	0	100	85	115	0	0		
Potassium	1041	100	1000	0	104	80	120	0	0		
Selenium	98.09	5.00	100	0	98.1	85	115	0	0		
Silver	10.16	1.00	10	0	102	85	115	0	0		
Sodium	1074	500	1000	0	107	80	120	0	0		
Thallium	98.74	1.00	100	0	98.7	85	115	0	0		
Vanadium	99.56	5.00	100	0	99.6	85	115	0	0		
Zinc	102.8	10.0	100	0	103	85	115	0	0		

Sample ID: LCSD-108425	SampType: LCSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140085
Client ID:	Batch ID: 108425	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870767

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1022	10.0	1000	0	102	85	115	1082	5.70	20	
Antimony	99.32	5.00	100	0	99.3	85	115	99.35	0.0302	20	
Arsenic	98.44	5.00	100	0	98.4	85	115	99.93	1.50	20	
Barium	99.63	10.0	100	0	99.6	85	115	100.2	0.570	20	

**Qualifiers:**

<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: LCSD-108425	SampType: LCSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140085
Client ID:	Batch ID: 108425	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870767

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	103.3	1.00	100	0	103	85	115	104.1	0.771	20	
Cadmium	101.1	0.700	100	0	101	85	115	101.2	0.0989	20	
Calcium	1029	100	1000	0	103	80	120	1017	1.17	20	
Chromium	98.64	5.00	100	0	98.6	85	115	98.51	0.132	20	
Cobalt	97.6	5.00	100	0	97.6	85	115	97.42	0.185	20	
Copper	101.6	2.00	100	0	102	85	115	100.8	0.791	20	
Iron	1008	100	1000	0	101	85	115	1011	0.297	20	
Lead	98.73	1.00	100	0	98.7	85	115	98.33	0.406	20	
Magnesium	1110	100	1000	8.408	110	80	120	1115	0.449	20	
Manganese	98.03	5.00	100	0	98	85	115	98.99	0.975	20	
Nickel	101.2	5.00	100	0	101	85	115	100.2	0.993	20	
Potassium	1034	100	1000	0	103	80	120	1041	0.675	20	
Selenium	97.22	5.00	100	0	97.2	85	115	98.09	0.891	20	
Silver	10.12	1.00	10	0	101	85	115	10.16	0.394	20	
Sodium	1070	500	1000	0	107	80	120	1074	0.373	20	
Thallium	99.39	1.00	100	0	99.4	85	115	98.74	0.656	20	
Vanadium	100.2	5.00	100	0	100	85	115	99.56	0.641	20	
Zinc	102.4	10.0	100	0	102	85	115	102.8	0.390	20	

<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: MB-108437	SampType: MBLK	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140088						
Client ID:	Batch ID: 108437	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870815						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	10.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	10.0	0	0	0	0	0	0	0	0	
Beryllium	BRL	1.00	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.700	0	0	0	0	0	0	0	0	
Calcium	94.29	100	0	0	0	0	0	0	0	0	J
Chromium	BRL	5.00	0	0	0	0	0	0	0	0	
Cobalt	BRL	5.00	0	0	0	0	0	0	0	0	
Copper	BRL	2.00	0	0	0	0	0	0	0	0	
Iron	BRL	100	0	0	0	0	0	0	0	0	
Lead	BRL	1.00	0	0	0	0	0	0	0	0	
Magnesium	BRL	100	0	0	0	0	0	0	0	0	
Manganese	BRL	5.00	0	0	0	0	0	0	0	0	
Nickel	BRL	5.00	0	0	0	0	0	0	0	0	
Potassium	BRL	100	0	0	0	0	0	0	0	0	
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	1.00	0	0	0	0	0	0	0	0	
Sodium	BRL	500	0	0	0	0	0	0	0	0	
Thallium	BRL	1.00	0	0	0	0	0	0	0	0	
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	BRL	10.0	0	0	0	0	0	0	0	0	

Sample ID: LCS-108437	SampType: LCS	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140088						
Client ID:	Batch ID: 108437	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870800						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1021	10.0	1000	0	102	85	115	0	0	0	
Antimony	95.95	5.00	100	0	96	85	115	0	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: LCS-108437		SampType: LCS		TestCode: 6020_W_D		Units: ug/L		Prep Date: 1/5/2009		RunNo: 140088	
Client ID:		Batch ID: 108437		TestNo: SW6020				Analysis Date: 1/5/2009		SeqNo: 2870800	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	95.93	5.00	100	0	95.9	85	115	0	0		
Barium	97	10.0	100	0	97	85	115	0	0		
Beryllium	100.9	1.00	100	0	101	85	115	0	0		
Cadmium	98.83	0.700	100	0	98.8	85	115	0	0		
Calcium	1027	100	1000	94.29	93.3	80	120	0	0		
Chromium	96.07	5.00	100	0	96.1	85	115	0	0		
Cobalt	95.74	5.00	100	0	95.7	85	115	0	0		
Copper	98.83	2.00	100	0	98.8	85	115	0	0		
Iron	995.7	100	1000	0	99.6	85	115	0	0		
Lead	95.75	1.00	100	0	95.8	85	115	0	0		
Magnesium	1024	100	1000	0	102	80	120	0	0		
Manganese	98.14	5.00	100	0	98.1	85	115	0	0		
Nickel	98.56	5.00	100	0	98.6	85	115	0	0		
Potassium	959.1	100	1000	0	95.9	80	120	0	0		
Selenium	94.39	5.00	100	0	94.4	85	115	0	0		
Silver	9.878	1.00	10	0	98.8	85	115	0	0		
Sodium	1032	500	1000	0	103	80	120	0	0		
Thallium	95.28	1.00	100	0	95.3	85	115	0	0		
Vanadium	97.08	5.00	100	0	97.1	85	115	0	0		
Zinc	115.7	10.0	100	0	116	85	115	0	0		S

Sample ID: 0901058-006BMS		SampType: MS		TestCode: 6020_W_D		Units: ug/L		Prep Date: 1/5/2009		RunNo: 140088	
Client ID: 090102-CRB-WS-01		Batch ID: 108437		TestNo: SW6020				Analysis Date: 1/5/2009		SeqNo: 2870803	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	992.4	10.0	1000	30.61	96.2	70	130	0	0		
Antimony	94.52	5.00	100	0	94.5	70	130	0	0		
Arsenic	97.8	5.00	100	0	97.8	70	130	0	0		
Barium	126.3	10.0	100	32.19	94.1	70	130	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: 0901058-006BMS	SampType: MS	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140088
Client ID: 090102-CRB-WS-01	Batch ID: 108437	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870803

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	98.84	1.00	100	0	98.8	70	130	0	0		
Cadmium	95.13	0.700	100	0	95.1	70	130	0	0		
Calcium	35720	100	1000	35470	25	70	130	0	0		S
Chromium	88.05	5.00	100	0	88	70	130	0	0		
Cobalt	90.53	5.00	100	0	90.5	70	130	0	0		
Copper	94.56	2.00	100	2.038	92.5	70	130	0	0		
Iron	965.6	100	1000	18.69	94.7	70	130	0	0		
Lead	93.44	1.00	100	0	93.4	70	130	0	0		
Magnesium	10470	100	1000	9843	62.7	70	130	0	0		S
Manganese	92.22	5.00	100	0	92.2	70	130	0	0		
Nickel	94.26	5.00	100	1.097	93.2	70	130	0	0		
Potassium	2388	100	1000	1736	65.2	70	130	0	0		S
Selenium	96.03	5.00	100	0	96	70	130	0	0		
Silver	9.522	1.00	10	0	95.2	70	130	0	0		
Sodium	8046	500	1000	7262	78.4	70	130	0	0		
Thallium	94.05	1.00	100	0.107	93.9	70	130	0	0		
Vanadium	92.54	5.00	100	0	92.5	70	130	0	0		
Zinc	160.8	10.0	100	7.388	153	70	130	0	0		S

Sample ID: 0901058-006BMSD	SampType: MSD	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140088
Client ID: 090102-CRB-WS-01	Batch ID: 108437	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870804

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	971.8	10.0	1000	30.81	94.1	70	130	992.4	2.10	20	
Antimony	94.79	5.00	100	0	94.8	70	130	94.52	0.285	20	
Arsenic	97.71	5.00	100	0	97.7	70	130	97.8	0.0921	20	
Barium	126.1	10.0	100	32.19	93.9	70	130	126.3	0.158	20	
Beryllium	97.74	1.00	100	0	97.7	70	130	98.84	1.12	20	
Cadmium	95.05	0.700	100	0	95	70	130	95.13	0.0841	20	

Qualifiers: < Less than Result value      > Greater than Result value      B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit      E Estimated value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit      N Analyte not NELAC certified      R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit      S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: 0901058-006BMSD	SampType: MSD	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/5/2009	RunNo: 140088						
Client ID: 090102-CRB-WS-01	Batch ID: 108437	TestNo: SW6020		Analysis Date: 1/5/2009	SeqNo: 2870804						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	35580	100	1000	35470	11	70	130	35720	0.393	20	S
Chromium	88.09	5.00	100	0	88.1	70	130	88.05	0.0454	20	
Cobalt	91.68	5.00	100	0	91.7	70	130	90.53	1.26	20	
Copper	93.21	2.00	100	2.038	91.2	70	130	94.56	1.44	20	
Iron	965.8	100	1000	18.69	94.7	70	130	965.6	0.0207	20	
Lead	93.56	1.00	100	0	93.6	70	130	93.44	0.128	20	
Magnesium	10440	100	1000	9843	59.7	70	130	10470	0.287	20	S
Manganese	91.63	5.00	100	0	91.6	70	130	92.22	0.642	20	
Nickel	93.73	5.00	100	1.097	92.6	70	130	94.26	0.564	20	
Potassium	2386	100	1000	1736	65	70	130	2388	0.0838	20	S
Selenium	98.65	5.00	100	0	98.6	70	130	96.03	2.69	20	
Silver	9.392	1.00	10	0	93.9	70	130	9.522	1.37	20	
Sodium	8020	500	1000	7262	75.8	70	130	8046	0.324	20	
Thallium	94.38	1.00	100	0.107	94.3	70	130	94.05	0.350	20	
Vanadium	92.81	5.00	100	0	92.8	70	130	92.54	0.291	20	
Zinc	105.7	10.0	100	7.388	98.3	70	130	160.8	41.4	20	R

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901058  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 7470A\_W\_D

Sample ID: MB-108412	SampType: MBLK	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140022						
Client ID:	Batch ID: 108412	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2889482						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.000200	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108412	SampType: LCS	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140022						
Client ID:	Batch ID: 108412	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2889483						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.004915	0.000200	0.005	0	98.3	85	115	0	0		
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Sample ID: 0901058-006BMS	SampType: MS	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140022						
Client ID: 090102-CRB-WS-01	Batch ID: 108412	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2889486						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.005013	0.000200	0.005	0	100	70	130	0	0		
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Sample ID: 0901058-006BMSD	SampType: MSD	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140022						
Client ID: 090102-CRB-WS-01	Batch ID: 108412	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2889487						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.004944	0.000200	0.005	0	98.9	70	130	0.005013	1.38	20	
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<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value
	BRL Below Reporting Limit	E Estimated value above quantitation range
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		B Analyte detected in the associated Method Blank
		H Holding times for preparation or analysis exceeded
		R RPD outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_T

Sample ID: MB-108413	SampType: MBLK	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140023						
Client ID:	Batch ID: 108413	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2869525						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	BRL	0.000200	0	0	0	0	0	0	0	0	

Sample ID: LCS-108413	SampType: LCS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140023						
Client ID:	Batch ID: 108413	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2869526						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00485	0.000200	0.005	0	97	85	115	0	0		

Sample ID: 0901058-006AMS	SampType: MS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140023						
Client ID: 090102-CRB-WS-01	Batch ID: 108413	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2869533						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004852	0.000200	0.005	0	97	70	130	0	0		

Sample ID: 0901058-006AMSD	SampType: MSD	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/3/2009	RunNo: 140023						
Client ID: 090102-CRB-WS-01	Batch ID: 108413	TestNo: SW7470A		Analysis Date: 1/3/2009	SeqNo: 2869534						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004924	0.000200	0.005	0	98.5	70	130	0.004852	1.48	20	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7471A\_S

Sample ID: MB-108411	SampType: MBLK	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 1/3/2009	RunNo: 140021						
Client ID:	Batch ID: 108411	TestNo: SW7471A		Analysis Date: 1/3/2009	SeqNo: 2869543						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.00365	0.100	0	0	0	0	0	0	0	0	J
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Sample ID: LCS-108411	SampType: LCS	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 1/3/2009	RunNo: 140021						
Client ID:	Batch ID: 108411	TestNo: SW7471A		Analysis Date: 1/3/2009	SeqNo: 2869544						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.3849	0.100	0.4	0.00365	95.3	80	120	0	0		
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Sample ID: 0901058-004CMS	SampType: MS	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 1/3/2009	RunNo: 140021						
Client ID: 090102-CRB-SS-01	Batch ID: 108411	TestNo: SW7471A		Analysis Date: 1/3/2009	SeqNo: 2869546						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.05943	0.121	0.4843	0.02006	8.13	70	130	0	0		JS
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Sample ID: 0901058-004CMSD	SampType: MSD	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 1/3/2009	RunNo: 140021						
Client ID: 090102-CRB-SS-01	Batch ID: 108411	TestNo: SW7471A		Analysis Date: 1/3/2009	SeqNo: 2869547						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.6846	0.121	0.4843	0.02006	137	70	130	0.05943	168	30	SR
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.

Work Order: 0901058

Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: MB-108416	SampType: MBLK	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 1/3/2009	RunNo: 140024						
Client ID:	Batch ID: 108416	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2869517						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	47.03	0	50	0	94.1	56	145	0	0		

Sample ID: LCS-108416	SampType: LCS	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 1/3/2009	RunNo: 140024						
Client ID:	Batch ID: 108416	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2869518						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	57.38	1.0	50	0	115	60.4	136	0	0		
Ethylbenzene	60.33	1.0	50	0	121	66.3	139	0	0		
m,p-Xylene	119.2	1.0	100	0	119	63.8	139	0	0		
o-Xylene	60.96	1.0	50	0	122	63.8	139	0	0		
Toluene	56.55	1.0	50	0	113	60.9	138	0	0		
Surr: 4-Bromofluorobenzene	48.99	0	50	0	98	56	145	0	0		

Sample ID: 0901058-001AMS	SampType: MS	TestCode: BTEX_S-MS	Units: ug/Kg-dry	Prep Date: 1/3/2009	RunNo: 140024						
Client ID: 090102-ERB-SS-01	Batch ID: 108416	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2871507						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	75.6	1.4	68.36	0	111	62.1	134	0	0		
Ethylbenzene	78.36	1.4	68.36	0	115	60.8	141	0	0		
m,p-Xylene	155.3	1.4	136.7	0	114	56.2	144	0	0		
o-Xylene	79.82	1.4	68.36	0	117	62.4	138	0	0		
Toluene	75.56	1.4	68.36	0	111	60.2	136	0	0		
Surr: 4-Bromofluorobenzene	66.12	0	68.36	0	96.7	56	145	0	0		

**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: 0901058-001AMSD	SampType: MSD	TestCode: BTEX_S-MS	Units: ug/Kg-dry	Prep Date: 1/3/2009	RunNo: 140024
Client ID: 090102-ERB-SS-01	Batch ID: 108416	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2871608

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	75.93	1.4	68.36	0	111	62.1	134	75.6	0.433	20	
Ethylbenzene	78.81	1.4	68.36	0	115	60.8	141	78.36	0.574	20	
m,p-Xylene	157.7	1.4	136.7	0	115	56.2	144	155.3	1.54	20	
o-Xylene	79.41	1.4	68.36	0	116	62.4	138	79.82	0.515	20	
Toluene	75.99	1.4	68.36	0	111	60.2	136	75.56	0.577	20	
Surr: 4-Bromofluorobenzene	67.8	0	68.36	0	99.2	56	145	66.12	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b>	Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b>	Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b>	RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix		



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: MB-108417	SampType: MBLK	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/3/2009	RunNo: 140020						
Client ID:	Batch ID: 108417	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2869476						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	47.57	0	50	0	95.1	64.1	129	0	0		

Sample ID: LCS-108417	SampType: LCS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/3/2009	RunNo: 140020						
Client ID:	Batch ID: 108417	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2869475						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	49.78	1.0	50	0	99.6	65.4	134	0	0		
Ethylbenzene	49.76	1.0	50	0	99.5	69.9	132	0	0		
m,p-Xylene	97.3	1.0	100	0	97.3	69	134	0	0		
o-Xylene	48.44	1.0	50	0	96.9	70.2	133	0	0		
Toluene	48.52	1.0	50	0	97	70.6	133	0	0		
Surr: 4-Bromofluorobenzene	50.17	0	50	0	100	64.1	129	0	0		

Sample ID: 0812J28-010AMS	SampType: MS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/3/2009	RunNo: 140032						
Client ID:	Batch ID: 108417	TestNo: SW8260B		Analysis Date: 1/3/2009	SeqNo: 2869876						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	56.73	1.0	50	0	113	52.6	141	0	0		
Ethylbenzene	54.74	1.0	50	0	109	59.7	138	0	0		
m,p-Xylene	108.5	1.0	100	0	109	55.8	140	0	0		
o-Xylene	53.48	1.0	50	0	107	60.7	138	0	0		
Toluene	54.74	1.0	50	0	109	53.1	147	0	0		
Surr: 4-Bromofluorobenzene	50.66	0	50	0	101	64.1	129	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901058  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: 0812J28-010AMSD	SampType: MSD	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/3/2009	RunNo: 140032						
Client ID:	Batch ID: 108417	TestNo: SW8280B	Analysis Date: 1/3/2009	SeqNo: 2869878							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	58.16	1.0	50	0	116	52.6	141	56.73	2.49	20	
Ethylbenzene	55.8	1.0	50	0	112	59.7	138	54.74	1.92	20	
m,p-Xylene	109.8	1.0	100	0	110	55.8	140	108.5	1.17	20	
o-Xylene	54.22	1.0	50	0	108	60.7	138	53.48	1.37	20	
Toluene	56.72	1.0	50	0	113	53.1	147	54.74	3.55	20	
Surr: 4-Bromofluorobenzene	49.24	0	50	0	98.5	64.1	129	50.66	0	0	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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# **ANALYTICAL SERVICES, INC.**

**Environmental Monitoring & Laboratory Analysis**  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## **Laboratory Report**

**Prepared For:**

**Analytical Environment Services Inc.**  
**3785 Presidential Parkway, Ste. #111**  
**Atlanta, GA 30340**

**Attention: Mr. Justin Sasser**

**Report Number: ASA0015**

**January 06, 2009**

**Project: 0812149**

**Project #:0901058**

**P.O. No. 8264**

We appreciate the opportunity to provide the analytical support for your project. The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Approved:

*Elizabeth Bryant*

**Project Manager**

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# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 08, 2009

## ANALYTICAL REPORT FOR SAMPLES

<u>Sample ID</u>	<u>Laboratory ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
0901058-001	ASA0015-01	Soil	01/02/09 13:00	01/05/09 08:15
0901058-002	ASA0015-02	Soil	01/02/09 14:15	01/05/09 08:15
0901058-004	ASA0015-03	Soil	01/02/09 15:45	01/05/09 08:15
0901058-005	ASA0015-04	Soil	01/02/09 16:50	01/05/09 08:15



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015  
Client ID: 0901058-001  
Date/Time Sampled: 1/2/2009 1:00:00PM  
Matrix: Soil

Lab Number ID: ASA0015-01  
Date/Time Received: 1/8/2009 8:15:00AM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	73.5		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	136	1.34	mg/kg dry wt. dry	EPA 6010B		1	1/05/09 10:15	1/05/09 14:48	A901035	FBS
Silica	291	2.87	mg/kg dry	EPA 6010		1	1/05/09 10:15	1/05/09 14:48	[CALC]	FBS



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0016

Lab Number ID: ASA0016-02

Client ID: 0901058-002

Date/Time Received: 1/5/2009 8:15:00AM

Date/Time Sampled: 1/2/2009 2:15:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	72.3		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	107	1.35	mg/kg dry wt. dry	EPA 8010B		1	1/05/09 10:15	1/05/09 14:54	A901035	FBS
Silica	230	2.89	mg/kg dry	EPA 6010		1	1/05/09 10:15	1/05/09 14:54	[CALC]	FBS



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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 08, 2009

Report No.: ASA0015  
Client ID: 0801058-004  
Date/Time Sampled: 1/2/2009 3:45:00PM  
Matrix: Soil

Lab Number ID: ASA0015-03  
Date/Time Received: 1/5/2009 8:15:00AM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	IntL
<b>General Chemistry</b>										
% Solids	82.1		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	114	1.22	mg/kg dry wt. dry	EPA 8010B		1	1/05/09 10:15	1/05/09 15:00	A901035	FBS
Silica	243	2.61	mg/kg dry	EPA 8010		1	1/05/09 10:15	1/05/09 15:00	[CALC]	FBS



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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015

Lab Number ID: ASA0015-04

Client ID: 0901055-005

Date/Time Received: 1/5/2009 8:15:00AM

Date/Time Sampled: 1/2/2009 4:50:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	80.2		% by Weight	SOP Moisture		1	1/05/09 13:40	1/05/09 13:40	A901047	MZF
<b>Metals</b>										
Silicon	121	1.24	mg/kg dry wt. dry	EPA 8010B		1	1/05/09 10:15	1/05/09 15:08	A801036	FBS
Silica	258	2.66	mg/kg dry	EPA 8010		1	1/05/09 10:15	1/05/09 15:08	[CALC]	FBS





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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

Report No.: ASA0015

## General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A901047 - % Solids</b>										
<b>Duplicate (A901047-DUP1)</b>										
<b>Source: ARL0934-02 Prepared &amp; Analyzed: 01/05/09</b>										
% Solids	80.7		% by Weight		80.7			0.06	12	



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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 08, 2009

Report No.: ASA0015

## Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A901036 - EPA 3050B</b>										
<b>Blank (A901036-BLK1)</b> Prepared & Analyzed: 01/05/09										
Silicon	ND	4.00 mg/kg dry wt.	wet							
<b>LCS (A901036-BS1)</b> Prepared & Analyzed: 01/05/09										
Silicon	94.7	4.00 mg/kg dry wt.	wet	100.00		96	75-125			
<b>Duplicate (A901036-DUP1)</b> Source: ASA0015-03 Prepared & Analyzed: 01/05/09										
Silicon	149	1.22 mg/kg dry wt.	dry		114			27	20	QM-06
<b>Matrix Spike (A901036-MS1)</b> Source: ASA0015-03 Prepared & Analyzed: 01/05/09										
Silicon	171	1.22 mg/kg dry wt.	dry	30.457	114	187	75-125			QM-02
<b>Matrix Spike Dup (A901036-MSD1)</b> Source: ASA0015-03 Prepared & Analyzed: 01/05/09										
Silicon	187	1.22 mg/kg dry wt.	dry	30.457	114	242	75-125	26	20	QM-02
<b>Post Spike (A901036-PS1)</b> Source: ASA0015-03 Prepared & Analyzed: 01/05/09										
Silicon	9.25		mg/L	1.0000	3.73	552	75-125			QM-02



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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2009

## Laboratory Certifications

Code	Description	Number	Expires
NC	North Carolina	381	12/31/2008
NELAC	NELAC certification	E87315	06/30/2009



## ANALYTICAL SERVICES, INC.

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Analytical Environment Services Inc.  
3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Mr. Justin Sasser

January 06, 2008

### Legend

#### Definition of Laboratory Terms

- ND - None Detected at the Reporting Limit
- TIC - Tentatively Identified Compound
- CFU - Colony Forming Units
- SOP - Method run per ASI Standard Operating Procedure
- RL - Reporting Limit
- DF - Dilution Factor
  - Analyte not included in the NELAC list of certified analytes.

#### Sample Information

N-Nitrosodiphenylamine breaks down to diphenylamine in the GCMS; both analytes are reported as N-Nitrosodiphenylamine. ASI is not NELAC certified for N-Nitrosodiphenylamine.

