

Texas Commission on Environmental Quality

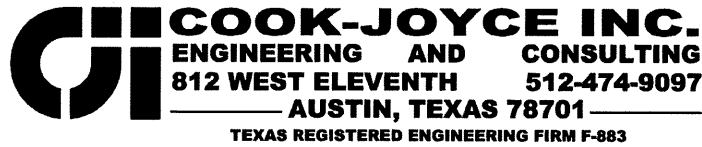
# Remediation Division Correspondence Identification Form

| SITE & PROGRAM AREA IDENTIFICATION               |                       |                            |  |                            |  |
|--|-----------------------|----------------------------|--|----------------------------|--|
| SITE LOCATION                                    |                       |                            | REMEDIATION DIVISION PROGRAM AND FACILITY IDENTIFICATION   |                            |  |
| Site Name: <b>Grand Park Site</b>                |                       |                            | Is This Site Being Managed Under A State Lead Contract?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                            |  |
| Address 1: <b>7275 Dallas Parkway</b>            |                       |                            | Program Area: <b>VOLUNTARY CLEANUP PROGRAM</b>   |                            |  |
| Address 2:                                       |                       |                            | Mail Code: <b>MC-221</b>   |                            |  |
| City: <b>Frisco</b>                              |                       | State: <b>Texas</b>        | Is This A New Site To This Program Area?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                |                            |  |
| Zip Code: <b>75034</b>                           | County: <b>Collin</b> | VCP No.: <b>2592</b>       |  |                            |  |
| TCEQ Region: <b>Region 4 - Dallas/Fort Worth</b> |                       | --Leave This Field Blank-- |  | --Leave This Field Blank-- |  |

| DOCUMENT(S) IDENTIFICATION |   |
|----------------------------|---|
| PHASE OF REMEDIATION       | DOCUMENT NAME   |
| 1. <b>MISCELLANEOUS</b>    | <b>STATUS REPORT</b>                                    |
| 2. <b>MISCELLANEOUS</b>    | <b>TECHNICAL WORKPLAN NOT OTHERWISE SPECIFIED (NOS)</b> |
| 3.                         |   |
| 4.                         |   |
| 5.                         |   |

| CONTACT INFORMATION                               |  |  |  |                                  |  |
|---|--|--|--|----------------------------------|--|
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|   |  |  |  |                                  |  |
|   |  |  |  |                                  |  |
|   |  |  |  |                                  |  |

| TCEQ INTERNAL USE ONLY |                           |              |                    |
|------------------------|---------------------------|--------------|--------------------|
| Document No.           | TCEQ Database Term        | Document No. | TCEQ Database Term |
| 1.                     | <b>STATUS UPDATE</b>      | 4.           |                    |
| 2.                     | <b>TECHNICAL WORKPLAN</b> | 5.           |                    |
| 3.                     |                           |              |                    |



10 October 2013

Via Hand Delivery

Ms. Joanna Manning, Project Manager (MC-127)  
Texas Commission on Environmental Quality (TCEQ)  
VCP / Corrective Action Section  
P.O. Box 13087  
Austin, TX 78711-3087

Re: Monthly Status Update and Transmittal Letter for *Affected Property Assessment Workplan for Grand Park, 7275 Dallas Parkway, Frisco, Texas, VCP #2592*, dated October 2013

Dear Ms. Manning:

Cook-Joyce, Inc. (CJI) has prepared this monthly status report on behalf of the Voluntary Cleanup Program (VCP) Applicants named in the VCP Agreement for the above-referenced Site. In addition, two copies of *Affected Property Assessment Workplan for Grand Park, 7275 Dallas Parkway, Frisco, Texas, VCP #2592* (Workplan) are attached to this Transmittal and Monthly Status Update letter. A searchable, digital copy of the Workplan will also be emailed to you for your convenience. CJI and the VCP Applicants request that the TCEQ review and approve the attached Workplan. Investigation activities at the site will be implemented after TCEQ concurrence with the Workplan.

During the past month, actions associated with this VCP project include:

- Preparation of the attached *Affected Property Assessment Workplan*.

Activities associated with this VCP project planned for next month include:

- Working with the TCEQ to revise the Workplan (if necessary).

No actual or anticipated problems, actual or anticipated delays, or solutions to resolve those problems or delays have occurred with this VCP project to date.



Ms. Joanna Manning  
10 October 2013  
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Please contact the undersigned with questions or comments. We can be reached at 512/474-9097 or by email at [wade.wheatley@cook-joyce.com](mailto:wade.wheatley@cook-joyce.com) or [richard.varnell@cook.joyce.com](mailto:richard.varnell@cook.joyce.com).

Sincerely,

A blue ink signature of Wade M. Wheatley, written in a cursive style.

Wade M. Wheatley, P.E.  
Principal Engineer, Vice President

A blue ink signature of Richard D. Varnell, written in a cursive style.

Richard D. Varnell, P.G.  
Senior Staff

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Mack Borchardt, City of Frisco  
Henry Hill, City of Frisco  
Kerry Russell, Russell & Rodriguez  
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**AFFECTED PROPERTY ASSESSMENT WORKPLAN  
FOR  
GRAND PARK, 7275 DALLAS PARKWAY, FRISCO, TEXAS  
VCP #2592**

**OCTOBER 2013**

**Prepared for:**

City of Frisco  
6101 Frisco Square Boulevard  
Frisco, Texas

And

Texas Commission on Environmental Quality  
VCP / Corrective Action Section  
P.O. Box 13087  
Austin, TX 78711-3087







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## **1.0 INTRODUCTION**

This workplan has been prepared by Cook-Joyce, Inc. (CJI) to describe procedures to be used in implementing an affected property assessment for the City of Frisco's 330-acre Grand Park development located between Dallas North Tollway and Stonebrook Parkway, east of Legacy Drive in Frisco, Texas. Based on preliminary sediment sampling of Stewart Creek conducted by Southwest Geoscience (SWG), it appears that Stewart Creek sediment in the Grand Park development has been impacted by past operations from the upstream Exide Battery Recycling Facility (Exide). In addition, historic stack emissions from Exide may have impacted surface soils within Grand Park. The location of the Grand Park site and the Exide facility are shown on Figure 1.

The field investigation and data evaluation activities described in this workplan have been developed to fulfill the affected property assessment requirements contained in the TCEQ's Texas Risk Reduction Program (TRRP) rules at 30 TAC Chapter 350, Subchapter C. The primary intent of the affected property assessment is to collect the necessary information to determine the nature and extent of impacted soils or sediments at the Grand Park site and to identify any areas of impacted soils or sediments that may require a response action, in accordance with TRRP requirements.



## **2.0 BACKGROUND INFORMATION**

### **2.1 DESCRIPTION OF GRAND PARK**

The Grand Park site consists of approximately 330 acres of contiguous property which is bound by Cotton Gin Road to the north, the North Dallas Tollway to the east, Stonebrook Parkway to the south, and Legacy Drive to the west. In addition to the main body of the Grand Park site, an approximately 1380 foot section of Stewart Creek located to the east of the North Dallas Tollway is also included in the assessment area. The Grand Park site contains mostly undeveloped land and one cultivated field (in the northwest corner of the property). A farmhouse and associated barns/sheds were observed in the central portion of the property in historical aerial photographs. Remnants of some of these structures are currently observed on the property.

### **2.2 DESCRIPTION OF EXIDE BATTERY RECYCLING CENTER**

Lead oxide manufacturing operations at Exide's Frisco facility began in 1964. Battery recycling operations began at the facility around 1969 and continued until the facility ceased operations in November 2012. The Exide facility is constructed over the former channel of Stewart Creek and a tributary to the north. Currently, Stewart Creek is adjacent to the southern side of the facility, and the northern tributary of Stewart Creek is located immediately to the north of the facility. Two structures, a stormwater retention pond and the facility's wastewater treatment plant, are located across Stewart Creek from the facility and connected by piping that crosses the creek.