Phthalic acid and phthalic anhydride are reported as dimethyl phthalate

Maleic acid and maleic anhydride are reported as dimethyl malate

1,2-Diphenylhydrazine breaks down to azobenzene in the GCMS; both analytes are reported as azobenzene

#### Definition of Qualifiers

- QM-06** Due to noted non-homogeneity of the QC sample matrix, the MS/MSD did not provide reliable results for accuracy and precision. Sample results for the QC batch were accepted based on LCS percent recoveries and RPD values.
- QM-02** The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

**Note: Unless otherwise noted, all results are reported on an as received basis.**





**ANALYTICAL ENVIRONMENTAL SERVICES, INC**

3785 Presidential Parkway, Atlanta GA 30340-3704

**AES** TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

**CHAIN OF CUSTODY**

Work Order: \_\_\_\_\_

ASA-0015

Date: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

COMPANY: AES Inc.		ADDRESS:		ANALYSIS REQUESTED					Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.	No # of Containers	
PHONE:		FAX:		PRESERVATION (See codes)							
SAMPLED BY:		SIGNATURE:							REMARKS		
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)					
1	0901058-001	1/2/09	1300			SO	✓		1		
2	0901058-002		14:15			SO	✓		2		
3	0901058-004		15:45			SO	✓		3		
4	0901058-005		16:50			SO	✓		4		
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
RELINQUISHED BY		DATE/TIME	RECEIVED BY		DATE/TIME	PROJECT INFORMATION			RECEIPT		
1: <i>Moylan</i>		1/3/09 12:30	1: <i>[Signature]</i>		1-3-09 12:35	PROJECT NAME: 0901058			Total # of Containers		
2: <i>[Signature]</i>		1-5-09 08:13	2: <i>Charles Hunt</i>		1-5-09 08:15	PROJECT #:			Turnaround Time Request		
3: <i>[Signature]</i>			3: <i>Nelson</i>		1/5/09 11:15	SITE ADDRESS: Ice Plant			Standard 5 Business Days		
SPECIAL INSTRUCTIONS/COMMENTS:		SHIPMENT METHOD		SEND REPORT TO: Allison Carroll / April Creech			INVOICE TO: (IF DIFFERENT FROM ABOVE)			2 Business Day Rush	
		OUT / / VIA:								Next Business Day Rush	
		IN / / VIA:								Same Day Rush (auth req.)	
		CLIENT FedEx UPS MAIL COURIER								Other	
		GREYHOUND OTHER								STATE PROGRAM (if any):	
										B-mail? Y/N; Fax? Y/N	
										DATA PACKAGE: I II III IV	

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT. SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water  
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## LOG-IN CHECKLIST

Printed: 01/05/2009 8:22:03AM

Attn: Mr. Justin Sasser

Client: Analytical Environment Services Inc  
Project: 0812I49  
Date Received: 01/05/09 08:15

Work Order: ASA0015  
Logged In By: Charles Hawks

NPDES:

### OBSERVATIONS

#Samples: 4                      #Containers: 4  
Minimum Temp(C): 5.0            Maximum Temp(C): 5.0            Custody Seal(s):

### CHECKLIST ITEMS

COC included with Samples	YES
Sample Container(s) Intact	YES
Chain of Custody Complete	NO
Sample Container(s) Match COC	YES
Custody seal Intact	NO
Temperature in Compliance	YES
Sufficient Sample Volume for Analysis	YES
Zero Headspace Maintained for VOA Analyses	YES
Samples labeled preserved (If Applicable)	YES
Samples received within Allowable Hold Times	YES
Samples Received on Ice	YES
Preservation Confirmed	YES

*Project Requires report to the MDL  
The sample type was not listed on the COC. CFH.*



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

January 07, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Suite 300  
Duluth, GA 30096

TEL: (678) 775-3104  
FAX: (678) 775-3138

RE: TVA Kingston

Order No.: 0901103

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 2 samples on 1/6/2009 10:00:00 AM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/08-06/30/09.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 08/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 13 total pages (including cover letter).

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

Sincerely,

Blair Stout  
Project Manager





# LYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704  
AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

## CHAIN OF CUSTODY

Work Order: 61103

Date: 1/5/09 Page 1 of 1

COMPANY:		ADDRESS:					ANALYSIS REQUESTED										Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.	No # of Containers
TETRA TECH ENV INC		1955 EVANGREEN BLVD SUITE 320 Duluth, GA 30094					TAL METALS	TAL METALS	DISSOLVED METALS	TOXIC METALS	DISSOLVED SILICA	SILICA	BTEX	TCLP	SILICA	BTEX	REMARKS	
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)											
		DATE	TIME				N											
1	090105-KFPRW-SS12	1/5/09	1320	✓		Ash	✓				✓	✓	✓					5
2	090105-KFPRW-SS12-DUP		1320	✓		Ash	✓				✓	✓	✓					5
3	090105-KFPRW-SS12-MS/MSD		1320	✓		Ash	✓				✓	✓	✓					5
4	090105-SP 1/5/09																	1
5	KWTP-RWU-01	1/5/09	1352	✓		RAW	✓	✓	✓	✓								2
6	KWTP-RWU-01-DUP		1352	✓		RAW	✓	✓	✓	✓								2
7	KWTP-FWU-01		1352	✓		Finished	✓	✓	✓	✓								2
8	KWTP-FWU-01-MS/MSD		1352	✓		Finished	✓	✓	✓	✓								2
9	090105-CRM-SS13		1520		✓	Soil	✓				✓	✓	✓					5
10	090105-CRM-SS13-DUP		1520		✓	Soil	✓				✓	✓	✓					5
11	090105-CRM-SS13-MS/MSD		1520		✓	Soil	✓				✓	✓	✓					5
12	090105-PENSE-01		1805	✓		Resate	✓							✓	✓			4
13																		
14																		

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	PROJECT INFORMATION	RECEIPT
1: <i>Paul Pags</i>	1/5/09 @ 2:25	1: FEDEX	1/5/09 @ 2:15	PROJECT NAME: TVA Kingston	Total # of Containers: 42
2:		2: <i>PLUMET</i>	1/6/09	PROJECT #: 103DK90170001.0084.3003	Turnaround Time Request
3:		3:	10:00	SITE ADDRESS: 314 Swan Pond Rd HARRIMAN, TN 37748	<input checked="" type="radio"/> Standard 5 Business Days
SPECIAL INSTRUCTIONS/COMMENTS: Jessica.Vickers@Hemi.com DD.Fung@Hemi.com Paul.Pags@Hemi.com		SHIPMENT METHOD OUT / / VIA: IN / / VIA: CLIENT <input checked="" type="radio"/> FedEx <input type="radio"/> UPS <input type="radio"/> MAIL <input type="radio"/> COURIER <input type="radio"/> GREYHOUND <input type="radio"/> OTHER		SEND REPORT TO: Jessica Vickers, DD Fung	<input type="radio"/> 2 Business Day Rush <input type="radio"/> Next Business Day Rush <input type="radio"/> Same Day Rush (auth req.) <input type="radio"/> Other
				INVOICE TO: Paul Pags (IF DIFFERENT FROM ABOVE)	STATE PROGRAM (if any): E-mail <input checked="" type="radio"/> Y/N; Fax? <input type="radio"/> Y/N
				QUOTE #:	DATA PACKAGE: I <input checked="" type="radio"/> II <input type="radio"/> III <input type="radio"/> IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.  
 SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)  
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Telia Tech

Work Order Number 0901103

Checklist completed by M. J. [Signature] Date 1/6/9

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 36° Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by MJ  
Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**CLIENT:** Tetra Tech EM Inc.  
**Project:** TVA Kingston  
**Lab Order:** 0901103

**CASE NARRATIVE**

---

Samples requiring Standard TAT were logged in under a separate Work Order.

**Sample Receiving Nonconformance:**

A Trip Blank was provided but was not listed on the Chain of Custody (COC). The Trip Blank was analyzed at no cost to the client.

**Total Metals Analysis by Method 6010B:**

Matrix spike and/or matrix spike duplicate analyses were not performed with Batch 108480 due to insufficient sample volume.

**Total Metals Analysis by Method 6020:**

Matrix spike and/or matrix spike duplicate analyses were not performed with Batch 108481 due to insufficient sample volume.

**Analytical Environmental Services, Inc.**

Date: 07-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901103  
 Project: TVA Kingston  
 Lab ID: 0901103-001

Client Sample ID: 090105-RINSE-01  
 Collection Date: 1/5/2009 6:05:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>TOTAL SILICON</b>			<b>SW6010B</b>	<b>(SW3010A)</b>	<b>Analyst: BB</b>			
Silica (as Si)	0.0510	J	0.0110	0.100	mg/L	108480	1	1/6/2009 1:57:45 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>	<b>Analyst: JY</b>			
Aluminum	72.9		5.12	10.0	ug/L	108481	1	1/6/2009 4:11:09 PM
Antimony	BRL		0.490	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Arsenic	BRL		0.880	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Barium	BRL		0.700	10.0	ug/L	108481	1	1/6/2009 4:11:09 PM
Beryllium	BRL		0.210	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Cadmium	BRL		0.0970	0.700	ug/L	108481	1	1/6/2009 4:11:09 PM
Calcium	44.5	J	14.1	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Chromium	BRL		0.660	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Cobalt	BRL		0.620	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Copper	BRL		0.730	2.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Iron	BRL		9.32	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Lead	0.275	J	0.170	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Magnesium	11.3	J	7.83	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Manganese	BRL		0.620	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Nickel	BRL		0.650	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Potassium	BRL		7.74	100	ug/L	108481	1	1/6/2009 4:11:09 PM
Selenium	BRL		1.06	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Silver	BRL		0.0630	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Sodium	112	J	7.81	500	ug/L	108481	1	1/6/2009 4:11:09 PM
Thallium	0.0630	J	0.0620	1.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Vanadium	BRL		0.670	5.00	ug/L	108481	1	1/6/2009 4:11:09 PM
Zinc	3.03	J	2.33	10.0	ug/L	108481	1	1/6/2009 4:11:09 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>	<b>Analyst: MAW</b>			
Mercury	0.00002	J	0.00001	0.00020	mg/L	108468	1	1/6/2009 5:16:26 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>	<b>Analyst: AJK</b>			
Benzene	BRL		0.22	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
Toluene	BRL		0.26	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108489	1	1/6/2009 12:32:00 PM
Sum: 4-Bromofluorobenzene	82.1		0	64.1-128	%REC	108489	1	1/6/2009 12:32:00 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 07-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901103  
 Project: TVA Kingston  
 Lab ID: 0901103-002

Client Sample ID: TRIP BLANK  
 Collection Date: 1/6/2009

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: AJK
Benzene	BRL		0.22	1.0	ug/L	108489	1	1/8/2009 12:07:00 PM
Toluene	BRL		0.26	1.0	ug/L	108489	1	1/8/2009 12:07:00 PM
Ethylbenzene	BRL		0.37	1.0	ug/L	108489	1	1/8/2009 12:07:00 PM
m,p-Xylene	BRL		0.60	1.0	ug/L	108489	1	1/8/2009 12:07:00 PM
o-Xylene	BRL		0.29	1.0	ug/L	108489	1	1/8/2009 12:07:00 PM
Surr: 4-Bromofluorobenzene	80.9		0	64.1-129	%REC	108489	1	1/8/2009 12:07:00 PM

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901103  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 6010B\_SI\_W

Sample ID: MB-108480	SampType: MBLK	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140115						
Client ID:	Batch ID: 108480	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2871733						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	0.01342	0.100	0	0	0	0	0	0	0	0	J
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Sample ID: LCS-108480	SampType: LCS	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140115						
Client ID:	Batch ID: 108480	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2871725						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	1.006	0.100	1	0.01342	99.3	80	120	0	0		
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Sample ID: LCSD-108480	SampType: LCSD	TestCode: 6010B_SI_W	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140115						
Client ID:	Batch ID: 108480	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2871729						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	0.9928	0.100	1	0.01342	97.8	80	120	1.006	1.35	20	
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Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901103  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: MB-108481	SampType: MBLK	TestCode: 6020_W	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140164
Client ID:	Batch ID: 108481	TestNo: SW6020		Analysis Date: 1/6/2009	SeqNo: 2872160

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.821	10.0	0	0	0	0	0	0	0		J
Antimony	BRL	5.00	0	0	0	0	0	0	0		
Arsenic	BRL	5.00	0	0	0	0	0	0	0		
Barium	BRL	10.0	0	0	0	0	0	0	0		
Beryllium	BRL	1.00	0	0	0	0	0	0	0		
Cadmium	BRL	0.700	0	0	0	0	0	0	0		
Calcium	BRL	100	0	0	0	0	0	0	0		
Chromium	BRL	5.00	0	0	0	0	0	0	0		
Cobalt	BRL	5.00	0	0	0	0	0	0	0		
Copper	BRL	2.00	0	0	0	0	0	0	0		
Iron	BRL	100	0	0	0	0	0	0	0		
Lead	BRL	1.00	0	0	0	0	0	0	0		
Magnesium	8.63	100	0	0	0	0	0	0	0		J
Manganese	BRL	5.00	0	0	0	0	0	0	0		
Nickel	BRL	5.00	0	0	0	0	0	0	0		
Potassium	BRL	100	0	0	0	0	0	0	0		
Selenium	BRL	5.00	0	0	0	0	0	0	0		
Silver	BRL	1.00	0	0	0	0	0	0	0		
Sodium	BRL	500	0	0	0	0	0	0	0		
Thallium	BRL	1.00	0	0	0	0	0	0	0		
Vanadium	BRL	5.00	0	0	0	0	0	0	0		
Zinc	BRL	10.0	0	0	0	0	0	0	0		

Sample ID: LCS-108481	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140164
Client ID:	Batch ID: 108481	TestNo: SW6020		Analysis Date: 1/6/2009	SeqNo: 2872161

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	995.8	10.0	1000	5.821	99	85	115	0	0		
Antimony	100.4	5.00	100	0	100	85	115	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901103  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: LCS-108481	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140164
Client ID:	Batch ID: 108481	TestNo: SW6020		Analysis Date: 1/6/2009	SeqNo: 2872151

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	98.13	5.00	100	0	98.1	85	115	0	0		
Barium	100.7	10.0	100	0	101	85	115	0	0		
Beryllium	101.8	1.00	100	0	102	85	115	0	0		
Cadmium	100.4	0.700	100	0	100	85	115	0	0		
Calcium	1044	100	1000	0	104	80	120	0	0		
Chromium	98.99	5.00	100	0	99	85	115	0	0		
Cobalt	98.34	5.00	100	0	99.3	85	115	0	0		
Copper	100	2.00	100	0	100	85	115	0	0		
Iron	1011	100	1000	0	101	85	115	0	0		
Lead	98.49	1.00	100	0	98.5	85	115	0	0		
Magnesium	1044	100	1000	8.63	104	80	120	0	0		
Manganese	98.03	5.00	100	0	99	85	115	0	0		
Nickel	98.99	5.00	100	0	99	85	115	0	0		
Potassium	947.3	100	1000	0	94.7	80	120	0	0		
Selenium	98.53	5.00	100	0	98.5	85	115	0	0		
Silver	10.19	1.00	10	0	102	85	115	0	0		
Sodium	994.2	500	1000	0	99.4	80	120	0	0		
Thallium	99.25	1.00	100	0	99.2	85	115	0	0		
Vanadium	100.8	5.00	100	0	101	85	115	0	0		
Zinc	95.43	10.0	100	0	95.4	85	115	0	0		

Sample ID: LCSD-108481	SampType: LCSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140164
Client ID:	Batch ID: 108481	TestNo: SW6020		Analysis Date: 1/6/2009	SeqNo: 2872158

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	973.6	10.0	1000	5.821	98.8	85	115	995.8	2.25	20	
Antimony	98.15	5.00	100	0	98.2	85	115	100.4	2.27	20	
Arsenic	96.92	5.00	100	0	96.9	85	115	98.13	1.24	20	
Barium	99.22	10.0	100	0	99.2	85	115	100.7	1.48	20	

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901103  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: LCSD-108481	SampType: LCSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140184						
Client ID:	Batch ID: 108481	TestNo: SW6020		Analysis Date: 1/6/2009	SeqNo: 2872158						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPOLimit	Qual
Beryllium	99.19	1.00	100	0	99.2	85	115	101.8	2.60	20	
Cadmium	98.97	0.700	100	0	99	85	115	100.4	1.43	20	
Calcium	995.7	100	1000	0	99.6	80	120	1044	4.74	20	
Chromium	97.52	5.00	100	0	97.5	85	115	98.99	1.50	20	
Cobalt	98.59	5.00	100	0	98.6	85	115	99.34	0.758	20	
Copper	99.78	2.00	100	0	99.8	85	115	100	0.220	20	
Iron	998.1	100	1000	0	99.8	85	115	1011	1.28	20	
Lead	97.92	1.00	100	0	97.9	85	115	98.49	0.580	20	
Magnesium	1011	100	1000	8.63	100	80	120	1044	3.21	20	
Manganese	97.56	5.00	100	0	97.6	85	115	99.03	1.50	20	
Nickel	97.7	5.00	100	0	97.7	85	115	98.99	1.31	20	
Potassium	984.6	100	1000	0	98.5	80	120	947.3	3.86	20	
Selenium	96.17	5.00	100	0	96.2	85	115	98.53	2.42	20	
Silver	10.02	1.00	10	0	100	85	115	10.19	1.88	20	
Sodium	1005	500	1000	0	100	80	120	984.2	1.08	20	
Thallium	98.14	1.00	100	0	98.1	85	115	99.25	1.12	20	
Vanadium	99.22	5.00	100	0	99.2	85	115	100.8	1.58	20	
Zinc	94.01	10.0	100	0	94	85	115	95.43	1.50	20	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901103  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_T

Sample ID: MB-108468	SampType: MBLK	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140160						
Client ID:	Batch ID: 108468	TestNo: SW7470A		Analysis Date: 1/6/2009	SeqNo: 2872178						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.000200	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108468	SampType: LCS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140160						
Client ID:	Batch ID: 108468	TestNo: SW7470A		Analysis Date: 1/6/2009	SeqNo: 2872179						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.004878	0.000200	0.005	0	97.6	85	115	0	0		
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Sample ID: 0812174-003CMS	SampType: MS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140160						
Client ID:	Batch ID: 108468	TestNo: SW7470A		Analysis Date: 1/6/2009	SeqNo: 2872181						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.006158	0.000200	0.005	0.00143	94.5	70	130	0	0		
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Sample ID: 0812174-003CMSD	SampType: MSD	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/6/2009	RunNo: 140160						
Client ID:	Batch ID: 108468	TestNo: SW7470A		Analysis Date: 1/6/2009	SeqNo: 2872287						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.005907	0.000400	0.005	0.00143	89.5	70	130	0.006158	4.15	20	
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<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value
	BRL Below Reporting Limit	E Estimated value above quantitation range
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		B Analyte detected in the associated Method Blank
		H Holding times for preparation or analysis exceeded
		R RPD outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901103  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: MB-108489	SampType: MBLK	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140127						
Client ID:	Batch ID: 108489	TestNo: SW8260B		Analysis Date: 1/6/2009	SeqNo: 2871757						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	47	0	50	0	94	64.1	129	0	0		

Sample ID: LCS-108489	SampType: LCS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140127						
Client ID:	Batch ID: 108489	TestNo: SW8260B		Analysis Date: 1/6/2009	SeqNo: 2871715						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	59.43	1.0	50	0	119	65.4	134	0	0		
Ethylbenzene	56.98	1.0	50	0	114	69.9	132	0	0		
m,p-Xylene	108.7	1.0	100	0	109	69	134	0	0		
o-Xylene	51.6	1.0	50	0	103	70.2	133	0	0		
Toluene	59.31	1.0	50	0	119	70.6	133	0	0		
Surr: 4-Bromofluorobenzene	45.95	0	50	0	91.9	64.1	129	0	0		

Sample ID: 0901103-001AMS	SampType: MS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140127						
Client ID: 090105-RINSE-01	Batch ID: 108489	TestNo: SW8260B		Analysis Date: 1/6/2009	SeqNo: 2871685						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	51.81	1.0	50	0	104	52.6	141	0	0		
Ethylbenzene	51.23	1.0	50	0	102	59.7	138	0	0		
m,p-Xylene	95.49	1.0	100	0	95.5	55.8	140	0	0		
o-Xylene	49.59	1.0	50	0	99.2	60.7	138	0	0		
Toluene	52.65	1.0	50	0	105	53.1	147	0	0		
Surr: 4-Bromofluorobenzene	45.64	0	50	0	91.3	64.1	129	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901103  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** BTEX\_W-MS

<b>Sample ID:</b> 0901103-001AMSD		<b>SampType:</b> MSD		<b>TestCode:</b> BTEX_W-MS		<b>Units:</b> ug/L		<b>Prep Date:</b> 1/6/2009		<b>RunNo:</b> 140127	
<b>Client ID:</b> 090105-RINSE-01		<b>Batch ID:</b> 108489		<b>TestNo:</b> SW8260B				<b>Analysis Date:</b> 1/6/2009		<b>SeqNo:</b> 2871686	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	53.29	1.0	50	0	107	52.6	141	51.81	2.82	20	
Ethylbenzene	60.68	1.0	50	0	121	59.7	138	51.23	16.9	20	
m,p-Xylene	110.2	1.0	100	0	110	55.8	140	95.49	14.3	20	
o-Xylene	58.7	1.0	50	0	117	60.7	138	49.59	16.8	20	
Toluene	56.11	1.0	50	0	112	53.1	147	52.65	6.38	20	
Surr: 4-Bromofluorobenzene	52.07	0	50	0	104	64.1	129	45.64	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

January 13, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Suite 300  
Duluth, GA 30096

TEL: (678) 775-3104  
FAX: (678) 775-3138

RE: TVA Kingston

Order No.: 0901111

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 8 samples on 1/6/2009 10:00:00 AM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/08-06/30/09.
- AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 08/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 66 total pages (including cover letter).

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

Sincerely,

Blair Stout  
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704

CHAIN OF CUSTODY

Work Order: 090111

AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

Date: 1/5/09 Page 1 of 1

COMPANY: <b>Tetra Tech EMC</b>		ADDRESS: <b>1955 EVOLUTION BLVD SUITE 300 Duluth, GA 30096</b>				ANALYSIS REQUESTED						Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		No # of Containers												
PHONE: <b>Jessica Vickers 678-775-3104 / 678-983-6655</b>		FAX: <b>678-775-3138</b>				<table border="1"> <tr> <td>TAL METALS</td> <td>TAL METALS</td> <td>DISSOLVED METALS</td> <td>TOTAL DISSOLVED SOLIDS</td> <td>DISSOLVED SILICA</td> <td>SILICA</td> <td>BTEX</td> <td>TCLP</td> <td>SILICA</td> <td>BTEX</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						TAL METALS	TAL METALS		DISSOLVED METALS	TOTAL DISSOLVED SOLIDS	DISSOLVED SILICA	SILICA	BTEX	TCLP	SILICA	BTEX				
TAL METALS	TAL METALS	DISSOLVED METALS	TOTAL DISSOLVED SOLIDS	DISSOLVED SILICA	SILICA	BTEX	TCLP	SILICA	BTEX																	
SAMPLED BY: <b>Paul Prins / Chuck Breen</b>		SIGNATURE: <i>[Signature]</i>				PRESERVATION (See codes)																				
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)																				
		DATE	TIME				N																			
1	090105-KFPRW-SS12	1/5/09	1320	✓		Ash	✓		✓	✓	✓				5											
2	090105-KFPRW-SS12-DUP		1320	✓		Ash	✓		✓	✓	✓				5											
3	090105-KFPRW-SS12-MS/MSD	✓	1320	✓		Ash	✓		✓	✓	✓				5											
4	<del>090105-SP-1/5/09</del>																									
5	KWTP-RWU-01	1/5/09	1352	✓		RAW	✓	✓	✓	✓					2											
6	KWTP-RWU-01-DUP		1352	✓		RAW	✓	✓	✓	✓					2											
7	KWTP-FWU-01		1352	✓		Finished	✓	✓	✓	✓					2											
8	KWTP-FWU-01-MS/MSD		1352	✓		Finished	✓	✓	✓	✓					2											
9	090105-CRM-SS13		1520		✓	Soil	✓		✓	✓	✓				5											
10	090105-CRM-SS13-DUP		1520		✓	Soil	✓		✓	✓	✓				5											
11	090105-CRM-SS13-MS/MSD		1520		✓	Soil	✓		✓	✓	✓				5											
12	090105-RNSE-01	✓	1805	✓		Resate	✓				✓	✓		ANALYZE RUSH FOR IMMEDIATE TURN-AROUND.	4											
13																										
14																										
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION						RECEIPT												
1: <i>[Signature]</i>		1/5/09 @ 2:00		1: FEDEX		1/5/09 @ 2:05		PROJECT NAME: <b>TVA Kingston</b>						Total # of Containers: <b>42</b>												
2: <i>[Signature]</i>				2: PRINCE-T		1/6/09		PROJECT #: <b>103DX90170001-0084-3003</b>						Turnaround Time Request												
3:				3:		10:00		SITE ADDRESS: <b>714 Swan Pond RD NARRIMAN, TN 37748</b>						<input checked="" type="checkbox"/> Standard 5 Business Days <input type="checkbox"/> 2 Business Day Rush <input type="checkbox"/> Next Business Day Rush <input type="checkbox"/> Same Day Rush (auth req.) <input type="checkbox"/> Other												
SPECIAL INSTRUCTIONS/COMMENTS: <b>Jessica.Vickers@ttsms.com DD.Fung@ttsms.com Paul.Prins@ttsms.com</b>				SHIPMENT METHOD OUT / / VIA: IN / / VIA: CLIENT <b>FedEx</b> UPS MAIL COURIER GREYHOUND OTHER				INVOICE TO: <b>Paul Prins</b> (IF DIFFERENT FROM ABOVE) QUOTE #: _____ PO#: _____						STATE PROGRAM (if any): _____ E-mail? <b>Y</b> /N; Fax? Y/N DATA PACKAGE: I <b>II</b> III IV												
SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT. SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.																										

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)  
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Tetra Tech

Work Order Number 090/111

Checklist completed by [Signature] Date 11/6/09

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3.6°C Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by [Signature]

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.

**CLIENT:** Tetra Tech EM Inc.  
**Project:** TVA Kingston  
**Lab Order:** 0901111

**CASE NARRATIVE**

**Sample Receiving Nonconformance:**

A Trip Blank was provided but was not listed on the Chain of Custody (COC). The Trip Blank was analyzed at no cost to the client.

Samples 090105-KFPRW-SS12-DUP and 090105-CRM-SS13-DUP were split to prepare samples needed for TCLP metals and silica analyses.

Sample 0901111-005B (Bottle 1 of 2) had a pH of 6 while 0901111-005B (Bottle 2 of 2) had a pH of 4. The laboratory proceeded with analysis.

**Volatiles Organic Compounds Analysis by Method 8260:**

Percent recoveries for all internal standard compounds on samples 0901111-001A and 002A were outside control limits biased low due to suspected matrix interference.



**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0901111  
**Project:** TVA Kingston  
**Lab ID:** 0901111-001

**Client Sample ID:** 090105-KFPRW-SS12  
**Collection Date:** 1/5/2009 1:20:00 PM

**Matrix:** SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				<b>Analyst: MAW</b>
Mercury	BRL		0.00288	0.00400	mg/L	108560	1	1/8/2009 3:25:27 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				<b>Analyst: BB</b>
Arsenic	BRL		0.0467	0.250	mg/L	108564	1	1/8/2009 1:48:14 PM
Barium	0.798		0.00455	0.500	mg/L	108564	1	1/8/2009 1:48:14 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108564	1	1/8/2009 1:48:14 PM
Chromium	BRL		0.00565	0.0500	mg/L	108564	1	1/8/2009 1:48:14 PM
Lead	0.0124	J	0.0105	0.0500	mg/L	108564	1	1/8/2009 1:48:14 PM
Selenium	BRL		0.0357	0.100	mg/L	108564	1	1/8/2009 1:48:14 PM
Silver	BRL		0.00540	0.0250	mg/L	108564	1	1/8/2009 1:48:14 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				<b>Analyst: TAA</b>
Aluminum	12500		5.34	61.0	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Antimony	0.916	J	0.232	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Arsenic	72.2		0.183	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Barium	231		0.183	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Beryllium	0.122	J	0.0171	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Cadmium	0.858	J	0.0402	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Calcium	8750		23.9	61.0	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Chromium	22.0		0.0805	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Cobalt	7.91		0.0219	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Copper	32.9		0.0512	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Iron	15200		7.74	305	mg/Kg-dry	108517	5	1/8/2009 4:10:35 PM
Lead	18.3		0.122	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Magnesium	1650		1.43	61.0	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Manganese	447		0.219	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Nickel	18.3		0.0305	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Potassium	1850		1.33	122	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Selenium	6.35		0.488	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Silver	BRL		0.0171	3.05	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Sodium	169		5.28	122	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Thallium	BRL		0.219	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Vanadium	51.8		0.0293	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
Zinc	34.5		0.780	6.10	mg/Kg-dry	108517	1	1/8/2009 3:24:32 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				<b>Analyst: MAW</b>
Mercury	0.116	J	0.00435	0.124	mg/Kg-dry	108516	1	1/7/2009 2:23:04 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				<b>Analyst: JF</b>
Benzene	BRL		0.14	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit

Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-001

Client Sample ID: 090105-KFPRW-SS12  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JF
Toluene	BRL		0.13	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
Ethylbenzene	BRL		0.17	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
m,p-Xylene	BRL		0.35	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
o-Xylene	BRL		0.37	0.98	ug/Kg-dry	108469	1	1/8/2009 4:52:00 PM
Surr: 4-Bromofluorobenzene	69.4		0	56-145	%REC	108469	1	1/8/2009 4:52:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	19.9		0	0	wt%		1	1/7/2009 9:00:00 AM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-002

Client Sample ID: 090105-KFPRW-SS12-DUP  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.000288	0.00400	mg/L	108560	1	1/8/2009 5:54:41 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/6010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL		0.0467	0.250	mg/L	108564	1	1/8/2009 2:03:01 PM
Barium	0.826		0.00455	0.500	mg/L	108564	1	1/8/2009 2:03:01 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108564	1	1/8/2009 2:03:01 PM
Chromium	BRL		0.00565	0.0500	mg/L	108564	1	1/8/2009 2:03:01 PM
Lead	BRL		0.0105	0.0500	mg/L	108564	1	1/8/2009 2:03:01 PM
Selenium	BRL		0.0357	0.100	mg/L	108564	1	1/8/2009 2:03:01 PM
Silver	BRL		0.00540	0.0250	mg/L	108564	1	1/8/2009 2:03:01 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	10900		5.29	60.4	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Antimony	0.981	J	0.230	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Arsenic	56.6		0.181	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Barium	179		0.181	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Beryllium	0.168	J	0.0169	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Cadmium	0.700	J	0.0399	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Calcium	9010		23.7	60.4	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Chromium	19.9		0.0797	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Cobalt	8.01		0.0217	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Copper	32.3		0.0507	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Iron	15800		7.67	302	mg/Kg-dry	108517	5	1/9/2009 10:51:44 AM
Lead	17.5		0.121	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Magnesium	1260		1.41	60.4	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Manganese	166		0.217	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Nickel	17.0		0.0302	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Potassium	1590		1.32	121	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Selenium	5.80	J	0.483	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Silver	BRL		0.0169	3.02	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Sodium	143		5.23	121	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Thallium	BRL		0.217	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Vanadium	48.9		0.0290	6.04	mg/Kg-dry	108517	1	1/8/2009 3:45:29 PM
Zinc	42.4		3.87	30.2	mg/Kg-dry	108517	5	1/9/2009 10:51:44 AM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.108	J	0.00423	0.121	mg/Kg-dry	108516	1	1/7/2009 2:51:40 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JF
Benzene	BRL		0.16	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-002

Client Sample ID: 090105-KFPRW-SS12-DUP  
 Collection Date: 1/5/2009 1:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JF
Toluene	BRL		0.14	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
Ethylbenzene	BRL		0.19	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
m,p-Xylene	BRL		0.40	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
o-Xylene	BRL		0.42	1.1	ug/Kg-dry	108469	1	1/8/2009 5:18:00 PM
Surr: 4-Bromofluorobenzene	71.8		0	56-145	%REC	108469	1	1/8/2009 5:18:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	18.9		0	0	wt%		1	1/7/2009 8:00:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-003

Client Sample ID: KWTP-RWU-01  
 Collection Date: 1/5/2009 1:52:00 PM  
 Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				Analyst: ML
Residue, Suspended (TSS)	4	J	1	5 mg/L		108562	1	1/8/2009 11:24:54 AM
<b>DISSOLVED SILICA (AS SI)</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				Analyst: BB
Silica (as Si)	1.91		0.0110	0.100 mg/L		108499	1	1/7/2009 5:05:42 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				Analyst: JY
Aluminum	74.3		5.12	10.0 ug/L		108521	1	1/7/2009 7:55:50 PM
Antimony	BRL		0.490	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Arsenic	BRL		0.880	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Barium	20.4		0.700	10.0 ug/L		108521	1	1/7/2009 7:55:50 PM
Beryllium	BRL		0.210	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Cadmium	BRL		0.0970	0.700 ug/L		108521	1	1/7/2009 7:55:50 PM
Calcium	15700		14.1	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Chromium	BRL		0.660	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Cobalt	BRL		0.620	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Copper	2.86		0.730	2.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Iron	70.4	J	9.32	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Lead	0.188	J	0.170	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Magnesium	3810		7.83	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Manganese	27.7		0.620	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Nickel	BRL		0.650	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Potassium	1850		7.74	100 ug/L		108521	1	1/7/2009 7:55:50 PM
Selenium	BRL		1.06	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Silver	BRL		0.0630	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Sodium	9530		7.81	500 ug/L		108521	1	1/7/2009 7:55:50 PM
Thallium	BRL		0.0620	1.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Vanadium	BRL		0.670	5.00 ug/L		108521	1	1/7/2009 7:55:50 PM
Zinc	24.5		2.33	10.0 ug/L		108521	1	1/7/2009 7:55:50 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Aluminum	15.6		5.12	10.0 ug/L		108500	1	1/7/2009 6:47:27 PM
Antimony	BRL		0.490	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Arsenic	BRL		0.880	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Barium	18.9		0.700	10.0 ug/L		108500	1	1/7/2009 6:47:27 PM
Beryllium	BRL		0.210	1.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Cadmium	BRL		0.0970	0.700 ug/L		108500	1	1/7/2009 6:47:27 PM
Calcium	14800		14.1	100 ug/L		108500	1	1/7/2009 6:47:27 PM
Chromium	BRL		0.660	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Cobalt	BRL		0.620	5.00 ug/L		108500	1	1/7/2009 6:47:27 PM
Copper	2.16		0.730	2.00 ug/L		108500	1	1/7/2009 6:47:27 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-003

Client Sample ID: KWTP-RWU-01  
 Collection Date: 1/5/2009 1:52:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILTER)</b>				Analyst: JY
Iron	BRL		9.32	100	ug/L	108500	1	1/7/2009 6:47:27 PM
Lead	BRL		0.170	1.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Magnesium	3640		7.83	100	ug/L	108500	1	1/7/2009 6:47:27 PM
Manganese	BRL		0.620	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Nickel	BRL		0.650	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Potassium	1760		7.74	100	ug/L	108500	1	1/7/2009 6:47:27 PM
Selenium	BRL		1.06	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Silver	BRL		0.0630	1.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Sodium	9220		7.81	500	ug/L	108500	1	1/7/2009 6:47:27 PM
Thallium	BRL		0.0620	1.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Vanadium	BRL		0.670	5.00	ug/L	108500	1	1/7/2009 6:47:27 PM
Zinc	20.3		2.33	10.0	ug/L	108500	1	1/7/2009 6:47:27 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108558	1	1/8/2009 2:03:22 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108559	1	1/8/2009 1:40:03 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0901111  
**Project:** TVA Kingston  
**Lab ID:** 0901111-004

**Client Sample ID:** KWTP-RWU-01-DUP  
**Collection Date:** 1/5/2009 1:52:00 PM

**Matrix:** AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				<b>Analyst: ML</b>
Residue, Suspended (TSS)	4	J	1	5	mg/L	108562	1	1/8/2009 11:25:19 AM
<b>DISSOLVED SILICA (AS SI)</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: BB</b>
Silica (as Si)	1.92		0.0110	0.100	mg/L	108499	1	1/7/2009 5:08:07 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				<b>Analyst: JY</b>
Aluminum	77.3		5.12	10.0	ug/L	108521	1	1/7/2009 8:01:32 PM
Antimony	BRL		0.490	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Arsenic	BRL		0.880	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Barium	20.4		0.700	10.0	ug/L	108521	1	1/7/2009 8:01:32 PM
Beryllium	BRL		0.210	1.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Cadmium	BRL		0.0970	0.700	ug/L	108521	1	1/7/2009 8:01:32 PM
Calcium	16000		14.1	100	ug/L	108521	1	1/7/2009 8:01:32 PM
Chromium	BRL		0.660	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Cobalt	BRL		0.620	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Copper	4.06		0.730	2.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Iron	79.2	J	9.32	100	ug/L	108521	1	1/7/2009 8:01:32 PM
Lead	0.181	J	0.170	1.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Magnesium	3830		7.83	100	ug/L	108521	1	1/7/2009 8:01:32 PM
Manganese	28.4		0.620	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Nickel	BRL		0.650	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Potassium	1890		7.74	100	ug/L	108521	1	1/7/2009 8:01:32 PM
Selenium	BRL		1.06	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Silver	BRL		0.0630	1.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Sodium	9730		7.81	500	ug/L	108521	1	1/7/2009 8:01:32 PM
Thallium	BRL		0.0620	1.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Vanadium	BRL		0.670	5.00	ug/L	108521	1	1/7/2009 8:01:32 PM
Zinc	24.5		2.33	10.0	ug/L	108521	1	1/7/2009 8:01:32 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				<b>Analyst: JY</b>
Aluminum	12.2		5.12	10.0	ug/L	108500	1	1/7/2009 6:53:08 PM
Antimony	BRL		0.490	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Arsenic	BRL		0.880	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Barium	18.7		0.700	10.0	ug/L	108500	1	1/7/2009 6:53:08 PM
Beryllium	BRL		0.210	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Cadmium	BRL		0.0970	0.700	ug/L	108500	1	1/7/2009 6:53:08 PM
Calcium	15500		14.1	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Chromium	BRL		0.660	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Cobalt	BRL		0.620	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Copper	2.28		0.730	2.00	ug/L	108500	1	1/7/2009 6:53:08 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0901111  
**Project:** TVA Kingston  
**Lab ID:** 0901111-004

**Client Sample ID:** KWTP-RWU-01-DUP  
**Collection Date:** 1/5/2009 1:52:00 PM

**Matrix:** AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				<b>Analyst: JY</b>
Iron	BRL		9.32	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Lead	BRL		0.170	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Magnesium	3630		7.83	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Manganese	BRL		0.620	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Nickel	BRL		0.650	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Potassium	1810		7.74	100	ug/L	108500	1	1/7/2009 6:53:08 PM
Selenium	BRL		1.06	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Silver	BRL		0.0630	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Sodium	9320		7.81	500	ug/L	108500	1	1/7/2009 6:53:08 PM
Thallium	BRL		0.0620	1.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Vanadium	BRL		0.670	5.00	ug/L	108500	1	1/7/2009 6:53:08 PM
Zinc	19.0		2.33	10.0	ug/L	108500	1	1/7/2009 6:53:08 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				<b>Analyst: MAW</b>
Mercury	BRL		0.00001	0.00020	mg/L	108558	1	1/8/2009 2:05:18 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				<b>Analyst: MAW</b>
Mercury	BRL		0.00001	0.00020	mg/L	108559	1	1/8/2009 1:41:58 PM

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL



**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

**CLIENT:** Tetra Tech EM Inc.  
**Lab Order:** 0901111  
**Project:** TVA Kingston  
**Lab ID:** 0901111-005

**Client Sample ID:** KWTP-FWU-01  
**Collection Date:** 1/5/2009 1:52:00 PM  
**Matrix:** AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>RESIDUE,SUSPENDED(TSS)(160.2/SM2540D)</b>			<b>E160.2</b>	<b>(E160.2)</b>				<b>Analyst: ML</b>
Residue, Suspended (TSS)	BRL		1	5 mg/L		108562	1	1/8/2009 11:25:47 AM
<b>DISSOLVED SILICA (AS SI)</b>			<b>SW6010B</b>	<b>(SAMP_FILT)</b>				<b>Analyst: BB</b>
Silica (as Si)	2.08		0.0110	0.100 mg/L		108499	1	1/7/2009 4:55:16 PM
<b>TOTAL METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SW3005A)</b>				<b>Analyst: JY</b>
Aluminum	36.7		5.12	10.0 ug/L		108521	1	1/7/2009 7:27:24 PM
Antimony	BRL		0.490	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Arsenic	BRL		0.880	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Barium	19.1		0.700	10.0 ug/L		108521	1	1/7/2009 7:27:24 PM
Beryllium	BRL		0.210	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Cadmium	BRL		0.0970	0.700 ug/L		108521	1	1/7/2009 7:27:24 PM
Calcium	16300		14.1	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Chromium	BRL		0.660	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Cobalt	BRL		0.620	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Copper	5.19		0.730	2.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Iron	BRL		9.32	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Lead	BRL		0.170	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Magnesium	3940		7.83	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Manganese	BRL		0.620	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Nickel	BRL		0.650	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Potassium	1900		7.74	100 ug/L		108521	1	1/7/2009 7:27:24 PM
Selenium	BRL		1.06	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Silver	BRL		0.0630	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Sodium	14300		7.81	500 ug/L		108521	1	1/7/2009 7:27:24 PM
Thallium	BRL		0.0620	1.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Vanadium	BRL		0.670	5.00 ug/L		108521	1	1/7/2009 7:27:24 PM
Zinc	6.34	J	2.33	10.0 ug/L		108521	1	1/7/2009 7:27:24 PM
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				<b>Analyst: JY</b>
Aluminum	19.0		5.12	10.0 ug/L		108500	1	1/7/2009 6:18:57 PM
Antimony	BRL		0.490	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Arsenic	BRL		0.880	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Barium	18.1		0.700	10.0 ug/L		108500	1	1/7/2009 6:18:57 PM
Beryllium	BRL		0.210	1.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Cadmium	BRL		0.0970	0.700 ug/L		108500	1	1/7/2009 6:18:57 PM
Calcium	15200		14.1	100 ug/L		108500	1	1/7/2009 6:18:57 PM
Chromium	BRL		0.660	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Cobalt	BRL		0.620	5.00 ug/L		108500	1	1/7/2009 6:18:57 PM
Copper	4.80		0.730	2.00 ug/L		108500	1	1/7/2009 6:18:57 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-005

Client Sample ID: KWTP-FWU-01  
 Collection Date: 1/5/2009 1:52:00 PM

Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>DISSOLVED METALS BY ICP/MS</b>			<b>SW6020</b>	<b>(SAMP_FILT)</b>				Analyst: JY
Iron	BRL		9.32	100	ug/L	108500	1	1/7/2009 6:18:57 PM
Lead	0.620	J	0.170	1.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Magnesium	3700		7.83	100	ug/L	108500	1	1/7/2009 6:18:57 PM
Manganese	1.59	J	0.620	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Nickel	BRL		0.650	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Potassium	1780		7.74	100	ug/L	108500	1	1/7/2009 6:18:57 PM
Selenium	BRL		1.06	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Silver	BRL		0.0630	1.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Sodium	13400		7.81	500	ug/L	108500	1	1/7/2009 6:18:57 PM
Thallium	BRL		0.0620	1.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Vanadium	BRL		0.670	5.00	ug/L	108500	1	1/7/2009 6:18:57 PM
Zinc	7.58	J	2.33	10.0	ug/L	108500	1	1/7/2009 6:18:57 PM
<b>MERCURY, DISSOLVED</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108558	1	1/8/2009 1:55:38 PM
<b>MERCURY, TOTAL</b>			<b>SW7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00001	0.00020	mg/L	108559	1	1/8/2009 1:32:11 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-006

Client Sample ID: 090105-CRM-SS13  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>			<b>SW1311/7470A</b>	<b>(SW7470)</b>				Analyst: MAW
Mercury	BRL		0.00288	0.00400	mg/L	108560	1	1/8/2009 3:33:13 PM
<b>ICP METALS, TCLP</b>			<b>SW1311/8010B</b>	<b>(SW3010A)</b>				Analyst: BB
Arsenic	BRL		0.0467	0.250	mg/L	108564	1	1/8/2009 2:06:53 PM
Barium	0.302	J	0.00455	0.500	mg/L	108564	1	1/8/2009 2:06:53 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108564	1	1/8/2009 2:06:53 PM
Chromium	BRL		0.00565	0.0500	mg/L	108564	1	1/8/2009 2:06:53 PM
Lead	BRL		0.0105	0.0500	mg/L	108564	1	1/8/2009 2:06:53 PM
Selenium	BRL		0.0357	0.100	mg/L	108564	1	1/8/2009 2:06:53 PM
Silver	BRL		0.00540	0.0250	mg/L	108564	1	1/8/2009 2:06:53 PM
<b>METALS, TOTAL</b>			<b>SW6010B</b>	<b>(SW3050B)</b>				Analyst: TAA
Aluminum	3630		4.99	57.0	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Antimony	0.325	J	0.217	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Arsenic	7.51		0.171	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Barium	24.8		0.171	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Beryllium	0.0453	J	0.0160	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Cadmium	0.0935	J	0.0376	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Calcium	2310		22.3	57.0	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Chromium	9.83		0.0752	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Cobalt	5.54		0.0205	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Copper	11.6		0.0479	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Iron	12300		7.24	285	mg/Kg-dry	108517	5	1/9/2009 10:55:52 AM
Lead	16.9		0.114	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Magnesium	1170		1.33	57.0	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Manganese	348		0.205	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Nickel	5.74		0.0285	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Potassium	274		1.24	114	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Selenium	1.74	J	0.456	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Silver	BRL		0.0160	2.85	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Sodium	8.30	J	4.93	114	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Thallium	BRL		0.205	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Vanadium	12.4		0.0273	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
Zinc	25.2		0.729	5.70	mg/Kg-dry	108517	1	1/8/2009 3:48:37 PM
<b>TOTAL MERCURY</b>			<b>SW7471A</b>	<b>(SW7471)</b>				Analyst: MAW
Mercury	0.0942	J	0.00425	0.121	mg/Kg-dry	108516	1	1/7/2009 2:36:23 PM
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Benzene	BRL		0.14	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM

Qualifiers:  
 \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-006

Client Sample ID: 090105-CRM-SS13  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>		<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL	0.13	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
Ethylbenzene	BRL	0.17	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
m,p-Xylene	BRL	0.36	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
o-Xylene	BRL	0.38	0.99	ug/Kg-dry	108469	1	1/6/2009 7:43:00 PM
Surr: 4-Bromofluorobenzene	93.3	0	56-145	%REC	108469	1	1/6/2009 7:43:00 PM
<b>PERCENT MOISTURE</b>		<b>D2216</b>					Analyst: MAS
Percent Moisture	18.1	0	0	wt%		1	1/7/2009 8:00:00 AM

Qualifiers:			
*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-007

Client Sample ID: 090105-CRM-SS13-DUP  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>MERCURY, TCLP</b>								
Mercury	BRL		0.00288	0.00400	mg/L	108560	1	1/8/2009 5:56:37 PM
			SW1311/7470A	(SW7470)	Analyst: MAW			
<b>ICP METALS, TCLP</b>								
Arsenic	BRL		0.0467	0.250	mg/L	108564	1	1/8/2009 2:33:10 PM
Barium	0.384	J	0.00455	0.500	mg/L	108564	1	1/8/2009 2:33:10 PM
Cadmium	BRL		0.0175	0.0250	mg/L	108564	1	1/8/2009 2:33:10 PM
Chromium	BRL		0.00565	0.0500	mg/L	108564	1	1/8/2009 2:33:10 PM
Lead	BRL		0.0105	0.0500	mg/L	108564	1	1/8/2009 2:33:10 PM
Selenium	BRL		0.0357	0.100	mg/L	108564	1	1/8/2009 2:33:10 PM
Silver	BRL		0.00540	0.0250	mg/L	108564	1	1/8/2009 2:33:10 PM
			SW1311/6010B	(SW3010A)	Analyst: BB			
<b>METALS, TOTAL</b>								
Aluminum	3750		5.13	58.6	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Antimony	0.357	J	0.223	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Arsenic	5.62	J	0.176	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Barium	24.2		0.176	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Beryllium	0.0401	J	0.0164	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Cadmium	0.0883	J	0.0387	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Calcium	700		23.0	58.6	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Chromium	10.4		0.0773	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Cobalt	4.81		0.0211	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Copper	10.8		0.0492	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Iron	9530		7.44	293	mg/Kg-dry	108517	5	1/9/2009 11:22:30 AM
Lead	14.5		0.117	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Magnesium	301		1.37	58.6	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Manganese	295		0.211	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Nickel	5.21	J	0.0293	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Potassium	268		1.28	117	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Selenium	1.11	J	0.469	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Silver	BRL		0.0164	2.93	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Sodium	BRL		5.07	117	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Thallium	BRL		0.211	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Vanadium	11.8		0.0281	5.86	mg/Kg-dry	108517	1	1/8/2009 4:06:23 PM
Zinc	24.8		1.50	11.7	mg/Kg-dry	108517	2	1/8/2009 11:44:10 AM
			SW6010B	(SW3050B)	Analyst: TAA			
<b>TOTAL MERCURY</b>								
Mercury	0.112	J	0.00432	0.123	mg/Kg-dry	108516	1	1/7/2009 2:53:52 PM
			SW7471A	(SW7471)	Analyst: MAW			
<b>VOLATILE ORGANICS</b>								
Benzene	BRL		0.13	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
			SW8260B	(SW5035)	Analyst: JE			