The Exide facility recycled large batteries (such as auto and marine batteries) by breaking them in a water bath. Plastic and rubber "chips" from the broken battery casings floated to the surface of the water where they were collected for disposal. Liquid from the batteries mixed with the water, and was treated in the facility's wastewater treatment plant. Metal from the batteries sank to the bottom of the bath, where it was collected. The metal was then re-smelted to recover lead and smaller amounts of other valuable metals. The smelting process produced three waste streams: slag, dust control water, and dust (most of which was captured in baghouses).

### **2.3 CONTAMINATION SOURCE**

The waste streams produced at the Exide facility have resulted in widespread contamination of the Exide property and surrounding areas. The Exide Frisco facility has been subject to multiple



state and federal environmental enforcement actions. Sections of Stewart Creek have previously been dredged to remove slag and/or lead contaminated sediment - initially in 1986 and again in 1999. Lead contaminated sediment has been reported in or adjacent to Stewart Creek downstream of the Exide facility on the Grand Park site.

Sampling has shown that shallow soil contamination from airborne deposition of lead particulate also extends over approximately 20 acres of Exide “buffer property” that surrounds the Exide facility. Most of this soil contamination is less than 1 foot deep. Due to the Grand Park site’s close proximity to the Exide facility and the Exide “buffer property”, shallow soil contamination from airborne deposition of lead is also a potential contaminant source for the Grand Park site.

## 2.3 CONTAMINANTS OF CONCERN

The contaminants of concern (COCs) are the contaminants that have previously been identified during Exide site investigation activities. They include arsenic, lead, cadmium, and selenium.

## 2.4 PRIOR INVESTIGATION AND SAMPLING

In November 2011, SWG collected 19 sediment samples in and around Stewart Creek on the Grand Park site. The locations of the sediment samples are shown on Figure 2 of this document and on Figure 2 of SWG’s Limited Site Investigation - Sediment Sampling of Stewart Creek report (provided in Appendix A). These sediment samples were collected from the ground surface and were submitted for laboratory analysis of arsenic, selenium, cadmium, lead, and sulfate. The analytical results are summarized in Table 1 of this workplan.

In March and April of 2013, SWG conducted a walking survey of Stewart Creek between Dallas North Tollway and Stonebrook Parkway on the Grand Park site. SWG identified numerous areas containing battery chips and potential slag within Stewart Creek.

Several conclusions can be drawn from the analytical results and the walking survey for use in future planning of affected property assessment activities:

- Sediments in Stewart Creek within the Grand Park site are known to have been impacted by past operations at the Exide facility.



- The extent of impacted soils is currently unknown, therefore it is unknown if PCLs for a source area of less than ½ acre or greater than ½ acre but less than 30 acres will be used during the investigation. However, as a conservative measure CJI will assume that less than 30 acre PCLs should be used at the site unless the sample data suggests otherwise.



### **3.0 ASSESSMENT APPROACH**

An affected property assessment will be conducted to determine the nature and extent of contaminants in soils and sediments within the Grand Park site. The assessment activities may require more than one field mobilization to adequately determine the extent of soil contamination to the appropriate assessment levels. The investigation activities for the first field mobilization are presented in Section 4.0. Subsequent field mobilizations, if required, will be based on the investigation findings from the first field mobilization.

#### **3.1 SURFACE WATER SAMPLING IN STEWART CREEK**

Surface water will be sampled where it is available in Stewart Creek. Because it is anticipated that the creek is mostly dry due to drought conditions, discrete pools of water will be sampled in accordance with TCEQ Regulatory Guidance (RD) 415<sup>1</sup> using the following methodology:

- 1) Accessible and discrete sample locations will be selected along the main segment of Stewart Creek.
- 2) Sampling will not occur during periods of abnormally high turbidity associated with high or flood flows in the creek.
- 3) At each sample location a peristaltic pump will be used to sample water originating from approximately 0.3 meters (1 foot) beneath the water surface or approximately halfway down if the standing water is less than 1 foot deep. Care will be taken to not unduly agitate the water to reduce the amount of sediment in each sample.
- 4) Surface water being sampled for total metals will be pumped directly into a laboratory provided sample bottle. Once sufficiently full the sample bottle will be preserved with nitric acid, capped, labeled and placed in an ice filled cooler prior to being taken or shipped to the laboratory for analysis.
- 5) Surface water being sampled for dissolved metals will be pumped directly through a 0.45 micro filter prior to being pumped into a laboratory provided sample bottle. Once sufficiently

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<sup>1</sup> *Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, RG-415, TCEQ, Revised August 2012.*



full the sample bottle will be capped and placed in an ice filled cooler prior to being taken or shipped to the laboratory for analysis.