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 > Greater than Result value  
 E Estimated value above quantitation range  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-007

Client Sample ID: 090105-CRM-SS13-DUP  
 Collection Date: 1/5/2009 3:20:00 PM

Matrix: SOLID

Analyses	Result	Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>			<b>SW8260B</b>	<b>(SW5035)</b>				Analyst: JE
Toluene	BRL		0.12	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
Ethylbenzene	BRL		0.15	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
m,p-Xylene	BRL		0.32	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
o-Xylene	BRL		0.34	0.90	ug/Kg-dry	108469	1	1/6/2009 7:18:00 PM
Surr: 4-Bromofluorobenzene	93.6		0	56-145	%REC	108469	1	1/6/2009 7:18:00 PM
<b>PERCENT MOISTURE</b>			<b>D2216</b>					Analyst: MAS
Percent Moisture	19.7		0	0	wt%		1	1/7/2009 8:00:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- > Greater than Result value
- E Estimated value above quantitation range
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit

- < Less than Result value
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- BRL Not detected at MDL

**Analytical Environmental Services, Inc.**

Date: 13-Jan-09

CLIENT: Tetra Tech EM Inc.  
 Lab Order: 0901111  
 Project: TVA Kingston  
 Lab ID: 0901111-008

Client Sample ID: TRIP BLANK  
 Collection Date: 1/6/2009  
 Matrix: AQUEOUS

Analyses	Result Qual	MDL	Rpt. Limit	Units	BatchID	DF	Date Analyzed
<b>VOLATILE ORGANICS</b>		<b>SW8260B</b>	<b>(SW5030B)</b>				Analyst: AJK
Benzene	BRL	0.22	1.0 ug/L		108511	1	1/6/2009 6:58:00 PM
Toluene	BRL	0.26	1.0 ug/L		108511	1	1/6/2009 6:58:00 PM
Ethylbenzene	BRL	0.37	1.0 ug/L		108511	1	1/6/2009 6:58:00 PM
m,p-Xylene	BRL	0.60	1.0 ug/L		108511	1	1/6/2009 6:58:00 PM
o-Xylene	BRL	0.29	1.0 ug/L		108511	1	1/6/2009 6:58:00 PM
Surr. 4-Bromofluorobenzene	84.5	0	64.1-129 %REC		108511	1	1/6/2009 6:58:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level	<	Less than Result value
>	Greater than Result value	B	Analyte detected in the associated Method Blank
E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix
		BRL	Not detected at MDL

Lab Order: 0901111  
 Client: Tetra Tech EM Inc.  
 Project: TVA Kingston

**DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0901111-001A	090105-KFPRW-SS12	1/5/2009 1:20:00 PM	Solid	VOLATILE ORGANICS: BTEX		1/5/2009	1/6/2009
				VOLATILE ORGANICS: BTEX		1/5/2009	1/8/2009
0901111-001B				PERCENT MOISTURE			1/7/2009
0901111-001C				MERCURY		1/7/2009	1/7/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				TOTAL METALS BY ICP		1/7/2009	1/9/2009
0901111-001D				ICP METALS, TCLP Leached		1/8/2009	1/8/2009
				MERCURY, TCLP Leached		1/8/2009	1/8/2009
0901111-002A	090105-KFPRW-SS12-DUP			VOLATILE ORGANICS: BTEX		1/5/2009	1/6/2009
				VOLATILE ORGANICS: BTEX		1/5/2009	1/8/2009
0901111-002B				PERCENT MOISTURE			1/7/2009
0901111-002C				MERCURY		1/7/2009	1/7/2009
				TOTAL METALS BY ICP		1/7/2009	1/9/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
0901111-002D				ICP METALS, TCLP Leached		1/8/2009	1/8/2009
				MERCURY, TCLP Leached		1/8/2009	1/8/2009
				MERCURY, TCLP Leached		1/8/2009	1/8/2009
0901111-003A	KWTP-RWU-01	1/5/2009 1:52:00 PM	Aqueous	TOTAL MERCURY		1/8/2009	1/8/2009
				Total Metals by ICP/MS		1/7/2009	1/7/2009
0901111-003B				Dissolved Metals by ICP/MS		1/7/2009	1/7/2009
				Dissolved Silica (as Si)		1/7/2009	1/7/2009
				MERCURY, DISSOLVED		1/8/2009	1/8/2009
				Residue, Suspended (TSS)		1/8/2009	1/8/2009
0901111-004A	KWTP-RWU-01-DUP			TOTAL MERCURY		1/8/2009	1/8/2009
				Total Metals by ICP/MS		1/7/2009	1/7/2009



Lab Order: 0901111  
 Client: Tetra Tech EM Inc.  
 Project: TVA Kingston

**DATES REPORT**

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0901111-004B	KWTP-RWU-01-DUP	1/5/2009 1:52:00 PM	Aqueous	Dissolved Metals by ICP/MS		1/7/2009	1/7/2009
				Dissolved Silica (as Si)		1/7/2009	1/7/2009
				MERCURY, DISSOLVED		1/8/2009	1/8/2009
				Residue, Suspended (TSS)		1/8/2009	1/8/2009
0901111-005A	KWTP-FWU-01			TOTAL MERCURY		1/8/2009	1/8/2009
				Total Metals by ICP/MS		1/7/2009	1/7/2009
				Dissolved Metals by ICP/MS		1/7/2009	1/7/2009
0901111-005B				Dissolved Silica (as Si)		1/7/2009	1/7/2009
				MERCURY, DISSOLVED		1/8/2009	1/8/2009
				Residue, Suspended (TSS)		1/8/2009	1/8/2009
				VOLATILE ORGANICS: BTEX		1/5/2009	1/6/2009
0901111-006A	090105-CRM-SS13	1/5/2009 3:20:00 PM	Solid	PERCENT MOISTURE			1/7/2009
0901111-006B				MERCURY		1/7/2009	1/7/2009
0901111-006C				TOTAL METALS BY ICP		1/7/2009	1/9/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				ICP METALS, TCLP Leached		1/8/2009	1/8/2009
0901111-006D				MERCURY, TCLP Leached		1/8/2009	1/8/2009
				VOLATILE ORGANICS: BTEX		1/5/2009	1/6/2009
0901111-007A	090105-CRM-SS13-DUP			PERCENT MOISTURE			1/7/2009
0901111-007B				MERCURY		1/7/2009	1/7/2009
0901111-007C				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				TOTAL METALS BY ICP		1/7/2009	1/8/2009
				TOTAL METALS BY ICP		1/7/2009	1/9/2009
				TOTAL METALS BY ICP		1/7/2009	1/9/2009
				ICP METALS, TCLP Leached		1/8/2009	1/8/2009
0901111-007D				MERCURY, TCLP Leached		1/8/2009	1/8/2009
				MERCURY, TCLP Leached		1/8/2009	1/8/2009
				MERCURY, TCLP Leached		1/8/2009	1/8/2009

Lab Order: 0901111  
Client: Tetra Tech EM Inc.  
Project: TVA Kingston

### DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
0901111-008A	TRIP BLANK	1/6/2009	Aqueous	VOLATILE ORGANICS: BTEX		1/6/2009	1/6/2009

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 1311\_HG

Sample ID: MB-108560	SampType: MBLK	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140278						
Client ID:	Batch ID: 108560	TestNo: SW1311/7470		Analysis Date: 1/8/2009	SeqNo: 2874338						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.00400	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108560	SampType: LCS	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140278						
Client ID:	Batch ID: 108560	TestNo: SW1311/7470		Analysis Date: 1/8/2009	SeqNo: 2874339						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.03966	0.00400	0.04	0	99.1	80	120	0	0		
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Sample ID: 0901111-001DMS	SampType: MS	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140278						
Client ID: 090105-KFPRW-SS1	Batch ID: 108560	TestNo: SW1311/7470		Analysis Date: 1/8/2009	SeqNo: 2874341						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.04156	0.00400	0.04	0	104	80	120	0	0		
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Sample ID: 0901111-006DMS	SampType: MS	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140278						
Client ID: 090105-CRM-SS13	Batch ID: 108560	TestNo: SW1311/7470		Analysis Date: 1/8/2009	SeqNo: 2874345						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.04966	0.00400	0.04	0	124	80	120	0	0		S
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Sample ID: 0901111-001DMSD	SampType: MSD	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140278						
Client ID: 090105-KFPRW-SS1	Batch ID: 108560	TestNo: SW1311/7470		Analysis Date: 1/8/2009	SeqNo: 2874342						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.03913	0.00400	0.04	0	97.8	80	120	0.04156	6.04	20	
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Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901111  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 1311\_HG

Sample ID: 0901111-006DMSD	SampType: MSD	TestCode: 1311_HG	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140278						
Client ID: 090105-CRM-SS13	Batch ID: 108560	TestNo: SW1311/7470		Analysis Date: 1/8/2009	SeqNo: 2874348						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.03973	0.00400	0.04	0	99.3	80	120	0.04966	22.2	20	R

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: MB-108564		SampType: MBLK		TestCode: 1311_M		Units: mg/L		Prep Date: 1/8/2009		RunNo: 140290	
Client ID:		Batch ID: 108564		TestNo: SW1311/6010				Analysis Date: 1/8/2009		SeqNo: 2874280	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	BRL	0.250	0	0	0	0	0	0	0	0	
Barium	BRL	0.500	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.0250	0	0	0	0	0	0	0	0	
Chromium	BRL	0.0500	0	0	0	0	0	0	0	0	
Lead	BRL	0.0500	0	0	0	0	0	0	0	0	
Selenium	BRL	0.100	0	0	0	0	0	0	0	0	
Silver	BRL	0.0250	0	0	0	0	0	0	0	0	

Sample ID: LCS-108564		SampType: LCS		TestCode: 1311_M		Units: mg/L		Prep Date: 1/8/2009		RunNo: 140290	
Client ID:		Batch ID: 108564		TestNo: SW1311/6010				Analysis Date: 1/8/2009		SeqNo: 2874279	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.856	0.250	5	0	97.1	85	115	0	0	0	
Barium	4.582	0.500	5	0	91.6	80	120	0	0	0	
Cadmium	4.707	0.0250	5	0	94.1	85	115	0	0	0	
Chromium	4.874	0.0500	5	0	97.5	85	115	0	0	0	
Lead	4.533	0.0500	5	0	90.7	85	115	0	0	0	
Selenium	4.906	0.100	5	0	98.1	85	115	0	0	0	
Silver	0.4578	0.0250	0.5	0	91.6	85	115	0	0	0	

Sample ID: 0901111-001DMS		SampType: MS		TestCode: 1311_M		Units: mg/L		Prep Date: 1/8/2009		RunNo: 140290	
Client ID: 090105-KFPRW-SS1		Batch ID: 108564		TestNo: SW1311/6010				Analysis Date: 1/8/2009		SeqNo: 2874282	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.864	0.250	5	0	97.3	50	150	0	0	0	
Barium	5.402	0.500	5	0.7976	92.1	50	150	0	0	0	
Cadmium	4.674	0.0250	5	0	93.5	50	150	0	0	0	
Chromium	4.801	0.0500	5	0	96	50	150	0	0	0	
Lead	4.444	0.0500	5	0.01243	88.6	50	150	0	0	0	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: 0901111-001DMS	SampType: MS	TestCode: 1311_M	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140290						
Client ID: 090105-KFPRW-SS1	Batch ID: 108564	TestNo: SW1311/6010		Analysis Date: 1/8/2009	SeqNo: 2874282						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	4.845	0.100	5	0	96.9	50	150	0	0		
Silver	0.4563	0.0250	0.5	0	91.3	50	150	0	0		

Sample ID: 0901111-006DMS	SampType: MS	TestCode: 1311_M	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140290						
Client ID: 090105-CRM-SS13	Batch ID: 108564	TestNo: SW1311/6010		Analysis Date: 1/8/2009	SeqNo: 2874286						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.825	0.250	5	0	96.5	50	150	0	0		
Barium	4.865	0.500	5	0.3022	91.2	50	150	0	0		
Cadmium	4.691	0.0250	5	0	93.8	50	150	0	0		
Chromium	4.844	0.0500	5	0	96.9	50	150	0	0		
Lead	4.496	0.0500	5	0	89.9	50	150	0	0		
Selenium	4.867	0.100	5	0	97.3	50	150	0	0		
Silver	0.4563	0.0250	0.5	0	91.3	50	150	0	0		

Sample ID: 0901111-001DMSD	SampType: MSD	TestCode: 1311_M	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140290						
Client ID: 090105-KFPRW-SS1	Batch ID: 108564	TestNo: SW1311/6010		Analysis Date: 1/8/2009	SeqNo: 2874283						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.952	0.250	5	0	99	50	150	4.864	1.79	30	
Barium	5.458	0.500	5	0.7976	93.2	50	150	5.402	1.03	30	
Cadmium	4.736	0.0250	5	0	94.7	50	150	4.674	1.32	30	
Chromium	4.898	0.0500	5	0	98	50	150	4.801	2.00	30	
Lead	4.512	0.0500	5	0.01243	90	50	150	4.444	1.51	30	
Selenium	4.973	0.100	5	0	99.5	50	150	4.845	2.62	30	
Silver	0.4625	0.0250	0.5	0	92.5	50	150	0.4563	1.35	30	

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 1311\_M

Sample ID: 0901111-008DMSD	SampType: MSD	TestCode: 1311_M	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140290
Client ID: 090105-CRM-SS13	Batch ID: 108564	TestNo: SW1311/6010		Analysis Date: 1/8/2009	SeqNo: 2874289

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.884	0.250	5	0	97.7	50	150	4.825	1.21	30	
Barium	4.904	0.500	5	0.3022	92	50	150	4.865	0.812	30	
Cadmium	4.739	0.0250	5	0	94.8	50	150	4.691	1.03	30	
Chromium	4.923	0.0500	5	0	98.5	50	150	4.844	1.61	30	
Lead	4.557	0.0500	5	0	91.1	50	150	4.496	1.35	30	
Selenium	4.908	0.100	5	0	98.2	50	150	4.867	0.828	30	
Silver	0.4621	0.0250	0.5	0	92.4	50	150	0.4563	1.24	30	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901111  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.2**

Sample ID: MB-108562	SampType: MBLK	TestCode: 160.2	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140257						
Client ID:	Batch ID: 108562	TestNo: E160.2		Analysis Date: 1/8/2009	SeqNo: 2873847						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Residue, Suspended (TSS)	BRL	5.00
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Sample ID: 0901086-001BDUP	SampType: DUP	TestCode: 160.2	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140257						
Client ID:	Batch ID: 108562	TestNo: E160.2		Analysis Date: 1/8/2009	SeqNo: 2873849						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Residue, Suspended (TSS)	13	5.00	0	0	0	0	0	0	12.5	3.92	30
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: 0901111-001AMS		SampType: MS		TestCode: BTEX_S-MS		Units: ug/Kg-dry		Prep Date: 1/5/2009		RunNo: 140383	
Client ID: 090105-KFPRW-SS1		Batch ID: 108469		TestNo: SW8260B				Analysis Date: 1/9/2009		SeqNo: 2878731	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	247.4	2.6	130.1	0	190	62.1	134	0	0		S
Ethylbenzene	302.4	2.6	130.1	0	232	60.8	141	0	0		S
m,p-Xylene	493.8	2.6	260.2	0	190	56.2	144	0	0		S
o-Xylene	225.2	2.6	130.1	0	173	62.4	138	0	0		S
Toluene	172.6	2.6	130.1	0	133	60.2	136	0	0		S
Surr: 4-Bromofluorobenzene	68.39	0	130.1	0	52.6	56	145	0	0		S

Sample ID: 0901111-006AMSD		SampType: MSD		TestCode: BTEX_S-MS		Units: ug/Kg-dry		Prep Date: 1/5/2009		RunNo: 140179	
Client ID: 090105-CRM-SS13		Batch ID: 108469		TestNo: SW8260B				Analysis Date: 1/6/2009		SeqNo: 2873381	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	49.3	0.97	48.64	0	101	62.1	134	57.97	16.2	20	
Ethylbenzene	47.56	0.97	48.64	0	97.8	60.8	141	56.9	17.9	20	
m,p-Xylene	92.76	0.97	97.27	0	95.4	56.2	144	111.4	18.3	20	
o-Xylene	46.98	0.97	48.64	0	96.6	62.4	138	56.29	18.0	20	
Toluene	47.71	0.97	48.64	0	98.1	60.2	136	55.68	15.4	20	
Surr: 4-Bromofluorobenzene	45.7	0	48.64	0	94	56	145	57.85	0	0	

Sample ID: 0901111-001AMSD		SampType: MSD		TestCode: BTEX_S-MS		Units: ug/Kg-dry		Prep Date: 1/5/2009		RunNo: 140383	
Client ID: 090105-KFPRW-SS1		Batch ID: 108469		TestNo: SW8260B				Analysis Date: 1/9/2009		SeqNo: 2878733	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	209.3	2.7	135.2	0	155	62.1	134	247.4	16.7	20	S
Ethylbenzene	240.3	2.7	135.2	0	178	60.8	141	302.4	22.9	20	SR
m,p-Xylene	393.6	2.7	270.4	0	146	56.2	144	493.8	22.6	20	SR
o-Xylene	191.3	2.7	135.2	0	141	62.4	138	225.2	16.3	20	S
Toluene	164.8	2.7	135.2	0	122	60.2	136	172.6	4.65	20	
Surr: 4-Bromofluorobenzene	77.27	0	135.2	0	57.2	56	145	68.39	0	0	

Qualifiers:	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_S-MS

Sample ID: MB-108469	SampType: MBLK	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 1/5/2009	RunNo: 140077
Client ID:	Batch ID: 108469	TestNo: SW8260B		Analysis Date: 1/5/2009	SeqNo: 2870984

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	BRL	1.0	0	0	0	0	0	0	0	0	
Ethylbenzene	BRL	1.0	0	0	0	0	0	0	0	0	
m,p-Xylene	BRL	1.0	0	0	0	0	0	0	0	0	
o-Xylene	BRL	1.0	0	0	0	0	0	0	0	0	
Toluene	BRL	1.0	0	0	0	0	0	0	0	0	
Surr: 4-Bromofluorobenzene	48.3	0	50	0	96.6	56	145	0	0	0	

Sample ID: LCS-108469	SampType: LCS	TestCode: BTEX_S-MS	Units: ug/Kg	Prep Date: 1/5/2009	RunNo: 140077
Client ID:	Batch ID: 108469	TestNo: SW8260B		Analysis Date: 1/5/2009	SeqNo: 2870988

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	49.29	1.0	50	0	98.6	60.4	136	0	0	0	
Ethylbenzene	52.76	1.0	50	0	106	66.3	139	0	0	0	
m,p-Xylene	104.6	1.0	100	0	105	63.8	139	0	0	0	
o-Xylene	50.6	1.0	50	0	101	63.8	139	0	0	0	
Toluene	48.98	1.0	50	0	98	60.9	138	0	0	0	
Surr: 4-Bromofluorobenzene	48.93	0	50	0	97.9	56	145	0	0	0	

Sample ID: 0901111-008AMS	SampType: MS	TestCode: BTEX_S-MS	Units: ug/Kg-dry	Prep Date: 1/5/2009	RunNo: 140179
Client ID: 090105-CRM-SS13	Batch ID: 108469	TestNo: SW8260B		Analysis Date: 1/6/2009	SeqNo: 2873380

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	57.97	1.2	61.33	0	94.5	62.1	134	0	0	0	
Ethylbenzene	56.9	1.2	61.33	0	92.8	60.8	141	0	0	0	
m,p-Xylene	111.4	1.2	122.7	0	90.8	56.2	144	0	0	0	
o-Xylene	56.29	1.2	61.33	0	91.8	62.4	138	0	0	0	
Toluene	55.88	1.2	61.33	0	90.8	60.2	136	0	0	0	
Surr: 4-Bromofluorobenzene	57.85	0	61.33	0	94.3	56	145	0	0	0	

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901111  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 7471A\_S

Sample ID: 0901111-006CMSD	SampType: MSD	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140225						
Client ID: 090105-CRM-SS13	Batch ID: 108516	TestNo: SW7471A		Analysis Date: 1/7/2009	SeqNo: 2873289						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.5574	0.121	0.4858	0.09417	95.4	70	130	0.5584	0.181	30	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7471A\_S

Sample ID: MB-108516	SampType: MBLK	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 1/7/2009	RunNo: 140225						
Client ID:	Batch ID: 108516	TestNo: SW7471A		Analysis Date: 1/7/2009	SeqNo: 2873245						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.100	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108516	SampType: LCS	TestCode: 7471A_S	Units: mg/Kg	Prep Date: 1/7/2009	RunNo: 140225						
Client ID:	Batch ID: 108516	TestNo: SW7471A		Analysis Date: 1/7/2009	SeqNo: 2873247						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.3854	0.100	0.4	0	96.3	80	120	0	0	
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Sample ID: 0901111-001CMS	SampType: MS	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140225						
Client ID: 090105-KFPRW-SS1	Batch ID: 108516	TestNo: SW7471A		Analysis Date: 1/7/2009	SeqNo: 2873277						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.6952	0.125	0.4987	0.1161	116	70	130	0	0	
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Sample ID: 0901111-006CMS	SampType: MS	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140225						
Client ID: 090105-CRM-SS13	Batch ID: 108516	TestNo: SW7471A		Analysis Date: 1/7/2009	SeqNo: 2873287						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.5584	0.122	0.4867	0.09417	95.4	70	130	0	0	
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Sample ID: 0901111-001CMSD	SampType: MSD	TestCode: 7471A_S	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140225						
Client ID: 090105-KFPRW-SS1	Batch ID: 108516	TestNo: SW7471A		Analysis Date: 1/7/2009	SeqNo: 2873278						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.616	0.124	0.4967	0.1161	101	70	130	0.6952	12.1	30
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_T

Sample ID: MB-108559	SampType: MBLK	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140274						
Client ID:	Batch ID: 108559	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874071						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	BRL	0.000200	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108559	SampType: LCS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140274						
Client ID:	Batch ID: 108559	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874072						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.004807	0.000200	0.005	0	96.1	85	115	0	0		
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Sample ID: 0901111-005AMS	SampType: MS	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140274						
Client ID: KWTP-FWU-01	Batch ID: 108559	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874074						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.004991	0.000200	0.005	0	99.8	70	130	0	0		
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Sample ID: 0901111-005AMSD	SampType: MSD	TestCode: 7470A_W_T	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140274						
Client ID: KWTP-FWU-01	Batch ID: 108559	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874075						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.005092	0.000200	0.005	0	102	70	130	0.004991	2.01	20	
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<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7470A\_W\_D

Sample ID: MB-108558	SampType: MBLK	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140276						
Client ID:	Batch ID: 108558	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874129						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	BRL	0.000200	0	0	0	0	0	0	0	0	

Sample ID: LCS-108558	SampType: LCS	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140276						
Client ID:	Batch ID: 108558	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874130						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00491	0.000200	0.005	0	98.2	85	115	0	0		

Sample ID: 0901111-005BMS	SampType: MS	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140276						
Client ID: KWTP-FWU-01	Batch ID: 108558	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874132						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005003	0.000200	0.005	0	100	70	130	0	0		

Sample ID: 0901111-005BMSD	SampType: MSD	TestCode: 7470A_W_D	Units: mg/L	Prep Date: 1/8/2009	RunNo: 140276						
Client ID: KWTP-FWU-01	Batch ID: 108558	TestNo: SW7470A		Analysis Date: 1/8/2009	SeqNo: 2874133						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00503	0.000200	0.005	0	101	70	130	0.005003	0.528	20	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: 0901111-005BMSD	SampType: MSD	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140248
Client ID: KWTP-FWU-01	Batch ID: 108500	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873467

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	15460	100	1000	15150	31	70	130	15910	2.87	20	S
Chromium	92.98	5.00	100	0	93	70	130	90.89	2.27	20	
Cobalt	93.89	5.00	100	0	93.7	70	130	92.16	1.65	20	
Copper	99.89	2.00	100	4.796	95.1	70	130	97.84	2.07	20	
Iron	956.7	100	1000	0	95.7	70	130	942.4	1.51	20	
Lead	95.56	1.00	100	0.62	94.9	70	130	92.9	2.82	20	
Magnesium	4541	100	1000	3703	83.8	70	130	4553	0.264	20	
Manganese	95.03	5.00	100	1.591	93.4	70	130	92.22	3.00	20	
Nickel	93.02	5.00	100	0	93	70	130	91.4	1.76	20	
Potassium	2735	100	1000	1776	95.9	70	130	2742	0.256	20	
Selenium	102.2	5.00	100	0	102	70	130	99.23	2.95	20	
Silver	9.776	1.00	10	0	97.8	70	130	9.418	3.73	20	
Sodium	14040	500	1000	13380	66	70	130	14250	1.48	20	S
Thallium	97.23	1.00	100	0	97.2	70	130	93.15	4.29	20	
Vanadium	96.17	5.00	100	0	96.2	70	130	92.98	3.37	20	
Zinc	102.9	10.0	100	7.581	95.3	70	130	92.13	11.0	20	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: 0901111-005BMS		SampType: MS		TestCode: 6020_W_D		Units: ug/L		Prep Date: 1/7/2009		RunNo: 140248	
Client ID: KWTP-FWU-01		Batch ID: 108500		TestNo: SW6020				Analysis Date: 1/7/2009		SeqNo: 2873464	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	96.57	1.00	100	0	96.6	70	130	0	0		
Cadmium	95.44	0.700	100	0	95.4	70	130	0	0		
Calcium	15910	100	1000	15150	76	70	130	0	0		
Chromium	90.89	5.00	100	0	90.9	70	130	0	0		
Cobalt	92.16	5.00	100	0	92.2	70	130	0	0		
Copper	97.84	2.00	100	4.796	93	70	130	0	0		
Iron	942.4	100	1000	0	94.2	70	130	0	0		
Lead	92.9	1.00	100	0.62	92.3	70	130	0	0		
Magnesium	4553	100	1000	3703	85	70	130	0	0		
Manganese	92.22	5.00	100	1.591	90.6	70	130	0	0		
Nickel	91.4	5.00	100	0	91.4	70	130	0	0		
Potassium	2742	100	1000	1776	96.6	70	130	0	0		
Selenium	99.23	5.00	100	0	99.2	70	130	0	0		
Silver	9.418	1.00	10	0	94.2	70	130	0	0		
Sodium	14250	500	1000	13380	87	70	130	0	0		
Thallium	93.15	1.00	100	0	93.2	70	130	0	0		
Vanadium	92.98	5.00	100	0	93	70	130	0	0		
Zinc	92.13	10.0	100	7.581	84.5	70	130	0	0		

Sample ID: 0901111-005BMSD		SampType: M8D		TestCode: 6020_W_D		Units: ug/L		Prep Date: 1/7/2009		RunNo: 140248	
Client ID: KWTP-FWU-01		Batch ID: 108500		TestNo: SW6020				Analysis Date: 1/7/2009		SeqNo: 2873467	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	958.1	10.0	1000	18.99	93.9	70	130	907	5.48	20	
Antimony	98.6	5.00	100	0	98.6	70	130	94.6	4.14	20	
Arsenic	97.45	5.00	100	0	97.4	70	130	96.18	1.31	20	
Barium	115.6	10.0	100	18.06	97.5	70	130	112	3.16	20	
Beryllium	98.07	1.00	100	0	98.1	70	130	96.57	1.54	20	
Cadmium	99.21	0.700	100	0	99.2	70	130	95.44	3.87	20	

**Qualifiers:**

<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: LCS-108500	SampType: LCS	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140248						
Client ID:	Batch ID: 108500	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873461						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	94.37	5.00	100	0	94.4	85	115	0	0		
Barium	95.22	10.0	100	0	95.2	85	115	0	0		
Beryllium	95.92	1.00	100	0	95.9	85	115	0	0		
Cadmium	96.59	0.700	100	0	96.6	85	115	0	0		
Calcium	965.7	100	1000	0	96.6	80	120	0	0		
Chromium	93.53	5.00	100	0	93.5	85	115	0	0		
Cobalt	92.73	5.00	100	0	92.7	85	115	0	0		
Copper	95.18	2.00	100	0	95.2	85	115	0	0		
Iron	952.6	100	1000	0	95.3	85	115	0	0		
Lead	93.05	1.00	100	0	93	85	115	0	0		
Magnesium	946.2	100	1000	0	94.6	80	120	0	0		
Manganese	93.64	5.00	100	0	93.6	85	115	0	0		
Nickel	93.2	5.00	100	0	93.2	85	115	0	0		
Potassium	961.5	100	1000	0	96.2	80	120	0	0		
Selenium	95.65	5.00	100	0	95.6	85	115	0	0		
Silver	9.57	1.00	10	0	95.7	85	115	0	0		
Sodium	983.1	500	1000	0	98.3	80	120	0	0		
Thallium	92.91	1.00	100	0.103	92.8	85	115	0	0		
Vanadium	94.22	5.00	100	0	94.2	85	115	0	0		
Zinc	98.32	10.0	100	0	98.3	85	115	0	0		

Sample ID: 0901111-005BMS	SampType: MS	TestCode: 6020_W_D	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140248						
Client ID: KWTP-FWU-01	Batch ID: 108500	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873464						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	907	10.0	1000	18.99	88.8	70	130	0	0		
Antimony	94.6	5.00	100	0	94.6	70	130	0	0		
Arsenic	96.18	5.00	100	0	96.2	70	130	0	0		
Barium	112	10.0	100	18.06	93.9	70	130	0	0		

Qualifiers:	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W\_D

Sample ID: MB-108500		SampType: MBLK		TestCode: 6020_W_D		Units: ug/L		Prep Date: 1/7/2009		RunNo: 140248	
Client ID:		Batch ID: 108500		TestNo: SW6020		Analysis Date: 1/7/2009		SeqNo: 2873462			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	10.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	10.0	0	0	0	0	0	0	0	0	
Beryllium	BRL	1.00	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.700	0	0	0	0	0	0	0	0	
Calcium	BRL	100	0	0	0	0	0	0	0	0	
Chromium	BRL	5.00	0	0	0	0	0	0	0	0	
Cobalt	BRL	5.00	0	0	0	0	0	0	0	0	
Copper	BRL	2.00	0	0	0	0	0	0	0	0	
Iron	BRL	100	0	0	0	0	0	0	0	0	
Lead	BRL	1.00	0	0	0	0	0	0	0	0	
Magnesium	BRL	100	0	0	0	0	0	0	0	0	
Manganese	BRL	5.00	0	0	0	0	0	0	0	0	
Nickel	BRL	5.00	0	0	0	0	0	0	0	0	
Potassium	BRL	100	0	0	0	0	0	0	0	0	
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	1.00	0	0	0	0	0	0	0	0	
Sodium	BRL	500	0	0	0	0	0	0	0	0	
Thallium	0.103	1.00	0	0	0	0	0	0	0	0	J
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	BRL	10.0	0	0	0	0	0	0	0	0	

Sample ID: LCS-108500		SampType: LCS		TestCode: 6020_W_D		Units: ug/L		Prep Date: 1/7/2009		RunNo: 140248	
Client ID:		Batch ID: 108500		TestNo: SW6020		Analysis Date: 1/7/2009		SeqNo: 2873461			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	928	10.0	1000	0	92.8	85	116	0	0	0	
Antimony	93.41	5.00	100	0	93.4	85	115	0	0	0	

Qualifiers:	< Less than Result value	> Greater than Result value
	BRL Below Reporting Limit	E Estimated value above quantitation range
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix
		B Analyte detected in the associated Method Blank
		H Holding times for preparation or analysis exceeded
		R RPD outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: 0901111-006AMSD	SampType: MSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250						
Client ID: KWTP-FWU-01	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873508						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Calcium	17580	100	1000	16260	130	70	130	16830	4.25	20	
Chromium	95.7	5.00	100	0	95.7	70	130	95.68	0.0209	20	
Cobalt	96.04	5.00	100	0	96	70	130	96.26	0.229	20	
Copper	102.5	2.00	100	5.187	97.3	70	130	102.9	0.389	20	
Iron	988.4	100	1000	0	98.8	70	130	990.5	0.212	20	
Lead	98.43	1.00	100	0	98.4	70	130	99.33	0.910	20	
Magnesium	5030	100	1000	3935	110	70	130	4880	3.03	20	
Manganese	110.9	5.00	100	0	111	70	130	97.47	12.9	20	
Nickel	94.57	5.00	100	0	94.6	70	130	95.59	1.07	20	
Potassium	2995	100	1000	1896	110	70	130	2919	2.57	20	
Selenium	104.6	5.00	100	0	105	70	130	101.6	2.91	20	
Silver	9.944	1.00	10	0	99.4	70	130	9.985	0.411	20	
Sodium	15690	500	1000	14270	142	70	130	14900	5.17	20	S
Thallium	98.73	1.00	100	0	98.7	70	130	100.3	1.58	20	
Vanadium	97.17	5.00	100	0	97.2	70	130	98.51	1.37	20	
Zinc	104.6	10.0	100	6.339	98.3	70	130	121.9	15.3	20	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: 0901111-005AMS	SampType: MS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250
Client ID: KWTP-FWU-01	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873507

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	100.9	1.00	100	0	101	70	130	0	0		
Cadmium	100.9	0.700	100	0	101	70	130	0	0		
Calcium	16830	100	1000	16260	57	70	130	0	0		S
Chromium	95.68	5.00	100	0	95.7	70	130	0	0		
Cobalt	96.26	5.00	100	0	96.3	70	130	0	0		
Copper	102.9	2.00	100	5.187	97.7	70	130	0	0		
Iron	990.5	100	1000	0	99	70	130	0	0		
Lead	99.33	1.00	100	0	99.3	70	130	0	0		
Magnesium	4880	100	1000	3935	94.5	70	130	0	0		
Manganese	97.47	5.00	100	0	97.5	70	130	0	0		
Nickel	95.59	5.00	100	0	95.6	70	130	0	0		
Potassium	2919	100	1000	1896	102	70	130	0	0		
Selenium	101.6	5.00	100	0	102	70	130	0	0		
Silver	9.985	1.00	10	0	99.8	70	130	0	0		
Sodium	14900	500	1000	14270	63	70	130	0	0		S
Thallium	100.3	1.00	100	0	100	70	130	0	0		
Vanadium	98.51	5.00	100	0	98.5	70	130	0	0		
Zinc	121.9	10.0	100	6.339	116	70	130	0	0		

Sample ID: 0901111-005AMSD	SampType: MSD	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250
Client ID: KWTP-FWU-01	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873508

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	996.3	10.0	1000	36.66	96	70	130	1000	0.371	20	
Antimony	100	5.00	100	0	100	70	130	99.38	0.622	20	
Arsenic	98.86	5.00	100	0	98.9	70	130	99.44	0.585	20	
Barium	118.1	10.0	100	19.06	99	70	130	117.9	0.169	20	
Beryllium	101.2	1.00	100	0	101	70	130	100.9	0.297	20	
Cadmium	100.8	0.700	100	0	101	70	130	100.9	0.0992	20	

Qualifiers: < Less than Result value      > Greater than Result value      B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit      E Estimated value above quantitation range      H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit      N Analyte not NELAC certified      R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit      S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: LCS-108521	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250						
Client ID:	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873499						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	97.53	5.00	100	0	97.5	85	115	0	0		
Barium	100.1	10.0	100	0	100	85	115	0	0		
Beryllium	100.2	1.00	100	0	100	85	115	0	0		
Cadmium	101.4	0.700	100	0	101	85	115	0	0		
Calcium	1023	100	1000	0	102	80	120	0	0		
Chromium	96.15	5.00	100	0	96.2	85	115	0	0		
Cobalt	97.5	5.00	100	0	97.5	85	115	0	0		
Copper	100.4	2.00	100	0	100	85	115	0	0		
Iron	1020	100	1000	0	102	85	115	0	0		
Lead	97.39	1.00	100	0	97.4	85	115	0	0		
Magnesium	985.1	100	1000	0	98.5	80	120	0	0		
Manganese	99.77	5.00	100	0	99.8	85	115	0	0		
Nickel	96.25	5.00	100	0	96.2	85	115	0	0		
Potassium	1014	100	1000	0	101	80	120	0	0		
Selenium	99.03	5.00	100	0	99	85	115	0	0		
Silver	10.08	1.00	10	0	101	85	115	0	0		
Sodium	988.6	500	1000	0	98.9	80	120	0	0		
Thallium	98.1	1.00	100	0	98.1	85	115	0	0		
Vanadium	98.28	5.00	100	0	98.3	85	115	0	0		
Zinc	109.7	10.0	100	0	110	85	115	0	0		

Sample ID: 0901111-005AMS	SampType: MS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250						
Client ID: KWTP-FWU-01	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873507						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1000	10.0	1000	36.68	96.3	70	130	0	0		
Antimony	99.38	5.00	100	0	99.4	70	130	0	0		
Arsenic	99.44	5.00	100	0	99.4	70	130	0	0		
Barium	117.9	10.0	100	19.06	98.8	70	130	0	0		

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6020\_W

Sample ID: MB-108521	SampType: MBLK	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250
Client ID:	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873504

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8.131	10.0	0	0	0	0	0	0	0	0	J
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	BRL	10.0	0	0	0	0	0	0	0	0	
Beryllium	BRL	1.00	0	0	0	0	0	0	0	0	
Cadmium	BRL	0.700	0	0	0	0	0	0	0	0	
Calcium	BRL	100	0	0	0	0	0	0	0	0	
Chromium	BRL	5.00	0	0	0	0	0	0	0	0	
Cobalt	BRL	5.00	0	0	0	0	0	0	0	0	
Copper	BRL	2.00	0	0	0	0	0	0	0	0	
Iron	BRL	100	0	0	0	0	0	0	0	0	
Lead	BRL	1.00	0	0	0	0	0	0	0	0	
Magnesium	BRL	100	0	0	0	0	0	0	0	0	
Manganese	BRL	5.00	0	0	0	0	0	0	0	0	
Nickel	BRL	5.00	0	0	0	0	0	0	0	0	
Potassium	BRL	100	0	0	0	0	0	0	0	0	
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	1.00	0	0	0	0	0	0	0	0	
Sodium	BRL	500	0	0	0	0	0	0	0	0	
Thallium	BRL	1.00	0	0	0	0	0	0	0	0	
Vanadium	BRL	5.00	0	0	0	0	0	0	0	0	
Zinc	BRL	10.0	0	0	0	0	0	0	0	0	

Sample ID: LCS-108521	SampType: LCS	TestCode: 6020_W	Units: ug/L	Prep Date: 1/7/2009	RunNo: 140250
Client ID:	Batch ID: 108521	TestNo: SW6020		Analysis Date: 1/7/2009	SeqNo: 2873489

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	990.1	10.0	1000	8.131	98.2	85	115	0	0	0	
Antimony	99.28	5.00	100	0	99.3	85	115	0	0	0	

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

**CLIENT:** Tetra Tech EM Inc.  
**Work Order:** 0901111  
**Project:** TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010B\_TAL\_S

Sample ID: 0901111-006CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140299						
Client ID: 090105-CRM-SS13	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/9/2009	SeqNo: 2875140						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	11870	284	567.6	12330	-82.2	75	125	11400	3.97	20	S

<b>Qualifiers:</b>	<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
	<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
	<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
	<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

# ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0901111-006CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140299
Client ID: 090105-CRM-SS13	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2874608

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	81.29	5.68	56.76	24.83	99.5	75	125	78.82	3.08	20	
Beryllium	54.88	2.84	56.76	0.04528	96.6	75	125	50.53	8.25	20	
Cadmium	54.42	2.84	56.76	0.09351	95.7	75	125	51.98	4.83	20	
Calcium	1309	56.8	567.6	2312	-177	75	125	1251	4.59	20	S
Chromium	77.16	2.84	56.76	9.83	119	75	125	67.63	13.2	20	
Cobalt	58.47	2.84	56.76	5.542	93.2	75	125	56.64	3.17	20	
Copper	68.97	2.84	56.76	11.61	101	75	125	65.7	4.86	20	
Lead	66.76	5.68	56.76	16.89	87.9	75	125	63.88	4.40	20	
Magnesium	943	56.8	567.6	1173	-40.5	75	125	885.5	6.28	20	S
Manganese	314	5.68	56.76	348	-59.8	75	125	345.2	9.45	20	S
Nickel	59.81	5.68	56.76	5.738	95.3	75	125	56.73	5.28	20	
Potassium	810.1	114	567.6	273.7	94.5	75	125	778.2	4.01	20	
Selenium	55.66	5.68	56.76	1.737	95	75	125	52.24	6.34	20	
Silver	5.331	2.84	5.676	0	93.9	75	125	5.201	2.45	20	
Sodium	553.4	114	567.6	8.297	96	75	125	533	3.74	20	
Thallium	49.52	5.68	56.76	0	87.3	75	125	46.74	5.78	20	
Vanadium	72.68	5.68	56.76	12.37	106	75	125	66.53	8.83	20	
Zinc	85.71	5.68	56.76	25.16	107	75	125	82.2	4.18	20	

Sample ID: 0901111-001CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140299
Client ID: 090105-KFPRW-SS1	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2874614

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	16170	304	608	15190	162	75	125	14400	11.6	20	S

Sample ID: 0901111-006CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140299
Client ID: 090105-CRM-SS13	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2875140

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix



CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0901111-001CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140299
Client ID: 090105-KFPRW-SS1	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2874800

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	13020	60.8	608	12520	82.5	75	125	14620	11.6	20	
Antimony	35.68	6.08	60.8	0.9165	57.2	75	125	36.37	1.91	20	S
Arsenic	105.3	6.08	60.8	72.17	54.5	75	125	123.2	15.7	20	S
Barium	239.4	6.08	60.8	230.7	14.2	75	125	268.4	11.4	20	S
Beryllium	53.02	3.04	60.8	0.1217	87	75	125	54.54	2.83	20	
Cadmium	53.62	3.04	60.8	0.8577	86.8	75	125	56.4	5.05	20	
Calcium	16080	60.8	608	8754	1200	75	125	8638	60.2	20	SR
Chromium	72.08	3.04	60.8	21.98	82.4	75	125	75.74	4.94	20	
Cobalt	55.76	3.04	60.8	7.911	78.7	75	125	60.71	8.50	20	
Copper	86.38	3.04	60.8	32.94	87.9	75	125	93.04	7.43	20	
Lead	64.2	6.08	60.8	18.27	75.5	75	125	70.1	8.79	20	
Magnesium	3340	60.8	608	1649	278	75	125	2342	35.1	20	SR
Manganese	193.7	6.08	60.8	446.7	-416	75	125	238.2	20.6	20	SR
Nickel	64.12	6.08	60.8	18.27	75.4	75	125	75.81	16.7	20	
Potassium	2343	122	608	1851	81	75	125	2727	15.1	20	
Selenium	56.9	6.08	60.8	6.355	83.1	75	125	60.19	5.63	20	
Silver	5.2	3.04	60.8	0	85.5	75	125	5.567	6.81	20	
Sodium	695	122	608	168.9	86.5	75	125	771.8	10.5	20	
Thallium	41.28	6.08	60.8	0	67.9	75	125	44.02	6.43	20	S
Vanadium	102.9	6.08	60.8	51.78	84.2	75	125	110.3	6.88	20	
Zinc	80.58	6.08	60.8	34.48	75.8	75	125	88.88	9.80	20	

Sample ID: 0901111-006CMSD	SampType: MSD	TestCode: 6010B_TAL_	Units: mg/Kg-dry	Prep Date: 1/7/2009	RunNo: 140299
Client ID: 090105-CRM-SS13	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2874800

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5427	56.8	567.6	3625	317	75	125	5148	5.28	20	S
Antimony	36.16	5.68	56.76	0.3254	63.1	75	125	33.94	6.31	20	S
Arsenic	57	5.68	56.76	7.513	87.2	75	125	53.17	6.96	20	

**Qualifiers:**

<b>&lt;</b> Less than Result value	<b>&gt;</b> Greater than Result value	<b>B</b> Analyte detected in the associated Method Blank
<b>BRL</b> Below Reporting Limit	<b>E</b> Estimated value above quantitation range	<b>H</b> Holding times for preparation or analysis exceeded
<b>J</b> Estimated value detected below Reporting Limit	<b>N</b> Analyte not NELAC certified	<b>R</b> RPD outside limits due to matrix
<b>Rpt Lim</b> Reporting Limit	<b>S</b> Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0901111-006CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/7/2009		RunNo: 140299	
Client ID: 090105-CRM-SS13		Batch ID: 108517		TestNo: SW6010B				Analysis Date: 1/8/2009		SeqNo: 2874607	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	67.63	2.83	56.7	9.83	102	75	125	0	0		
Cobalt	56.64	2.83	56.7	5.542	90.1	75	125	0	0		
Copper	65.7	2.83	56.7	11.61	95.4	75	125	0	0		
Lead	63.88	5.67	56.7	16.89	82.9	75	125	0	0		
Magnesium	885.5	56.7	567	1173	-50.6	75	125	0	0		S
Manganese	345.2	5.67	56.7	348	-4.89	75	125	0	0		S
Nickel	56.73	5.67	56.7	5.738	89.9	75	125	0	0		
Potassium	778.2	113	567	273.7	89	75	125	0	0		
Selenium	52.24	5.67	56.7	1.737	89.1	75	125	0	0		
Silver	5.201	2.83	5.67	0	91.7	75	125	0	0		
Sodium	533	113	567	8.297	92.6	75	125	0	0		
Thallium	46.74	5.67	56.7	0	82.4	75	125	0	0		
Vanadium	66.53	5.67	56.7	12.37	95.5	75	125	0	0		
Zinc	82.2	5.67	56.7	25.16	101	75	125	0	0		

Sample ID: 0901111-001CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/7/2009		RunNo: 140299	
Client ID: 090105-KFPRW-SS1		Batch ID: 108517		TestNo: SW6010B				Analysis Date: 1/8/2009		SeqNo: 2874613	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	14400	304	608.3	15190	-129	75	125	0	0		S

Sample ID: 0901111-006CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/7/2009		RunNo: 140299	
Client ID: 090105-CRM-SS13		Batch ID: 108517		TestNo: SW6010B				Analysis Date: 1/9/2009		SeqNo: 2876133	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	11400	283	567	12330	-164	75	125	0	0		S

<b>Qualifiers:</b>	< Less than Result value	> Greater than Result value	B Analyte detected in the associated Method Blank
	BRL Below Reporting Limit	E Estimated value above quantitation range	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: 0901111-001CMS    SampType: MS    TestCode: 6010B\_TAL\_    Units: mg/Kg-dry    Prep Date: 1/7/2009    RunNo: 140299  
 Client ID: 090105-KFPRW-SS1    Batch ID: 108617    TestNo: SW6010B    Analysis Date: 1/8/2009    SeqNo: 2874599

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	54.54	3.04	60.83	0.1217	89.5	75	125	0	0		
Cadmium	56.4	3.04	60.83	0.8577	91.3	75	125	0	0		
Calcium	8638	60.8	608.3	8754	-19	75	125	0	0		S
Chromium	75.74	3.04	60.83	21.98	88.4	75	125	0	0		
Cobalt	60.71	3.04	60.83	7.911	86.8	75	125	0	0		
Copper	93.04	3.04	60.83	32.94	98.8	75	125	0	0		
Lead	70.1	6.08	60.83	18.27	85.2	75	125	0	0		
Magnesium	2342	60.8	608.3	1649	114	75	125	0	0		
Manganese	238.2	6.08	60.83	446.7	-343	75	125	0	0		S
Nickel	75.81	6.08	60.83	18.27	94.6	75	125	0	0		
Potassium	2727	122	608.3	1851	144	75	125	0	0		S
Selenium	60.19	6.08	60.83	6.355	88.5	75	125	0	0		
Silver	5.567	3.04	6.083	0	91.5	75	125	0	0		
Sodium	771.8	122	608.3	168.9	99.1	75	125	0	0		
Thallium	44.02	6.08	60.83	0	72.4	75	125	0	0		S
Vanadium	110.3	6.08	60.83	51.78	98.2	75	125	0	0		
Zinc	88.88	6.08	60.83	34.48	89.4	75	125	0	0		