Up to 20 samples of surface water will be collected and analyzed for total and dissolved concentrations of arsenic, cadmium, lead, and selenium. The coordinates of each surface water sample will be determined using a Global Positioning Satellite (GPS) unit and recorded in the logbook. A physical marker, such as flagging or a stake, will also be used to mark the sample location. One duplicate sample per 20 water samples will be collected for Quality Assurance/Quality Control (QA/QC) purposes.

### 3.2 SEDIMENT SAMPLING IN STEWART CREEK

There are 5 discrete segments of Stewart Creek and its tributaries in the assessment area. CJL proposes building on the previous assessment performed in Stewart Creek by SWG. Their data will be supplemented during this phase of the investigation. In general, SWG (which will perform the stream sampling in this phase of the assessment as well) will collect 1 sediment sample per each 250 feet of creekbed. Each area that will be sampled, its approximate length, the number of previous samples collected by SWG, and the number of additional samples that will be collected by SWG is described in the following table.

| <b>Segment</b>                 | <b>Description</b>  | <b>Approximate Length (feet)</b> | <b>Previous Samples</b> | <b>Number of Additional Samples</b> |
|--------------------------------|---|----------------------------------|-------------------------|-------------------------------------|
| Stewart Creek                  | Main Segment of Stewart Creek that bisects Grand Park               | 6400                             | 24                      | 3                                   |
| Historic Path of Stewart Creek | A former path of Stewart Creek located north of its current path.   | 2200                             | 0                       | 9                                   |
| Tributary 1                    | Starts near center of property and flows southwest to Stewart Creek | 1000                             | 0                       | 4                                   |
| Tributary 2                    | Flows southwest from east corner of site to Stewart Creek.          | 2900                             | 0                       | 13                                  |
| Tributary 3                    | Flows northwest from southeast corner of site to Stewart Creek.     | 1300                             | 0                       | 5                                   |
| Totals                         |   | 15200                            | 24                      | 34                                  |

Each sediment sample will be analyzed for total concentrations of arsenic, cadmium, lead, and selenium. General sample locations are shown on Figure 2. Sample locations will be chosen





from accessible portions of each creekbed. Sediment accumulation areas (such as bends in the creek) will preferentially be chosen as sample locations. Only the top 3 inches of sediment will be collected, and fine-grained sediment will be preferentially selected over coarse-grained sediment. Samples will either be collected by hand using a single-use, disposable plastic sampling trowel or, if sampling underwater, using a ponar or a similar dredge sampler. Regardless of the equipment used, the sampling equipment will be decontaminated prior to each use. The coordinates of each sediment sample will be determined using a GPS unit and recorded in the logbook. A physical marker, such as flagging or a stake, will also be used to mark the sample location. One duplicate sample per 20 sediment samples will be collected for QA/QC purposes.

### 3.3 SOIL SAMPLING IN UPLAND AREAS

The soil assessment will be conducted by superimposing a sampling grid across the site and collecting samples within that grid. General sample locations are depicted on Figure 3. As shown on Figure 3, CJI proposes collecting at least 8 samples per acre in portions of the site that may be sold for mixed use commercial and residential development. That portion of the site is approximately 150 acres in size and is shaped like an upside down capital L. A minimum of 8 samples per acre will be collected in that area because portions of that property may eventually be used residentially. Based on the sample grid that has been established for the site, this will result in approximately 1,310 samples being collected within that portion of the park.

Approximately two samples per acre will be collected in the remainder of the park (approximately 180 acres). This will result in an initial total of approximately 370 surface soil samples in the rest of the park. The reduced sampling frequency in this area of the site is justified because this area is not platted for future residential use. In addition, the primary contaminant expected to be present at the site is lead. CJI and the City of Frisco plan to use an assessment level of 250 milligrams per Kilogram (mg/Kg), half of the residential  $^{Tot}Soil_{Comb}$  PCL of 500 mg/Kg.

When both areas are combined, the total number of surface soil samples that will be collected during the initial sampling effort (including duplicate samples) is approximately 1,780. If resampling or delineation is required those activities will increase the total number of samples collected in upland areas of the park.



Each soil sample will be collected from the top few inches of soil (0 to 3 inches below ground surface) since the potential contamination is from particulate deposition from airborne emissions from the former Exide facility. Samples will be collected by hand using a plastic sampling trowel that will be decontaminated prior to each use. The coordinates of each surface soil sample will be determined using a GPS unit and recorded in the logbook. A physical marker, such as flagging or a stake, will also be used to mark each sample location. One duplicate sample per 20 soil samples will be collected for QA/QC purposes.



#### **4.0 FIELD INVESTIGATION ACTIVITIES**

CJI anticipates the field activities for the affected property assessment may require at least two field mobilizations. The following presents the investigation strategy for the first field mobilization. The investigation strategy for subsequent field mobilizations will be based on information obtained from the first field mobilization. As described below, a total of 20 surface water, 35 sediment, and approximately 1,780 surface soil samples will be collected during the first field mobilization. Soil and sediment samples will be collected for laboratory analysis in an effort to determine the nature and extent of impacts. The planned locations of these samples are shown on Figure 3. Sampling locations may require field adjustment based on actual site conditions encountered. Actual locations of all collected samples will be determined using a GPS unit and recorded in the logbook.

##### **4.1 ASSESSMENT SAMPLES**

During the first field mobilization, approximately 1,835 surface water, surface soil, and sediment samples will be collected at the Grand Park site. Due to the scope of this sampling effort the initial field mobilization will last several weeks. Soil and sediment samples will be collected from 0 to 3 inches at or near the locations shown on Figures 2 and 3.

Samples will be collected and handled in accordance with EPA and TCEQ technical guidance. The soil samples will be collected using pre-cleaned or decontaminated equipment. All samples will be placed in laboratory supplied, pre-cleaned jars with airtight lids, and then immediately transferred into a cooled shuttle container for delivery to the analytical laboratory. Each shuttle container will be chilled to and maintained at  $4^{\circ} \pm 2^{\circ}$  C. The temperature of the samples will be verified upon receipt by the laboratory. In accordance with TCEQ sampling guidance, the samples will be delivered to the laboratory within 2 days of sample collection.

##### **4.2 QUALITY ASSURANCE / QUALITY CONTROL SAMPLES**

Quality assurance/quality control samples will be collected to ensure data usability. QA/QC samples will consist of one duplicate sample for every 20 investigation samples collected. The analytical results for the duplicate samples will be evaluated to determine the precision of sampling and analysis methods.



#### 4.3 BACKGROUND SAMPLING

Background sampling has been performed for an associated investigation (investigation of the former Exide facility and the investigation of buffer property surrounding that facility). Additional background sampling is not proposed for this assessment.

#### 4.4 VERTICAL DELINEATION

Using an iterative process, CJI will return to areas with contaminant concentrations that exceed the residential assessment levels (RALs) for the site. Impacts will be delineated vertically to background or, if applicable, to the method quantitation limit (MQL). Impacts will be delineated laterally to the RAL or, if applicable, the appropriate ecological PCL or comparison standard.

Since the depth of impacted soils is expected to be less than 2 feet below grade and the first saturated zone is anticipated to be deeper than that, the assessment activities will not include a groundwater investigation. The vertical delineation of contaminants to background and/or MQLs will occur in soils prior to encountering a saturated zone.

#### 4.5 ANALYTICAL PROTOCOL

Each sample collected during the first field mobilization will be analyzed for total concentrations of arsenic, cadmium, lead, and selenium. These parameters were chosen based on the contaminants previously identified during site investigation activities at the Exide facility. Contaminants of concern are described in Section 2.3.

Table 2 identifies the soil sample collection intervals and their associated analytical protocol. Analytical methods and sample handling requirements are summarized in Table 3.