Sample ID: 0901111-006CMS    SampType: MS    TestCode: 6010B\_TAL\_    Units: mg/Kg-dry    Prep Date: 1/7/2009    RunNo: 140299  
 Client ID: 090105-CRM-SS13    Batch ID: 108617    TestNo: SW6010B    Analysis Date: 1/8/2009    SeqNo: 2874607

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5148	56.7	567	3825	269	75	125	0	0		S
Antimony	33.94	5.67	56.7	0.3254	59.3	75	125	0	0		S
Arsenic	53.17	5.67	56.7	7.513	80.5	75	125	0	0		
Barium	78.82	5.67	56.7	24.83	95.2	75	125	0	0		
Beryllium	50.53	2.83	56.7	0.04528	89	75	125	0	0		
Cadmium	51.98	2.83	56.7	0.09351	91.5	75	125	0	0		
Calcium	1261	56.7	567	2312	-187	75	125	0	0		S

Qualifiers: < Less than Result value    > Greater than Result value    B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit    E Estimated value above quantitation range    H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit    N Analyte not NELAC certified    R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit    S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B\_TAL\_S

Sample ID: LCS-108517		SampType: LCS		TestCode: 6010B_TAL_		Units: mg/Kg		Prep Date: 1/7/2009		RunNo: 140299	
Client ID:		Batch ID: 108517		TestNo: SW6010B				Analysis Date: 1/8/2009		SeqNo: 2874592	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.02	5.00	50	0	90	80	120	0	0		
Barium	48.69	5.00	50	0.451	96.5	80	120	0	0		
Beryllium	49.18	2.50	50	0	98.4	80	120	0	0		
Cadmium	48	2.50	50	0	96	80	120	0	0		
Calcium	503.3	50.0	500	24.83	95.7	80	120	0	0		
Chromium	49.02	2.50	50	0	98	80	120	0	0		
Cobalt	48.81	2.50	50	0	97.6	80	120	0	0		
Copper	48.98	2.50	50	0.2622	97.4	80	120	0	0		
Iron	454.3	50.0	500	2.23	90.4	80	120	0	0		
Lead	48.25	5.00	50	0.327	95.9	80	120	0	0		
Magnesium	482.4	50.0	500	2.539	96	80	120	0	0		
Manganese	48.53	5.00	50	0.3231	96.4	80	120	0	0		
Nickel	48.39	5.00	50	0	96.8	80	120	0	0		
Potassium	475.1	100	500	2.182	94.6	80	120	0	0		
Selenium	49.25	5.00	50	0	98.5	80	120	0	0		
Silver	4.778	2.50	5	0	95.6	80	120	0	0		
Sodium	469.8	100	500	0	94	80	120	0	0		
Thallium	47.25	5.00	50	0	94.5	80	120	0	0		
Vanadium	49.61	5.00	50	0.04404	99.1	80	120	0	0		
Zinc	48.69	5.00	50	0.844	95.7	80	120	0	0		

Sample ID: 0901111-001CMS		SampType: MS		TestCode: 6010B_TAL_		Units: mg/Kg-dry		Prep Date: 1/7/2009		RunNo: 140299	
Client ID: 090105-KFPRW-SS1		Batch ID: 108517		TestNo: SW6010B				Analysis Date: 1/8/2009		SeqNo: 2874592	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	14620	60.8	608.3	12520	346	75	125	0	0		S
Antimony	36.37	6.08	60.83	0.9165	58.3	75	125	0	0		S
Arsenic	123.2	6.08	60.83	72.17	84	75	125	0	0		
Barium	268.4	6.08	60.83	230.7	61.8	75	125	0	0		S

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

**ANALYTICAL QC SUMMARY REPORT**

TestCode: 6010B\_TAL\_S

Sample ID: MB-108517	SampType: MBLK	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 1/7/2009	RunNo: 140298						
Client ID:	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2874595						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	BRL	50.0	0	0	0	0	0	0	0	0	
Antimony	BRL	5.00	0	0	0	0	0	0	0	0	
Arsenic	BRL	5.00	0	0	0	0	0	0	0	0	
Barium	0.451	5.00	0	0	0	0	0	0	0	0	J
Beryllium	BRL	2.50	0	0	0	0	0	0	0	0	
Cadmium	BRL	2.50	0	0	0	0	0	0	0	0	
Calcium	24.83	50.0	0	0	0	0	0	0	0	0	J
Chromium	BRL	2.50	0	0	0	0	0	0	0	0	
Cobalt	BRL	2.50	0	0	0	0	0	0	0	0	
Copper	0.2622	2.50	0	0	0	0	0	0	0	0	J
Iron	2.23	50.0	0	0	0	0	0	0	0	0	J
Lead	0.327	5.00	0	0	0	0	0	0	0	0	J
Magnesium	2.539	50.0	0	0	0	0	0	0	0	0	J
Manganese	0.3231	5.00	0	0	0	0	0	0	0	0	J
Nickel	BRL	5.00	0	0	0	0	0	0	0	0	
Potassium	2.182	100	0	0	0	0	0	0	0	0	J
Selenium	BRL	5.00	0	0	0	0	0	0	0	0	
Silver	BRL	2.50	0	0	0	0	0	0	0	0	
Sodium	BRL	100	0	0	0	0	0	0	0	0	
Thallium	BRL	5.00	0	0	0	0	0	0	0	0	
Vanadium	0.04404	5.00	0	0	0	0	0	0	0	0	J
Zinc	0.844	5.00	0	0	0	0	0	0	0	0	J

Sample ID: LCS-108517	SampType: LCS	TestCode: 6010B_TAL_	Units: mg/Kg	Prep Date: 1/7/2009	RunNo: 140299						
Client ID:	Batch ID: 108517	TestNo: SW6010B		Analysis Date: 1/8/2009	SeqNo: 2874592						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	481.6	50.0	500	0	96.3	80	120	0	0	0	
Antimony	48.22	5.00	50	0	96.4	80	120	0	0	0	

Qualifiers: < Less than Result value > Greater than Result value B Analyte detected in the associated Method Blank  
 BRL Below Reporting Limit E Estimated value above quantitation range H Holding times for preparation or analysis exceeded  
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix  
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

### ANALYTICAL QC SUMMARY REPORT

TestCode: 6010\_SI\_W\_D

Sample ID: MB-108499	SampType: MBLK	TestCode: 6010_SI_W_D	Units: mg/L	Prep Date: 1/7/2009	RunNo: 140244						
Client ID:	Batch ID: 108499	TestNo: SW6010B		Analysis Date: 1/7/2009	SeqNo: 2873835						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	BRL	0.100	0	0	0	0	0	0	0	0	
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Sample ID: LCS-108499	SampType: LCS	TestCode: 6010_SI_W_D	Units: mg/L	Prep Date: 1/7/2009	RunNo: 140244						
Client ID:	Batch ID: 108499	TestNo: SW6010B		Analysis Date: 1/7/2009	SeqNo: 2873834						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	0.9498	0.100	1	0	95	80	120	0	0		
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Sample ID: 0901111-005BMS	SampType: MS	TestCode: 6010_SI_W_D	Units: mg/L	Prep Date: 1/7/2009	RunNo: 140244						
Client ID: KWTP-FWU-01	Batch ID: 108499	TestNo: SW6010B		Analysis Date: 1/7/2009	SeqNo: 2873837						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	2.947	0.100	1	2.055	88.1	75	125	0	0		
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Sample ID: 0901111-005BMSD	SampType: MSD	TestCode: 6010_SI_W_D	Units: mg/L	Prep Date: 1/7/2009	RunNo: 140244						
Client ID: KWTP-FWU-01	Batch ID: 108499	TestNo: SW6010B		Analysis Date: 1/7/2009	SeqNo: 2873838						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silica (as Si)	2.926	0.100	1	2.055	87.1	75	125	2.947	0.707	20	
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**Qualifiers:**

<	Less than Result value	>	Greater than Result value	B.	Analyte detected in the associated Method Blank
BRL	Below Reporting Limit	E	Estimated value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: MB-108511	SampType: MBLK	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140199						
Client ID:	Batch ID: 108511	TestNo: SW8260B		Analysis Date: 1/6/2009	SeqNo: 2872613						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	46.08	0	50	0	92.2	64.1	129	0	0		

Sample ID: LCS-108511	SampType: LCS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140199						
Client ID:	Batch ID: 108511	TestNo: SW8260B		Analysis Date: 1/7/2009	SeqNo: 2872639						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	51.72	1.0	50	0	103	65.4	134	0	0		
Ethylbenzene	50.06	1.0	50	0	100	69.9	132	0	0		
m,p-Xylene	90.81	1.0	100	0	90.8	69	134	0	0		
o-Xylene	40.01	1.0	50	0	80	70.2	133	0	0		
Toluene	49.68	1.0	50	0	99.4	70.6	133	0	0		
Surr: 4-Bromofluorobenzene	44.05	0	50	0	88.1	64.1	129	0	0		

Sample ID: 0901144-001AMS	SampType: MS	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/6/2009	RunNo: 140199						
Client ID:	Batch ID: 108511	TestNo: SW8260B		Analysis Date: 1/7/2009	SeqNo: 2872636						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	6741	100	5000	3234	70.1	52.6	141	0	0		
Ethylbenzene	5854	100	5000	940	94.3	59.7	138	0	0		
m,p-Xylene	12470	100	10000	3388	90.8	55.8	140	0	0		
o-Xylene	5716	100	5000	2159	71.1	60.7	138	0	0		
Toluene	11260	100	5000	6811	88.9	53.1	147	0	0		
Surr: 4-Bromofluorobenzene	4415	0	5000	0	88.3	64.1	129	0	0		

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
--	---	---

CLIENT: Tetra Tech EM Inc.  
 Work Order: 0901111  
 Project: TVA Kingston

## ANALYTICAL QC SUMMARY REPORT

TestCode: BTEX\_W-MS

Sample ID: 0901144-001AMSD	SampType: MSD	TestCode: BTEX_W-MS	Units: ug/L	Prep Date: 1/8/2009	RunNo: 140199
Client ID:	Batch ID: 108511	TestNo: SW8260B		Analysis Date: 1/7/2009	SeqNo: 2872638

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	7246	100	5000	3234	80.2	52.6	141	6741	7.22	20	
Elhybenzene	6146	100	5000	940	104	59.7	138	5654	8.34	20	
m,p-Xylene	13620	100	10000	3388	102	55.8	140	12470	8.81	20	
o-Xylene	6819	100	5000	2159	93.2	60.7	138	5716	17.6	20	
Toluene	12480	100	5000	6811	113	53.1	147	11260	10.3	20	
Surr: 4-Bromofluorobenzene	5190	0	5000	0	104	64.1	129	4415	0	0	

<b>Qualifiers:</b> < Less than Result value BRL Below Reporting Limit J Estimated value detected below Reporting Limit Rpt Lim Reporting Limit	> Greater than Result value E Estimated value above quantitation range N Analyte not NELAC certified S Spike Recovery outside limits due to matrix	B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside limits due to matrix
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# **ANALYTICAL SERVICES, INC.**

**Environmental Monitoring & Laboratory Analysis**  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## **Laboratory Report**

**Prepared For:**

**Analytical Environment Services Inc.**  
**3785 Presidential Parkway, Ste. #111**  
**Atlanta, GA 30340**

**Attention: Ms. Blair Stout**

**Report Number: ASA0071**

**January 19, 2009**

**Project: 0812149**

**Project #:0901111**

**P.O. No. 8264**

We appreciate the opportunity to provide the analytical support for your project. The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Approved:

*Elizabeth Bryant*

**Project Manager**

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3785 Presidential Parkway, Ste. #111  
Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 19, 2009

## ANALYTICAL REPORT FOR SAMPLES

<u>Sample ID</u>	<u>Laboratory ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
090105-KFPRW-SS12	ASA0071-01	Ash	01/05/09 13:20	01/06/09 15:30
090105-KFPRW-SS12 Duplicate	ASA0071-02	Ash	01/05/09 13:20	01/06/09 15:30
090105-CRM-SS13	ASA0071-03	Soil	01/05/09 15:20	01/06/09 15:30
090105-CRM-SS13 Duplicate	ASA0071-04	Soil	01/05/09 15:20	01/06/09 15:30



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Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 19, 2009

Report No.: ASA0071

Lab Number ID: ASA0071-01

Client ID: 090105-KFPRW-8812

Date/Time Received: 1/6/2009 3:30:00PM

Date/Time Sampled: 1/5/2009 1:20:00PM

Matrix: Ash

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	82.9		% by Weight	SOP Moisture		1	1/09/09 7:00	1/09/09 7:00	A901105	MZF
<b>Metals</b>										
Silicon	349	4.83	mg/kg dry wt. dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:23	A901190	FBS
Silica	748	10.3	mg/kg dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:23	[CALC]	FBS



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January 19, 2009

Report No.: ASA0071  
Client ID: 090105-KFPRW-SS12 Duplicate  
Date/Time Sampled: 1/5/2009 1:20:00PM  
Matrix: Ash

Lab Number ID: ASA0071-02  
Date/Time Received: 1/8/2009 3:30:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	80.8		% by Weight	SOP Moisture		1	1/08/09 7:00	1/08/09 7:00	A801105	MZF
<b>Metals</b>										
Silicon	286		4.59 mg/kg dry wt. dry	EPA 6010B		1	1/08/09 13:30	1/13/09 12:28	A801180	FBS
Silica	612		9.81 mg/kg dry	EPA 6010B		1	1/08/09 13:30	1/13/09 12:28	[CALC]	FBS



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January 19, 2009

Report No.: ASA0071  
Client ID: 090106-CRM-8813  
Date/Time Sampled: 1/5/2009 3:20:00PM  
Matrix: Soil

Lab Number ID: ASA0071-03  
Date/Time Received: 1/6/2009 3:30:00PM

Analyte	Result	RL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>										
% Solids	82.9		% by Weight	SOP Moisture	1		1/09/09 7:00	1/09/09 7:00	A901105	MZF
<b>Metals</b>										
Silicon	374	4.83	mg/kg dry wt. dry	EPA 8010B	1		1/09/09 13:30	1/13/09 13:33	A901190	FBS
Silica	800	10.3	mg/kg dry	EPA 8010B	1		1/09/09 13:30	1/13/09 13:33	[CALC]	FBS



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Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 19, 2009

Report No.: ASA0071

Lab Number ID: ASA0071-04

Client ID: 090105-CRM-8513 Duplicate

Date/Time Received: 1/8/2009 3:30:00PM

Date/Time Sampled: 1/8/2009 3:20:00PM

Matrix: Soil

Analyte	Result	RL	Units	Method	Qual	DF	Preparation Date	Analytical Date	Batch	Int.
<b>General Chemistry</b>										
% Solids	80.3		% by Weight	SOP Moisture		1	1/09/09 7:00	1/09/09 7:00	A901105	MZF
<b>Metals</b>										
Silicon	437	4.70	mg/kg dry wt. dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:39	A901190	FBS
Silica	935	10.1	mg/kg dry	EPA 6010B		1	1/09/09 13:30	1/13/09 13:39	[CALC]	FBS



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Attention: Ms. Blair Stout

January 19, 2009

Report No.: **ASA0071**

## General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A901105 - % Solids</b>										
<b>Duplicate (A901105-DUP1)</b>										
<b>Source: ASA0057-01 Prepared &amp; Analyzed: 01/09/09</b>										
% Solids	19.0		% by Weight		18.8			1	12	



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3785 Presidential Parkway, Sta. #111  
Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 19, 2009

Report No.: **ASA0071**

## Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A901113 - EPA 3050B</b>										
<b>Blank (A901113-BLK1)</b> Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	ND	4.00	mg/kg dry wt. wet							
<b>LCS (A901113-BS1)</b> Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	51.2	4.00	mg/kg dry wt. wet	50.000		102	75-125			
<b>Duplicates (A901113-DUP1)</b> Source: ASA0071-01 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	216	4.83	mg/kg dry wt. dry	349				47	20	
<b>Matrix Spike (A901113-MS1)</b> Source: ASA0071-01 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	389	4.83	mg/kg dry wt. dry	60.347	349	67	75-125			
<b>Matrix Spike (A901113-MS2)</b> Source: ASA0071-03 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	602	4.83	mg/kg dry wt. dry	60.328	374	377	75-125			
<b>Matrix Spike Dup (A901113-MSD1)</b> Source: ASA0071-01 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	438	4.83	mg/kg dry wt. dry	60.347	349	148	75-125	75	20	
<b>Matrix Spike Dup (A901113-MSD2)</b> Source: ASA0071-03 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	482	4.83	mg/kg dry wt. dry	60.328	374	145	75-125	89	20	
<b>Post Spike (A901113-PS1)</b> Source: ASA0071-01 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	3.77		mg/L	0.50000	2.89	176	75-125			
<b>Post Spike (A901113-PS2)</b> Source: ASA0071-03 Prepared: 01/07/09 Analyzed: 01/08/09										
Silicon	5.82		mg/L	1.0000	3.10	272	75-125			
<b>Batch A901190 - EPA 3050B</b>										
<b>Blank (A901190-BLK1)</b> Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	ND	4.00	mg/kg dry wt. wet							





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Attention: Ms. Blair Stout

January 19, 2009

Report No.: ASA0071

## Metals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch A901190 - EPA 3050B</b>										
<b>LCS (A901190-BS1)</b> Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	97.7	4.00mg/kg dry wt.	100.00			98	75-125			
			wet							
<b>Duplicate (A901190-DUP1)</b> Source: ASA0071-01RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	387	4.83mg/kg dry wt.			349			11	20	
			dry							
<b>Matrix Spike (A901190-MS1)</b> Source: ASA0071-01RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	842	4.83mg/kg dry wt.	120.69		349	409	75-125			QM-02
			dry							
<b>Matrix Spike (A901190-MS2)</b> Source: ASA0071-03RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	841	4.83mg/kg dry wt.	120.65		374	387	75-125			QM-02
			dry							
<b>Matrix Spike Dup (A901190-MSD1)</b> Source: ASA0071-01RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	793	4.83mg/kg dry wt.	120.69		349	368	75-125	11	20	QM-02
			dry							
<b>Matrix Spike Dup (A901190-MSD2)</b> Source: ASA0071-03RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	910	4.83mg/kg dry wt.	120.65		374	444	75-125	14	20	QM-02
			dry							
<b>Post Spike (A901190-PS1)</b> Source: ASA0071-01RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	11.0		mg/L	1.0000	2.89	807	75-125			QM-02
<b>Post Spike (A901190-PS2)</b> Source: ASA0071-03RE Prepared: 01/09/09 Analyzed: 01/13/09										
Silicon	9.48		mg/L	1.0000	3.10	636	75-125			QM-02



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Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 19, 2009

## Laboratory Certifications

Code	Description	Number	Expires
NC	North Carolina	381	12/31/2009
NELAC	NELAC (Drinking Water, Non-Potable Water, Solids)	E87315	08/30/2009



## ANALYTICAL SERVICES, INC.

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Attention: Ms. Blair Stout

January 19, 2009

### Legend

#### Definition of Laboratory Terms

- ND** - None Detected at the Reporting Limit
- TIC** - Tentatively Identified Compound
- CFU** - Colony Forming Units
- SOP** - Method run per ASI Standard Operating Procedure
- RL** - Reporting Limit
- DF** - Dilution Factor
- \* - Analyte not included in the NELAC list of certified analytes.

#### Sample Information

N-Nitrosodiphenylamine breaks down to diphenylamine in the GCMS; both analytes are reported as N-Nitrosodiphenylamine. ASI is not NELAC certified for N-Nitrosodiphenylamine.

Phthalic acid and phthalic anhydride are reported as dimethyl phthalate

Maleic acid and maleic anhydride are reported as dimethyl malate

1,2-Diphenylhydrazine breaks down to azobenzene in the GCMS; both analytes are reported as azobenzene

#### Definition of Qualifiers

- QM-02** The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

**Note: Unless otherwise noted, all results are reported on an as received basis.**



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Atlanta GA, 30340  
Attention: Ms. Blair Stout

January 19, 2009



ANALYTICAL ENVIRONMENTAL SERVICES, INC.  
3785 Presidential Parkway, Atlanta GA 30340-3704  
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

### CHAIN OF CUSTODY

Work Order: 090111

ASA0071 Loc# 3 Date: \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

LABORATORY:		ADDRESS:		ANALYSIS REQUESTED								REMARKS		
AES		3785 Presidential Pkwy. Atlanta, GA 30340		Silica								Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		
PHONE: 770-457-8177		FAX: 770-457-8188										PRESERVATION (See notes)		REMARKS
#	SAMPLE ID	SAMPLED		DATE	TIME	✓	✓	✓	✓	✓	✓	✓	No. of Containers	
		DATE	TIME											
1	090105-KFPRW-SS12	1/5	13:20									Ash	MS/MSD	2
2	090105-KFPRW-SS12-DUP	1/5	13:20									Ash	MS/MSD	1
3	090105-CRM-SS13	1/5	13:20									soil	MS/MSD	2
4	090105-CRM-SS13-DUP	1/5	13:20									soil		1
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														

DELIVERED BY	DATE/TIME	RECEIVED BY	DATE/TIME	PROJECT NAME	RECEIPT
<i>[Signature]</i>	1/6/9 13:00	<i>[Signature]</i>	1/5/9 15:30	090111	Total # of Containers
<i>[Signature]</i>	1/6/9 13:00			PROJECT #	<input type="radio"/> Turnaround Time Requested
				WITH ADDRESS:	<input type="radio"/> Standard 3 Business Days
				SEND REPORT TO: Blair Stout / Allison Carrell	<input type="radio"/> 3 Business Day Rush
				ADVANCE TO (IF DIFFERENT FROM ABOVE)	<input type="radio"/> Next Business Day Rush
				same as above	<input type="radio"/> Same Day Rush (with fee.)
				QUOTE #	<input type="radio"/> Other
					STATE PROGRAM #/req:
					Month Y/N: _____ Part Y/N
					DATA PACKAGE: I E III IV

SPECIAL INSTRUCTIONS/COMMENTS: bstout@aesatlanta.com  
SHIPMENT METHOD: TRUCK VIA AIR  
CLIENT Fee/UPS MAIL COURIER  
GREYHOUND OTHER  
SAMPLE RECEIVED AFTER 5PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCESS AS STANDARD TAT.  
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.  
MATERIALS: A - Air GW - Groundwater SE - Sediment SO - Soil SW - Surface Water W - Water (Drinking) DW - Drinking Water (Distilled) D - Other (specify)  
PRESERVATION CODES: H+ - Hydrochloric acid + ice I - Isotonic N - Nitric acid B+ - Boric acid + ice S+ - Sodium Borohydride + ice O - Other (specify) NA - None  
Krakman, 01/06/09 1530, 1cc, 7c, No seal, PH-N/A. P. 10/10.



# ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704

TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

# CHAIN OF CUSTODY

Work Order: 06 116

ASA0071 Loc# 3 Date: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

COMPANY: <b>AES</b>		ADDRESS: 3785 Presidential Pkwy. Atlanta, GA 30340					ANALYSIS REQUESTED					Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.	
PHONE: 770-457-8177		FAX: 770-457-8188					PRESERVATION (See codes)					REMARKS	
SAMPLED BY:		SIGNATURE:											
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	ANALYSIS REQUESTED					No # of Containers	
		DATE	TIME				PRESERVATION (See codes)						
1	090105-KFPRW-SS12	1/5	13:20	✓		Ash	✓					MS/MSD	2
2	090105-KFPRW-SS12-Dup	1/5	13:20	✓		Ash	✓						1
3	090105-CRM-SS13	1/5	15:20	✓		Soil	✓					MS/MSD	2
4	090105-CRM-SS13-BUP	1/5	15:20	✓		Soil	✓						1
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11													
12													
13													
14													

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME	PROJECT INFORMATION	RECEIPT
1: <i>[Signature]</i>	1/6/09	1: <i>[Signature]</i>	1-6-09 15:10	PROJECT NAME: 090111	Total # of Containers
2: <i>[Signature]</i>	1-6-09 15:30	2:		PROJECT #:	Turnaround Time Request
3:		3:		SITE ADDRESS:	<input type="radio"/> Standard 5 Business Days
SPECIAL INSTRUCTIONS/COMMENTS:	SHIPMENT METHOD			SEND REPORT TO: Blair Stout / Allison Cartrell	<input type="radio"/> 2 Business Day Rush
bstout@aesatlanta.com	OUT / / VIA:	IN / / VIA:	CLIENT FedEx UPS MAIL COURIER	INVOICE TO: (IF DIFFERENT FROM ABOVE) same as above	<input type="radio"/> Next Business Day Rush
	GREYHOUND OTHER			QUOTE #:	<input type="radio"/> Same Day Rush (with req.)
				PO#:	<input type="radio"/> Other

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.  
 SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)  
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

*Rahman, 01/06/09 1530, ice, 7°C, No seal, PH-N/A, courier.*

White Copy - Original; Yellow Copy - Client



# ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Norcross, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## LOG-IN CHECKLIST

Printed: 01/19/2009 4:28:12PM

Attn: Ms. Blair Stout

Client: Analytical Environment Services Inc.  
Project: 0812149  
Date Received: 01/06/09 15:30

Work Order: ASA0071  
Logged In By: Mohammad M. Rahman

NPDES:

### OBSERVATIONS

#Samples: 4                      #Containers: 6  
Minimum Temp(C): 7.0            Maximum Temp(C): 7.0            Custody Seal(s):

### CHECKLIST ITEMS

COC included with Samples	YES
Sample Container(s) Intact	YES
Chain of Custody Complete	YES
Sample Container(s) Match COC	YES
Custody seal Intact	NO
Temperature in Compliance	YES
Sufficient Sample Volume for Analysis	YES
Zero Headspace Maintained for VOA Analyses	YES
Samples labeled preserved (If Applicable)	YES
Samples received within Allowable Hold Times	YES
Samples Received on Ice	YES
Preservation Confirmed	YES

*Project Requires report to the MDL. MMR.*

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\090106\  
 Data File : V7066048.D  
 Acq On : 6 Jan 2009 8:13 pm  
 Operator :  
 Sample : 0901111-001A 6.89  
 Misc : SAMP BTEX S-MS  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jan 07 16:40:15 2009  
 Quant Method : C:\msdchem\1\METHODS\MS-7 BT120108.M  
 Quant Title : 8260 Purgeable organics calibration  
 QLast Update : Tue Dec 02 12:50:18 2008  
 Response via : Initial Calibration

Internal Standards		R.T.	QIon	Response	Conc	Units	Dev(Min)
1)	Pentafluorobenzene	...	5.959	168	46363	50.00 ug/kg	0.00
3)	1,4-Difluorobenzene	...	6.980	114	54292	50.00 ug/kg	0.00
8)	Chlorobenzene-d5	...	10.536	117	27258	50.00 ug/kg	0.00
13)	1,4-Dichlorobenzene-d4	...	12.469	152	7855	50.00 ug/kg	0.00
System Monitoring Compounds							
4)	Dibromofluoromethane	...	5.873	113	47231	133.90 ug/kg	0.00
Dat Spiked Amount 50.000		Range	62 - 143	Recovery	= 267.80%#		
6)	Toluene-d8	...	8.936	98	54605	41.61 ug/kg	0.00
Acc Spiked Amount 50.000		Range	73 - 127	Recovery	= 83.22%		
2)	4-Bromofluorobenzene	...	11.576	95	7445	27.46 ug/kg	0.00
Samp Spiked Amount 50.000		Range	58 - 127	Recovery	= 54.92%#		
Misc							
Target Compounds							
2)	Methyl tert-butyl ether	...	0.000	73	0	Qvalue	N.D.
5)	Benzene	...	0.000	78	0	Qvalue	N.D.
7)	Toluene	...	0.000	92	0	Qvalue	N.D.
9)	Ethylbenzene	...	0.000	91	0	Qvalue	N.D.
10)	m,p-Xylene	...	0.000	91	0	Qvalue	N.D.
11)	o-Xylene	...	0.000	91	0	Qvalue	N.D.
14)	Naphthalene	...	14.203	128	1100	3.16 ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Data Path : C:\msdchem\1\DATA\090106\  
 Data File : V7066049.D  
 Date On : 6 Jan 2009 8:38 pm  
 Operator :  
 Sample : 0901111-002A 5.58  
 Desc : SAMP BTEX S-MS  
 Vial : 13 Sample Multiplier: 1

Start Time: Jan 07 16:40:33 2009  
 Start Method : C:\msdchem\1\METHODS\MS-7 BT120108.M  
 Start Title : 8260 Purgeable organics calibration  
 Start Update : Tue Dec 02 12:50:18 2008  
 Response via : Initial Calibration

Internal Standards		R.T.	Q	Ion	Response	Conc	Units	Dev (Min)
1)	Pentafluorobenzene	...			5.965 168	54250	50.00 ug/kg	0.00
3)	1,4-Difluorobenzene	...			6.986 114	66781	50.00 ug/kg	0.00
8)	Chlorobenzene-d5	...			10.536 117	38047	50.00 ug/kg	0.00
13)	1,4-Dichlorobenzene-d4	...			12.472 152	14034	50.00 ug/kg	0.00
System Monitoring Compounds								
4)	Dibromofluoromethane	...			5.884 113	48629	112.08 ug/kg	0.01
	Spiked Amount 50.000	Range	62 - 143	Recovery	=	224.16%		
6)	Toluene-d8	...			8.942 98	68371	42.35 ug/kg	0.00
	Spiked Amount 50.000	Range	73 - 127	Recovery	=	84.70%		
2)	4-Bromofluorobenzene	...			11.571 95	12121	32.03 ug/kg	0.00
	Spiked Amount 50.000	Range	58 - 127	Recovery	=	64.06%		
Target Compounds							Qvalue	
2)	Methyl tert-butyl ether	...			0.000 73	0	N.D.	
5)	Benzene	...			0.000 78	0	N.D.	
7)	Toluene	...			0.000 92	0	N.D.	
9)	Ethylbenzene	...			0.000 91	0	N.D.	
10)	m,p-Xylene	...			0.000 91	0	N.D.	
11)	o-Xylene	...			0.000 91	0	N.D.	
14)	Naphthalene	...			14.192 128	627	1.01 ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed



GC/MS QA-QC Check Report

File : C:\msdchem\1\DATA\090106\V7066037.D

Time : 6 Jan 2009 1:19 pm

Calibration File : C:\msdchem\1\DATA\090106\V7066038.D

165365 220436 195450

128539

Sample Surrogate Recovery % Internal Standard Responses

038.D  
8260 CCV 0 98 94 96 165365 220436 195450  
128539

039.D  
MB-108502 100 95 95 147915 200118 185480  
116368

040.D  
LCS-108502 100 91 93 142923 195711 170394  
105596

043.D  
0901065-01 105 91 94 137378 189180 168142  
97306

045.D  
0901178-00 106 94 95 148514 203505 190718  
125119

046.D  
0901111-00 104 94 94 141909 195462 185455  
116200

047.D  
0901111-00 104 93 93 138034 190540 178007  
107392

048.D  
0901111-00 268\* 83 55\* 46363\* 54292\* 27258\*  
7855\*

049.D  
0901111-00 224\* 85 64 54250\* 66781\* 38047\*  
14034\*

050.D  
0901111-00 100 93 94 142232 197104 175169  
110220

051.D  
0901111-00 101 95 94 144527 196773 175298  
108687

052.D  
0901111-00 220\* 87 62 58410\* 71414\* 40475\*  
14195\*

053.D  
0901111-00 283\* 83 63 42865\* 55220\* 26291\*  
7784\*

(s) - fails 12hr time check \* - fails criteria

Created: Wed Jan 07 17:03:12 2009 MS7

V7066

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\090108\  
 Data File : V7066071.D  
 Acq On : 8 Jan 2009 4:52 pm  
 Operator :  
 Sample : 0901111-001A 6.36g  
 Misc : SAMP BTEX S-MS  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jan 29 13:22:23 2009  
 Quant Method : C:\msdchem\1\METHODS\MS-7 BT120108.M  
 Quant Title : 8260 Purgeable organics calibration  
 QLast Update : Tue Dec 02 12:50:18 2008  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	...	5.973	168	43872	50.00 ug/kg	0.01
3) 1,4-Difluorobenzene	...	6.980	114	58607	50.00 ug/kg	0.00
8) Chlorobenzene-d5	...	10.536	117	31051	50.00 ug/kg	0.00
13) 1,4-Dichlorobenzene-d4	...	12.472	152	12344	50.00 ug/kg	0.00

System Monitoring Compounds	Spiked Amount	Range	Recovery	Conc	Units	Dev(Min)
4) Dibromofluoromethane	50.000	62 - 143	269.24%#	51258	134.62 ug/kg	0.00
6) Toluene-d8	50.000	73 - 127	80.32%	56898	40.16 ug/kg	0.00
12) 4-Bromofluorobenzene	50.000	58 - 127	69.42%	10722	34.71 ug/kg	0.00

Target Compounds	Qvalue
2) Methyl tert-butyl ether	N.D.
5) Benzene	N.D.
7) Toluene	N.D.
9) Ethylbenzene	N.D.
10) m,p-Xylene	N.D.
11) o-Xylene	N.D.
14) Naphthalene	12.11 ug/kg 100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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GC/MS QA-QC Check Report

Time File : C:\msdchem\1\DATA\090108\V7066062.D

Time Time : 8 Jan 2009 1:02 pm

Daily Calibration File : C:\msdchem\1\DATA\090108\V7066063.D

159837 216769 194927

133797

File Sample Surrogate Recovery % Internal Standard Responses

V7066063.D  
 8260 CCV 0 98 94 97 159837 216769 194927  
 133797

V7066064.D  
 MB-108607 98 95 92 143751 200015 190759  
 115752

V7066065.D  
 LCS-10860 99 94 93 139706 193730 178639  
 114857

V7066066.D  
 0901308-00 107 87 90 100612 139330 110366  
 58159\*

V7066067.D  
 0901308-00 117 81 109 74668\* 111717 71811\*  
 26396\*

V7066068.D  
 0901702-00 99 96 93 161472 223223 207119  
 117466

V7066069.D  
 0901702-00 97 95 96 170234 236122 225152  
 140120

V7066070.D  
 0901702-00 99 97 96 155902 213022 201427  
 124278

V7066071.D  
 0901111-00 269\* 80 69 43872\* 58607\* 31051\*  
 12344\*

V7066072.D  
 0901111-00 235\* 84 72 57018\* 75879\* 44249\*  
 18536\*

V7066073.D  
 0901230-00 98 96 97 149417 207238 197073  
 126385

V7066074.D  
 0901230-00 97 96 94 152569 210125 201821  
 126897

V7066075.D  
 0901230-00 98 95 96 148938 205666 193230  
 122649

V7066076.D  
 0901187-00 114 77 74 86912 132180 85312\*  
 28930\*

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(1000s) - fails 12hr time check \* - fails criteria

Created: Fri Jan 09 09:03:16 2009 MS7

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**AES**

**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**

January 06, 2009

Jessica Vickers  
Tetra Tech EM Inc.  
1955 Evergreen Blvd.  
Duluth, GA 30096

TEL: (678) 775-3104

FAX (678) 775-3138

RE: TVA Kingston

Order No.: 0812G73

Dear Jessica Vickers:

Analytical Environmental Services, Inc. received 12 samples on 12/24/2008 10:40:00 AM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

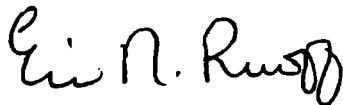
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/08-06/30/09.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 08/01/09.

These results relate only to the items tested. This report may only be reproduced in full and contains 41 total pages (including cover letter).

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

Sincerely,

*for* 

Blair Stout  
Project Manager



**ANALYTICAL ENVIRONMENTAL SERVICES, INC**

3785 Presidential Parkway, Atlanta GA 30340-3704

**AES** TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

**CHAIN OF CUSTODY**

Work Order: 12 G70

Date: 12/23/08 Page      of     

COMPANY: <b>Tetra Tech</b>		ADDRESS: <b>1955 Evergreen Blvd Suite 300 Dalton Ga 30094</b>			ANALYSIS REQUESTED							Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		No # of Containers	
PHONE: <b>404-395-5220 / 678-983-4655</b>		FAX: <b>678-775-3138</b>			TAL Metals Dissolved metals Total Suspended Solids										
SAMPLED BY: <b>Chris Jones</b>		SIGNATURE: <i>[Signature]</i>			PRESERVATION (See codes)							REMARKS			
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	Z								
1	KIF-KWTPI	12/23/08	1147			SW	✓							1	
2	KIF-CRM 4.0	}	1423				✓							1	
3	KIF-ERM 0.1		1432					✓	✓	✓					2
4	KIF-CRM 5.5		1410					✓							1
5	KIF-ERM 2.1		1515					✓							1
6	KIF-ERM 4.0		1530					✓							1
7	MS/MSD		1530					✓							1
8	TT-ERM 1.9		1655					✓						X-Dissolved	1
9	Duplicate		1657					✓						metals →	1
* 10	KIF-TRM 568.5		1133					✓	✓	✓				Filter and	1
* 11	KIF-CRM 0.0		1158					✓	✓	✓				preserve,	1
* 12	KIF-CRM 2.0		1216					✓	✓	✓				Total metals →	1
13	TT-SSOI		1655				SE	✓						Needs	1
14														Preservation	
RELINQUISHED BY: <i>[Signature]</i>		DATE/TIME: <b>12/23/08 2000</b>	RECEIVED BY: <i>[Signature]</i>		DATE/TIME: <b>12/24/08 10:00</b>		PROJECT INFORMATION					RECEIPT			
1:		2:		3:		PROJECT NAME: <b>TVA Kingston</b>					Total # of Containers: <b>14</b>				
2:		3:		3:		PROJECT #: <b>714 Swan Pond rd Hermiton TN</b>					Turnaround Time Request				
3:		3:		3:		SITE ADDRESS: <b>714 Swan Pond rd Hermiton TN</b>					<input type="radio"/> Standard 5 Business Days <input type="radio"/> 2 Business Day Rush <input type="radio"/> Next Business Day Rush <input checked="" type="radio"/> Same Day Rush (auth req.) <input type="radio"/> Other				
SPECIAL INSTRUCTIONS/COMMENTS:		SHIPMENT METHOD		INVOICE TO:		SEND REPORT TO: <b>Jessica Vickers and Chris Jones</b>					STATE PROGRAM (if any):				
		OUT / / VIA:		IN / / VIA:		(IF DIFFERENT FROM ABOVE)					E-mail? Y/N; Fax? Y/N				
		CLIENT <b>FedEx</b> UPS MAIL COURIER		GREYHOUND OTHER		QUOTE #: PO#:					DATA PACKAGE: I II III IV				

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT. SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Totac Bell

Work Order Number 0812 G73

Checklist completed by MM Signature 12/24/18 Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (4°C±2)\* Yes  No

Cooler #1 3-4 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler#5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted?  Checked by (M)

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

\* Samples do not have to comply with the given range for certain parameters.



**ATTACHMENT 2**  
**ENVIRONMENTAL PROTECTION AGENCY**  
**SCIENCE AND ECOSYSTEM SUPPORT DIVISION**  
**Final Analytical Report, Dated January 9, 2009**  
**(54 Pages)**



**TETRA TECH**

TTEMI-05-001-0084  
(Kingston Fossil Plant Fly Ash Response)



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**

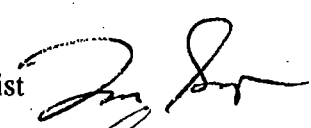
Science and Ecosystem Support Division  
Enforcement and Investigations Branch  
980 College Station Road  
Athens, Georgia 30605-2720

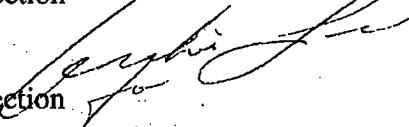
January 9, 2009

**4SESD-EIB**

**MEMORANDUM**

**SUBJECT:** TVA-Kingston Plant QAPP  
Kingston, TN  
SESD Project Numbers 09-0175

**FROM:** Timothy Simpson, Environmental Scientist  
Superfund and Air Section 

**THRU:** Mike Bowden, Chief  
Superfund and Air Section 

**TO:** Leslie Sims, OSC  
Emergency Response and Removal Branch  
Superfund Division

Attached is the final report for the TVA-Kingston Plant Emergency Response.

Potable water samples were collected for total metals, dissolved metals, and total suspended solids on December 30, 2008. If you have any questions, please call me at (706) 355-8736.

Attachment

cc: Steve Spurlin

**REGION 4**  
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**SCIENCE AND ECOSYSTEM SUPPORT DIVISION**

---

**Site Investigation Report**  
**TVA-Kingston Plant**  
**Kingston, Roane County, Tennessee**  
**Project Identification Number: 09-0175**

---



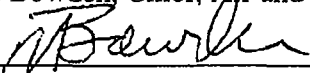
**On-Scene Coordinator:**  
Leslie Sims  
Superfund Division  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8909

**SESD Project Leader:**  
Tim Simpson  
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Athens, GA 30605

**Project: TVA-Kingston, Kingston, TN**  
**SESD Project Identification Number: 09-0175**

**Approving Official:**

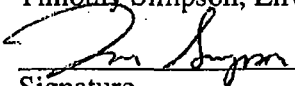
Mike Bowden, Chief, Air and Superfund Section

  
\_\_\_\_\_  
Signature

1/8/09  
Date

**Project Leader:**

Timothy Simpson, Environmental Scientist, Air and Superfund Section

  
\_\_\_\_\_  
Signature

01/08/2009  
Date

**SAMPLING INVESTIGATION REPORT  
TVA-KINGSTON  
KINGSTON, TENNESSEE  
SESD PROJECT IDENTIFICATION NUMBER 09-0175**

**Introduction**

During the week of December 29, 2008 representatives of the United States Environmental Protection Agency (U.S EPA), Region 4, Science and Ecosystem Support Division (SESD), collected potable water samples from municipal and residential water systems as part of the emergency response at the TVA-Kingston Plant in Kingston, TN. The investigation was requested by Terry Stilman, On-Scene Coordinator, Superfund Division, EPA Region 4, Atlanta, Georgia.

The following personnel participated in the investigations:

<u>Name</u>	<u>Organization</u>	<u>Duties</u>
Tim Simpson	Reg. 4 EPA/SESD	Project Leader, Sampler
Don Fortson	ILS	FORMs, Sampler

**Site Background**

The TVA-Kingston Plant is located in Roane County, Tennessee. The potable water sampling request was due to the release of wet coal ash from an on-site ash pond. Several million cubic feet of fly ash and water were released on to land adjacent to the plant and into the nearby Clinch and Emory Rivers on Monday, December 22, 2008. The initial release of materials from the plant's retention pond created a tidal wave of water and ash which destroyed several homes and ruptured a major gas line in a neighborhood located adjacent to the plant.

**Sampling Investigation Summary**

On December 30, 2008, SESD collected potable water samples from 4 residential properties and 3 municipal water treatment facilities. Samples were collected for total metals, dissolved metals, and total suspended solids (TSS) analyses. Samples of the raw untreated intake water and finished treated water were collected from the Kingston, Rockwood, and Cumberland Water Plants.

Prior to sample collection, the potable water was monitored for temperature, specific conductance, pH, and turbidity. The water parameter data are summarized in Table 2. It should be noted that residential sample 993 is not a private well sample. It was determined, after sample collection, that the residential property had been connected to the City of Kingston water system on December 29, 2008.

Analytical data were compared to National Primary Drinking Water Regulations Maximum Contaminant Levels (MCLs). MCLs are defined as the highest level of a contaminant level that is allowed in drinking water. MCLs are enforceable standards.

### **Sampling and Analytical Methodology**

Sample collection activities were in accordance with the SESD Operating Procedure for Potable Water Supply Sampling, SESDPROC-305-R2. Samples collected for dissolved metals were filtered in the field using a disposable 0.45 micron filter.

In addition, the field investigation was conducted in accordance with the following procedures:

- SESDPROC-005-R1, Sample and Evidence Management
- SESDPROC-100-R2, Field pH Measurement
- SESDPROC-101-R2, Field Specific Conductance
- SESDPROC-102-R2, Field Temperature Measurement
- SESDPROC-103-R2, Field Turbidity
- SESDPROC-110-R2, Global Positioning System
- SESDPROC-010-R3, Logbooks
- SESDPROC-209-R1, Packing, Marking, Labeling, and Shipping of Environmental and Waste Samples

All samples were analyzed at the SESD laboratory in Athens, GA. Analyses were in accordance with the U.S. EPA, Region 4, *Analytical Support Branch Laboratory Operations and Quality Control Manual*, February, 2008. The analytical methods are listed in the Final Analytical Reports in Appendix A.

### **Analytical Results: Total and Dissolved Metals**

Metals data for this investigation are summarized in Tables 3-4. It should be noted that Tables 3-4 summarize the results only for metals with an established MCL. Samples listed in Table 3 were collected at the four residential properties. Samples listed in Table 4 were collected at the three water treatment plants.

The complete SESD laboratory analytical data reports, with all metals data and data qualifiers, are found in Appendix A.

### **Residential Samples**

Metals were not detected above MCLs in any of the samples collected on December 30, 2008. The following metals (with MCLs) were not detected in the samples collected from the residential properties: mercury, arsenic, beryllium, cadmium, selenium, and thallium. Antimony (3.0 ug/L) was detected in sample 1015, but was below the 6.0 ug/L MCL. Sample 1015 also contained chromium. The level of chromium detected (16 ug/L) was below the 100 ug/L MCL. Antimony and chromium were not detected in any other samples collected during the investigation.

Levels of barium ranged from 26 ug/L to 120 ug/L. The levels detected were below the 2000 ug/L MCL. Levels of copper detected ranged from 16J ug/L to 46J ug/L. This is below the copper action level of 1300 ug/L. Levels of lead detected ranged from 1.3 ug/L to 7.2 ug/L. This is below the MCL action level of 15 ug/L.

#### **Water Treatment System Samples**

Metals were not detected above MCLs in any of the samples collected on December 30, 2008. The following metals (with MCLs) were not detected in the samples collected from the water treatment systems: mercury, antimony, arsenic, beryllium, cadmium, chromium, lead, selenium, and thallium. Levels of barium detected ranged from 17J to 27 ug/L. The levels detected were below the 2000 ug/L MCL. Levels of copper detected ranged from 11J to 25 ug/L. This is below the copper action level of 1300 ug/L.

#### **Analytical Results: TSS**

Total suspended solids were not detected in ten of eleven samples collected. TSS was detected (5.7 mg/L) in residential well sample 1015. It should be noted that there is no MCL for total suspended solids. The complete SESD laboratory analytical data reports for TSS, with all data qualifiers, appears in Appendix A.

#### **Quality Assurance Results**

Quality assurance (QA) samples in the form of split samples (samples KWT4AX and KWT4ADX) and a nitric acid preservative blank (sample QAPB1) were collected during the sampling investigations. The analytical results for the split samples compare well with the results reported for the primary sample. The overall close comparison of the two split samples is indicative of good performance by the laboratory.

Metals were not detected in the preservative blank. This indicates that there was no cross contamination from the nitric acid preservative used during the sampling event.

#### **References**

- 1 U.S. EPA, Region 4, SESD, Analytical Support Branch Laboratory Operations and Quality Assurance Manual, February 12, 2008.