#### 4.6 DECONTAMINATION PROCEDURES

Sample collection equipment (trowels, shovels, etc.) will be cleaned in appropriate containers by scrubbing with a decontamination solution and rinsing with distilled water prior to each use and/or reuse. Decontamination rinsate water and residues will be containerized in drums and managed as potentially-contaminated materials.



#### 4.7 MANAGEMENT AND DISPOSAL OF INVESTIGATION DERIVED WASTE

Investigation-derived waste (IDW) will be collected and stored in one or more drums that will be temporarily stored on-site.



## **5.0 RECEPTOR SURVEY AND GROUNDWATER CLASSIFICATION**

### **5.1 RECEPTOR SURVEY**

A receptor survey will be conducted as part of the affected property assessment. The survey will include a search for water wells within one-half mile of the affected property. In addition, a field receptor survey will be performed within 500 feet of the affected property to identify potential receptors, drainage features, ecological considerations, utilities, and other field receptor information required by TRRP.

### **5.2 GROUNDWATER CLASSIFICATION**

CJL does not currently plan on performing a groundwater classification at the site. Instead, it will be assumed that the uppermost groundwater bearing unit (GWBU) is a class 2 resource.



## **6.0 DATA EVALUATION AND PLANNING**

Upon receipt of the laboratory results, CJI will evaluate the laboratory data to determine if it meets quality assurance requirements and project and measurement objectives. CJI will evaluate the information obtained during the first field mobilization to determine if additional data collection activities will be required to fulfill the affected property assessment requirements of 30 TAC 350.

Once sufficient data has been collected and all impacts have been delineated, CJI will present that information to the TCEQ in an Affected Property Assessment Report (APAR). If applicable, a Response Action Plan (RAP) will also be submitted.



## **TABLES**





**TABLE 1 - GRAND PARK, FRISCO, TEXAS  
SUMMARY OF PREVIOUS STEWART CREEK ANALYTICAL DATA**

| Sample I.D.             | Sample Date | Source            | Segment    | Depth<br>(feet) | Arsenic       | Cadmium       | Lead          | Selenium      | Sulfate       |
|-------------------------|-------------|-------------------|------------|-----------------|---------------|---------------|---------------|---------------|---------------|
|                         |             |                   |            |                 | Total (mg/Kg) | Total (mg/Kg) | Total (mg/Kg) | Total (mg/Kg) | Total (mg/Kg) |
| Chip (6-24)-4           | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 3.8           | 0.077 J       | 62.1          | --            | --            |
| Chip (6-24)-4 Base Comp | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 9.2           | 0.63          | 15.3          | --            | --            |
| SC-SED-12               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 11.3          | 0.79          | 56.7          | <1.26         | 172           |
| SC-SED-13               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 31.1          | 0.84          | 33.7          | <1.00         | 58.3          |
| SC-SED-14               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 12.7          | 0.79          | 27.7          | <0.97         | 48.2          |
| SC-SED-15               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 12.9          | 1.54          | 35.3          | <1.01         | 58            |
| SC-SED-16               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 14.6          | 1.49          | 59            | <1.00         | 35.6          |
| SC-SED-17               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 18.3          | 1.19          | 43.1          | <0.97         | 40.2          |
| SC-SED-18               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 8.1           | 0.43          | 20.5          | <0.91         | 190           |
| SC-SED-19               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 19.5          | 1.47          | 37.6          | <1.18         | 93            |
| SC-SED-20               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 17.4          | 1.07          | 38.5          | <1.03         | 54.2          |
| SC-SED-21               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 18            | 2.19          | 49.5          | <0.96         | 31            |
| SC-SED-22               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 19.2          | 2.01          | 53.2          | <0.93         | 78.5          |
| SC-SED-23               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 16.1          | 3.69          | 34.2          | <1.15         | 190           |
| PS (6-24)-3             | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 3             | 0.17 J        | 4.4           | --            | --            |
| PS (6-24)-3 Base Comp   | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 11.8          | 0.82          | 13.6          | --            | --            |
| SC-SED-24               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 32.1          | 2             | 49.5          | <1.03         | 39.8          |
| Chip (6-24)-3 Comp      | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 11.5          | 1.4           | 32.6          | --            | --            |
| Chip (6-24)-3 Base Comp | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 9.2           | 1.1           | 27.7          | --            | --            |
| Chip (6-24)-3 Wall Base | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 8.1           | 0.92          | 15.7          | --            | --            |
| Chip (6-24)-3 SED       | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 10.4          | 0.79          | 39.3          | --            | --            |
| SC-SED-25               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 15.1          | 1.03          | 21.6          | <1.07         | 45            |
| Chip (6-24)-3           | 6/24/2013   | SWGeo-Bowtie Inv. | Grand Park | --              | 3.3           | 0.29          | 27            | --            | --            |
| SC-SED-26               | 11/17/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 16.5          | 0.87          | 30.1          | <1.07         | 66.3          |
| SC-SED-27               | 11/17/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 14.3          | 1.09          | 31.8          | <1.00         | 54.1          |
| SC-SED-28               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 14.1          | 1.23          | 29            | <0.96         | 63            |
| SC-SED-29               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 18.2          | 1.75          | 35.9          | <1.00         | 37.2          |
| SC-SED-30               | 11/18/2011  | SWGeo-SCWWTP APAR | Grand Park | 0-0.5           | 18.5          | 2.41          | 31.3          | <0.98         | 58.9          |