**DATA TABLES  
TVA-KINGSTON  
KINGSTON, ROANE COUNTY, TN**



**TABLE 1**  
**SAMPLE LOCATIONS - TVA-KINGSTON**  
**12/30/2008**  
**TVA-KINGSTON**  
**KINGSTON, ROANE COUNTY, TN**

Station ID	Sample ID	Analyses
Residential Sampling Stations		
1015	1015	Total Metals, TSS
	1015D	Dissolved Metals
1007	1007	Total Metals, TSS
	1007D	Dissolved Metals
993	993	Total Metals, TSS
	993D	Dissolved Metals
937	937	Total Metals, TSS
	937D	Dissolved Metals
Kingston Water Treatment Plant		
King1 (Raw Water)	KWT1A	Total Metals, TSS
	KWT1AD	Dissolved Metals
King1 (Treated Water)	KWT2A	Total Metals, TSS
	KWT2AD	Dissolved Metals
Rockwood Water Treatment Plant		
King3 (Raw Water)	KWT3A	Total Metals, TSS
	KWT3AD	Dissolved Metals
King3 (Treated Water)	KWT4A	Total Metals, TSS
	KWT4AX	Total Metals, TSS (Split Sample)
	KWT4AD	Dissolved Metals
	KWT4ADX	Dissolved Metals (Split Sample)
Cumberland Water Treatment Plant		
King5 (Raw Water)	KWT5A	Total Metals, TSS
	KWT5AD	Dissolved Metals
King5 (Treated Water)	KWT6A	Total Metals, TSS
	KWT6AD	Dissolved Metals
Quality Control Sample		
Preservative Blank	QAPB1	Total Metals

**TABLE 2  
WATER PARAMETERS  
12/30/2008  
TVA-KINGSTON  
KINGSTON, ROANE COUNTY, TN**

Station ID	Sample ID	Temperature (Degrees C)	pH (Standard Units)	Specific Conductance (uS/cm)	Turbidity (NTU)
Residential Sampling Stations					
1015	1015	12.4	6.81	307	6.22
1007	1007	15.5	8.31	1212	7.12
993	993	8.8	7.19	239	0.51
937	937	13.6	7.40	395	0.83
Kingston Water Treatment Plant					
King1	KWT1A	10.9	7.37	180.5	6.94
King1	KWT2A	10.5	7.29	199.1	0.17
Rockwood Water Treatment Plant					
King3	KWT3A	9.5	7.87	206.7	2.79
King3	KWT4A KWT4AX	10.7	7.1	219	0.32
Cumberland Water Treatment Plant					
King5	KWT5A	8.9	7.16	111.4	8.73
King5	KWT6A	10.2	6.74	127.5	0.28

**TABLE 3  
METALS DATA  
RESIDENTIAL PROPERTIES  
12/30/2008  
TVA-KINGSTON  
KINGSTON, ROAN COUNTY, TN**

Station ID	Sample ID	Mercury (ug/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Beryllium (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Copper (ug/L)	Lead (ug/L)	Selenium (ug/L)	Thallium (ug/L)
	MCL	2	6	10	2000	4	5	100	1300*	15*	50	2
1015	1015	0.10U	3.0	1.0U	69	3.0U	0.5U	16	32J	7.2	2.0U	1.0U
	1015D	0.10U	1.0U	1.0U	73	3.0U	0.5U	5.0U	10U	1.0U	2.0U	1.0U
1007	1007	0.10U	1.0U	1.0U	73	3.0U	0.50U	5.0U	16J	1.0U	2.0U	1.0U
	1007D	0.10U	1.0U	1.0U	71	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
993**	993	0.10U	1.0U	1.0U	26	3.0U	0.50U	5.0U	46J	2.4	2.0U	1.0U
	993D	0.10U	1.0U	1.0U	26	3.0U	0.50U	5.0U	41 J	1.3	2.0U	1.0U
937	937	0.10U	1.0U	1.0U	120	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	937D	0.10U	1.0U	1.0U	120	3.0U	0.50U	5.0U	10U	10U	2.0U	1.0U

U - The analyte was not detected at or above the reporting limit.

J - The identification of the analyte is acceptable; the reported value is an estimate.

\* The MCLs for copper and lead are regulated by a treatment technique that requires systems to control the corrosiveness of their water. The action level for copper is 1300 ug/L. The action level for lead is 15 ug/L.

\*\* - City of Kingston water system.

**TABLE 4  
METALS DATA  
MUNICIPAL TREATMENT FACILITIES  
12/30/2008  
TVA-KINGSTON  
KINGSTON, ROAN COUNTY, TN**

Station ID	Sample ID	Mercury (ug/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Beryllium (ug/L)	Cadmium (ug/L)	Chromium (ug/L)	Copper (ug/L)	Lead (ug/L)	Selenium (ug/L)	Thallium (ug/L)
	<b>MCL</b>	<b>2</b>	<b>6</b>	<b>10</b>	<b>2000</b>	<b>4</b>	<b>5</b>	<b>100</b>	<b>1300*</b>	<b>15*</b>	<b>50</b>	<b>2</b>
King1	KWT1A	0.10U	1.0U	1.0U	19J	3.0U	0.50U	5.0U	11J	1.0U	2.0U	1.0U
	KWT1AD	0.10U	1.0U	1.0U	18J	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT2A	0.10U	1.0U	1.0U	17J	3.0U	0.50U	5.0U	11J	1.0U	2.0U	1.0U
	KWT2AD	0.10U	1.0U	1.0U	17J	3.0U	0.50U	5.0U	12J	1.0U	2.0U	1.0U
King3	KWT3A	0.10U	1.0U	1.0U	27	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT3AD	0.10U	1.0U	1.0U	23	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT4A	0.10U	1.0U	1.0U	27	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT4AX	0.10U	1.0U	1.0U	25	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT4AD	0.10U	1.0U	1.0U	25	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT4ADX	0.10U	1.0U	1.0U	26	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
King5	KWT5A	0.10U	1.0U	1.0U	22	3.0U	0.50U	5.0U	25	1.0U	2.0U	1.0U
	KWT5AD	0.10U	1.0U	1.0U	20	3.0U	0.50U	5.0U	22	1.0U	2.0U	1.0U
	KWT6A	0.10U	1.0U	1.0U	22	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U
	KWT6AD	0.10U	1.0U	1.0U	21	3.0U	0.50U	5.0U	10U	1.0U	2.0U	1.0U

U - The analyte was not detected at or above the reporting limit.

J - The identification of the analyte is acceptable; the reported value is an estimate.

\* The MCLs for copper and lead are regulated by a treatment technique that requires systems to control the corrosiveness of their water. The action level for copper is 1300 ug/L. The action level for lead is 15 ug/L.

**APPENDIX A  
ANALYTICAL DATA REPORTS  
TVA-KINGSTON  
KINGSTON, ROANE COUNTY, TN**

**Metals Analytical Data Reports (09-0175) (27 Total Pages)  
TSS Analytical Data Reports (09-0175) (15 Total Pages)**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

January 7, 2009

4SESD-ASB

**MEMORANDUM**

**SUBJECT:** FINAL Analytical Report  
 Project: 09-0175, TVA Kingston Fossil Plant  
 Superfund Remedial

**FROM:** Jenny Scifres  
 ASB Inorganic Chemistry Section Chief

**THRU:** Gary Bennett, Chief  
 Analytical Support Branch

**TO:** Timothy Simpson

This report is being reissued to correct sample descriptive information that was not accepted by the Region 4 Data Archival and ReTrieval (D.A.R.T.) system. Some or all of these results were previously reported. Please substitute the corrected results for those results previously reported. Please refer to the Report Narrative for more details.

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at [www.epa.gov/region4/sesd/asbsop](http://www.epa.gov/region4/sesd/asbsop). Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and may have been qualified if the applicable quality control criteria were not met. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

**Total Metals (TMTL)**

Total Mercury	EPA 245.1
Total Metals	EPA 200.7
Total Metals	EPA 200.8



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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980 College Station Road, Athens, Georgia 30605-2700  
D.A.R.T. Id: 09-0175  
Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Report Narrative** for Work Order E085301, Project: 09-0175

01/02/09 JS Metals: Some of the dissolved metals are slightly higher than totals for the same station ID.

01/06/09 JS Metals: Report reissued for sample ID corrections for DART. No laboratory results were changed.

01/07/09 JS Metals: Report reissued for sample ID corrections for DART. No laboratory results were changed.

**Sample Disposal Policy**

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 90 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 90-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 90-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at [Colquitt.Debbie@epa.gov](mailto:Colquitt.Debbie@epa.gov), and provide a reason for holding samples beyond 90 days

cc: Nardina Turner



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**SAMPLES INCLUDED IN THIS REPORT**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
QAPB1	E085301-01	Preservative Blank	12/30/08 17:35	12/31/08 10:03
1007	E085301-02	Potable Water	12/30/08 09:20	12/31/08 10:03
1007D	E085301-03	Potable Water	12/30/08 09:20	12/31/08 10:03
1015	E085301-04	Potable Water	12/30/08 11:23	12/31/08 10:03
1015D	E085301-05	Potable Water	12/30/08 11:23	12/31/08 10:03
937	E085301-06	Potable Water	12/30/08 10:56	12/31/08 10:03
937D	E085301-07	Potable Water	12/30/08 10:56	12/31/08 10:03
993	E085301-08	Potable Water	12/30/08 10:14	12/31/08 10:03
993D	E085301-09	Potable Water	12/30/08 10:14	12/31/08 10:03
KWT1A	E085301-10	Potable Water	12/30/08 14:30	12/31/08 10:03
KWT1AD	E085301-11	Potable Water	12/30/08 14:30	12/31/08 10:03
KWT2A	E085301-12	Potable Water	12/30/08 14:48	12/31/08 10:03
KWT2AD	E085301-13	Potable Water	12/30/08 14:48	12/31/08 10:03
KWT3A	E085301-14	Potable Water	12/30/08 17:25	12/31/08 10:03
KWT3AD	E085301-15	Potable Water	12/30/08 17:25	12/31/08 10:03
KWT4A	E085301-16	Potable Water	12/30/08 17:05	12/31/08 10:03
KWT4AD	E085301-17	Potable Water	12/30/08 17:05	12/31/08 10:03
KWT4ADX	E085301-18	Potable Water	12/30/08 17:05	12/31/08 10:03
KWT4AX	E085301-19	Potable Water	12/30/08 17:05	12/31/08 10:03
KWT5A	E085301-20	Potable Water	12/30/08 16:02	12/31/08 10:03
KWT5AD	E085301-21	Potable Water	12/30/08 16:02	12/31/08 10:03
KWT6A	E085301-22	Potable Water	12/30/08 16:10	12/31/08 10:03
KWT6AD	E085301-23	Potable Water	12/30/08 16:10	12/31/08 10:03





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Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- QR-1 MRL verification recovery less than lower control limits.
- QR-2 MRL verification recovery greater than upper control limits.

### ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service  
Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System ([www.epa.gov/srs](http://www.epa.gov/srs)), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

## Total Metals

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: QAPB1

Lab ID: E085301-01

Station ID:

Matrix: Preservative Blank

Date Collected: 12/30/08 17:35

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.0 U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	250 U	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	250 U	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1000 U	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	1000 U	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Total Metals

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: 1007

Lab ID: E085301-02

Station ID: 1007

Matrix: Potable Water

Date Collected: 12/30/08 9:20

CAS Number	Analyte	Results/Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	21000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	16.0 U, QR-2	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	120	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7800	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	7.6	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10.0 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2900	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	230000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	340	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	15	ug/L	10	12/31/08	1/01/09	EPA 200.7



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D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: 1007D

Lab ID: E085301-03

Station ID: 1007

Matrix: Potable Water

Date Collected: 12/30/08 9:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-3	Mercury	0.10	U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100	U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	7.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	18000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7800		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	3100		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	240000		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	330		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7



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 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: 1015**

**Lab ID: E085301-04**

**Station ID: 1015**

**Matrix: Potable Water**

**Date Collected: 12/30/08 11:23**

CAS# Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	3.0	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	69	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	28000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	16	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	32 U QR-2	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	1000	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	7.2	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	8000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	580	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	3200	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	15000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	400	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	48	ug/L	10	12/31/08	1/01/09	EPA 200.7



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D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: 1015D

Lab ID: E085301-05

Station ID: 1015

Matrix: Potable Water

Date Collected: 12/30/08 11:23

GLS Number	Analyte	Results - Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	73	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	30000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	480	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-3	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	8700	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	6.10	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	3400	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	16000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	430	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	45	ug/L	10	12/31/08	1/01/09	EPA 200.7





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 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: 937

Lab ID: E085301-06

Station ID: 937

Matrix: Potable Water

Date Collected: 12/30/08 10:56

GLS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100	U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	120		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	57000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	8200		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	29		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2100		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	11000		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	360		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7



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D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: 937D

Lab ID: E085301-07

Station ID: 937

Matrix: Potable Water

Date Collected: 12/30/08 10:56

GAS Number	Analyte	Results - Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	120	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	56000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7900	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	23	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2100	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	12000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	360	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7





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 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: 993**

**Lab ID: E085301-08**

**Station ID: 993**

**Matrix: Potable Water**

**Date Collected: 12/30/08 10:14**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-61	Mercury	0.10	U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100	U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-08	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	26		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-91	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	23000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-33	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	46	J, QR-2	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	2.4		ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	6900		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-50	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2300		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	9200		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	67		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-66	Titanium	5.0	U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-51	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	42		ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: 993D

Lab ID: E085301-09

Station ID: 993

Matrix: Potable Water

Date Collected: 12/30/08 10:14

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	12/31/08	12/31/08	EPA 245.19
7429-90-5	Aluminum	100	U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	26		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	23000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	41	J, QR-2	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.3		ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7100		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2200		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	9100		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	66		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	39		ug/L	10	12/31/08	1/01/09	EPA 200.7



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Total Metals

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: KWT1A**

**Lab ID: E085301-10**

**Station ID: KING1**

**Matrix: Potable Water**

**Date Collected: 12/30/08 14:30**

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	210	J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	19	QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	18000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	11	QR-2	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	260		ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4400		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	38		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2300		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	10000		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	67		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	31		ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT1AD

Lab ID: E085301-11

Station ID: KING1

Matrix: Potable Water

Date Collected: 12/30/08 14:30

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	12/31/08	12/31/08	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	18 U, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	18000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4200	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.9	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2300	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	10000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	66	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	25	ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Total Metals

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: KWT2A**

**Lab ID: E085301-12**

**Station ID: KING1**

**Matrix: Potable Water**

**Date Collected: 12/30/08 14:48**

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100 U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	17 J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	17000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	11 J, QR-2	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4100	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2100	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	14000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	63	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: KWT2AD

Lab ID: E085301-13

Station ID: KING1

Matrix: Potable Water

Date Collected: 12/30/08 14:48

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100	U, J, QR-1	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	17	J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	17000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	12	J, QR-2	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4300		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2200		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	14000		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	65		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U, J, QR-1	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Total Metals

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: KWT3A**

**Lab ID: E085301-14**

**Station ID: KING3**

**Matrix: Potable Water**

**Date Collected: 12/30/08 17:25**

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	27	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	21000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-5	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	6700	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	8.4	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1800	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	7600	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	64	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	26	ug/L	10	12/31/08	1/01/09	EPA 200.7



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D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT3AD

Lab ID: E085301-15

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:25

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-01	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	23	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-0	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	22000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2000	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	7700	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	66	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	25	ug/L	10	12/31/08	1/01/09	EPA 200.7





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 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Total Metals

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: KWT4A**

**Lab ID: E085301-16**

**Station ID: KING3**

**Matrix: Potable Water**

**Date Collected: 12/30/08 17:05**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	27		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	23000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7300		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1900		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	8700		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	67		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	23		ug/L	10	12/31/08	1/01/09	EPA 200.7



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: KWT4AD

Lab ID: E085301-17

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	25		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	22000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7200		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	2100		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	8500		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	65		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	23		ug/L	10	12/31/08	1/01/09	EPA 200.7



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 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT4ADX

Lab ID: E085301-18

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:05

Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analytical Methods
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09 EPA 245.1
7429-90-5	Aluminum	100	U	ug/L	100	12/31/08	1/01/09 EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09 EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09 EPA 200.8
7440-39-3	Barium	26		ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09 EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09 EPA 200.8
7440-70-2	Calcium	22000		ug/L	250	12/31/08	1/01/09 EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-50-8	Copper	1.0	U	ug/L	1.0	12/31/08	1/01/09 EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09 EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09 EPA 200.8
7439-95-4	Magnesium	7100		ug/L	250	12/31/08	1/01/09 EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-02-0	Nickel	1.0	U	ug/L	1.0	12/31/08	1/01/09 EPA 200.7
7440-09-7	Potassium	1800		ug/L	1000	12/31/08	1/01/09 EPA 200.7
7439-99-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09 EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-23-5	Sodium	8400		ug/L	1000	12/31/08	1/01/09 EPA 200.7
7440-24-6	Strontium	63		ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09 EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09 EPA 200.7
7440-32-6	Titanium	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09 EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09 EPA 200.7
7440-66-6	Zinc	24		ug/L	10	12/31/08	1/01/09 EPA 200.7



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT4AX

Lab ID: E085301-19

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	25		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	22000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	7300		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1800		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	8400		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	65		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	23		ug/L	10	12/31/08	1/01/09	EPA 200.7



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 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT5A

Lab ID: E085301-20

Station ID: KING5

Matrix: Potable Water

Date Collected: 12/30/08 16:02

CAS Number	Analyte	Result/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	1/01/09	1/01/09	EPA 245.16
7429-90-5	Aluminum	360	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	22	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	10000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	25	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	410	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4200	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	45	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1300	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	2700	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	29	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	9.4	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT5AD

Lab ID: E085301-21

Station ID: KING5

Matrix: Potable Water

Date Collected: 12/30/08 16:02

GAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	20		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	10000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	22		ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-3	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4200		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	43		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1300		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	2800		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	29		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 Region 4 Science and Ecosystem Support Division  
 980 College Station Road, Athens, Georgia 30605-2700  
 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT6A

Lab ID: E085301-22

Station ID: KING5

Matrix: Potable Water

Date Collected: 12/30/08 16:10

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10 U	ug/L	0.10	1/01/09	1/01/09	EPA 245.1
7429-90-5	Aluminum	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	22	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50 U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	11000	ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100 U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4300	ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	36	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10 U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1400	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0 U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	6200	ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	29	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0 U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15 U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0 U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0 U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	13	ug/L	10	12/31/08	1/01/09	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Total Metals**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT6AD

Lab ID: E085301-23

Station ID: KINGS

Matrix: Potable Water

Date Collected: 12/30/08 16:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.10	U	ug/L	0.10	1/01/09	1/01/09	EPA 2451
7429-90-5	Aluminum	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7440-36-0	Antimony	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-38-2	Arsenic	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-39-3	Barium	21		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-41-7	Beryllium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-43-9	Cadmium	0.50	U	ug/L	0.50	12/31/08	1/01/09	EPA 200.8
7440-70-2	Calcium	10000		ug/L	250	12/31/08	1/01/09	EPA 200.7
7440-47-3	Chromium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-48-4	Cobalt	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-50-8	Copper	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7439-89-6	Iron	100	U	ug/L	100	12/31/08	1/01/09	EPA 200.7
7439-92-1	Lead	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7439-95-4	Magnesium	4200		ug/L	250	12/31/08	1/01/09	EPA 200.7
7439-96-5	Manganese	36		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7439-98-7	Molybdenum	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-02-0	Nickel	10	U	ug/L	10	12/31/08	1/01/09	EPA 200.7
7440-09-7	Potassium	1300		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7782-49-2	Selenium	2.0	U	ug/L	2.0	12/31/08	1/01/09	EPA 200.8
7440-22-4	Silver	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-23-5	Sodium	6000		ug/L	1000	12/31/08	1/01/09	EPA 200.7
7440-24-6	Strontium	28		ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-28-0	Thallium	1.0	U	ug/L	1.0	12/31/08	1/01/09	EPA 200.8
7440-31-5	Tin	15	U	ug/L	15	12/31/08	1/01/09	EPA 200.7
7440-32-6	Titanium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-62-2	Vanadium	5.0	U	ug/L	5.0	12/31/08	1/01/09	EPA 200.7
7440-65-5	Yttrium	3.0	U	ug/L	3.0	12/31/08	1/01/09	EPA 200.7
7440-66-6	Zinc	14		ug/L	10	12/31/08	1/01/09	EPA 200.7





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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980 College Station Road, Athens, Georgia 30605-2700  
D.A.R.T. Id: 09-0175  
Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

January 6, 2009

4SESD-ASB

**MEMORANDUM**

**SUBJECT:** FINAL Analytical Report  
Project: 09-0175, TVA Kingston Fossil Plant  
Superfund Remedial

**FROM:** Jenny Scifres  
ASB Inorganic Chemistry Section Chief

**THRU:** Gary Bennett, Chief  
Analytical Support Branch

**TO:** Timothy Simpson

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at [www.epa.gov/region4/sesd/asbsop](http://www.epa.gov/region4/sesd/asbsop). Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and may have been qualified if the applicable quality control criteria were not met. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

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**Classical/Nutrient Analyses (CNA)**

Solids

SM 2540D



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 09-0175

Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Report Narrative** for Work Order E085301, Project: 09-0175

01/02/09 JS Metals: Some of the dissolved metals are slightly higher than totals for the same station ID.

01/06/09 JS Metals: Report reissued for sample ID corrections for DART. No laboratory results were changed.

**Sample Disposal Policy**

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 90 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 90-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 90-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at [Colquitt.Debbie@epa.gov](mailto:Colquitt.Debbie@epa.gov), and provide a reason for holding samples beyond 90 days

cc: Nardina Turner



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**SAMPLES INCLUDED IN THIS REPORT**

**Project: 09-0175, TVA Kingston Fossil Plant**

<b>Sample ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
1007	E085301-02	Potable Water	12/30/08 09:20	12/31/08 10:03
1015	E085301-04	Potable Water	12/30/08 11:23	12/31/08 10:03
937	E085301-06	Potable Water	12/30/08 10:56	12/31/08 10:03
993	E085301-08	Potable Water	12/30/08 10:14	12/31/08 10:03
KWT1A	E085301-10	Potable Water	12/30/08 14:30	12/31/08 10:03
KWT2A	E085301-12	Potable Water	12/30/08 14:48	12/31/08 10:03
KWT3A	E085301-14	Potable Water	12/30/08 17:25	12/31/08 10:03
KWT4A	E085301-16	Potable Water	12/30/08 17:05	12/31/08 10:03
KWT4AX	E085301-19	Potable Water	12/30/08 17:05	12/31/08 10:03
KWT5A	E085301-20	Potable Water	12/30/08 16:02	12/31/08 10:03
KWT6A	E085301-22	Potable Water	12/30/08 16:10	12/31/08 10:03



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**DATA QUALIFIER DEFINITIONS**

U The analyte was not detected at or above the reporting limit.

**ACRONYMS AND ABBREVIATIONS**

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System ([www.epa.gov/srs](http://www.epa.gov/srs)), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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### Classical/Nutrient Analyses

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: 1007

Lab ID: E085301-02

Station ID: 1007

Matrix: Potable Water

Date Collected: 12/30/08 9:20

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Classical/Nutrient Analyses**

**Project: 09-0175, TVA Kingston Fossil Plant**

**Sample ID: 1015**

**Lab ID: E085301-04**

**Station ID: 1015**

**Matrix: Potable Water**

**Date Collected: 12/30/08 11:23**

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	5.7		mg/L	4.0	12/31/08	12/31/08	SM 2540D



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**Classical/Nutrient Analyses**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: 937

Lab ID: E085301-06

Station ID: 937

Matrix: Potable Water

Date Collected: 12/30/08 10:56

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Methods
E1642818	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Classical/Nutrient Analyses

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: 993

Lab ID: E085301-08

Station ID: 993

Matrix: Potable Water

Date Collected: 12/30/08 10:14

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0	mg/L	4.0	12/31/08	12/31/08	SM 2540D





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 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

### Classical/Nutrient Analyses

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT1A

Lab ID: E085301-10

Station ID: KING1

Matrix: Potable Water

Date Collected: 12/30/08 14:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Classical/Nutrient Analyses**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: KWT2A

Lab ID: E085301-12

Station ID: KING1

Matrix: Potable Water

Date Collected: 12/30/08 14:48

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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 D.A.R.T. Id: 09-0175  
 Project: 09-0175, TVA Kingston Fossil Plant - Reported by Jenny Scifres

**Classical/Nutrient Analyses**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: KWT3A

Lab ID: E085301-14

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:25

CAS Number	Analyte	Results/Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0 U	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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### Classical/Nutrient Analyses

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT4A

Lab ID: E085301-16

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:05

CAS Number	Analyte	Results	Qualifier	Units	MRL	Prepared	Analytical Method
E1642818	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08 SM 2540D



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**Classical/Nutrient Analyses**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: KWT4AX

Lab ID: E085301-19

Station ID: KING3

Matrix: Potable Water

Date Collected: 12/30/08 17:05

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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**Classical/Nutrient Analyses**

Project: 09-0175, TVA Kingston Fossil Plant

Sample ID: KWT5A

Lab ID: E085301-20

Station ID: KING5

Matrix: Potable Water

Date Collected: 12/30/08 16:02

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E16428188	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08	SM 2540D



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**Classical/Nutrient Analyses**

**Project: 09-0175, TVA Kingston Fossil Plant**

Sample ID: KWT6A

Lab ID: E085301-22

Station ID: KING5

Matrix: Potable Water

Date Collected: 12/30/08 16:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642818	Total Suspended Solids	4.0	U	mg/L	4.0	12/31/08	12/31/08	SM/2540D

Releasable Jennifer Pearce  
3/17/09 Date