Notes: SWGeo-SCWWTP APAR = Data collected by Southwest Geoscience to support the Stewart Creek Wastewater Treatment Plant APAR.  
SWGeo-Bowtie Inv. = Data collected by Southwest Geoscience to support the City of Frisco.  
mg/Kg = milligrams per Kilogram



**TABLE 2**  
**GRAND PARK, FRISCO, TEXAS**  
**SAMPLE COLLECTION INTERVALS AND ANALYTICAL PROTOCOL**

| Type of Sample | Sample Collection Intervals | Initial Analytical Protocol <sup>(1)</sup>               | Subsequent Field Mobilization                     | Purpose of Sample   |
|----------------|-----------------------------|--|---|---|
| Surface Water  | NA                          | Total and dissolved arsenic, cadmium, lead, and selenium | Lateral delineation where necessary.              | Determine if surface water impacts are present at the site. |
| Sediment       | 0-3"                        | Total arsenic, cadmium, lead, and selenium.              | Vertical and lateral delineation where necessary. | Determine if sediment impacts are present at the site.      |
| Surface Soil   | 0-3"                        | Total arsenic, cadmium, lead, and selenium.              | Vertical and lateral delineation where necessary. | Determine if soil impacts are present at the site.          |



**TABLE 3**  
**GRAND PARK, FRISCO, TEXAS**  
**ANALYTICAL METHODS AND SAMPLE HANDLING REQUIREMENTS**

| Parameters   | Analytical Method | Preservation                   | Required Reporting Limit    | Holding Time |
|--|-------------------|--------------------------------|-----------------------------|--------------|
| Total and dissolved arsenic, cadmium, lead, and selenium | EPA 6010/6020     | Cool $4 \pm 2^{\circ}\text{C}$ | TRRP Reporting (see note 1) | 180 days     |

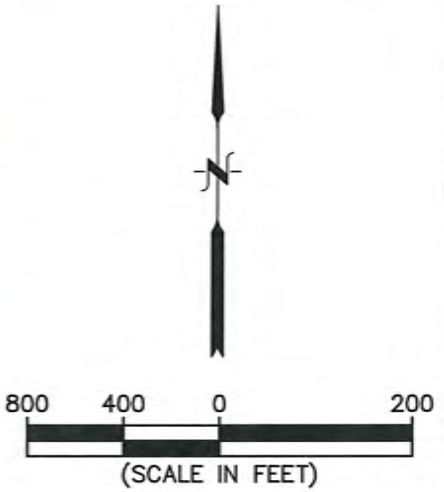
Notes:

(1) Reporting limits must meet TRRP Tier 1 critical PCLs for a 30-acre source area. All analytical results will be reported for concentrations that exceed the method detection limits and that meet the qualitative identification criteria recommended in the analytical method. Analytical results that are reported at concentrations between the method detection limit and method quantitation limit shall be flagged. Analytical results that are reported as undetected will be reported as undetected at the sample quantitation limit.



## FIGURES





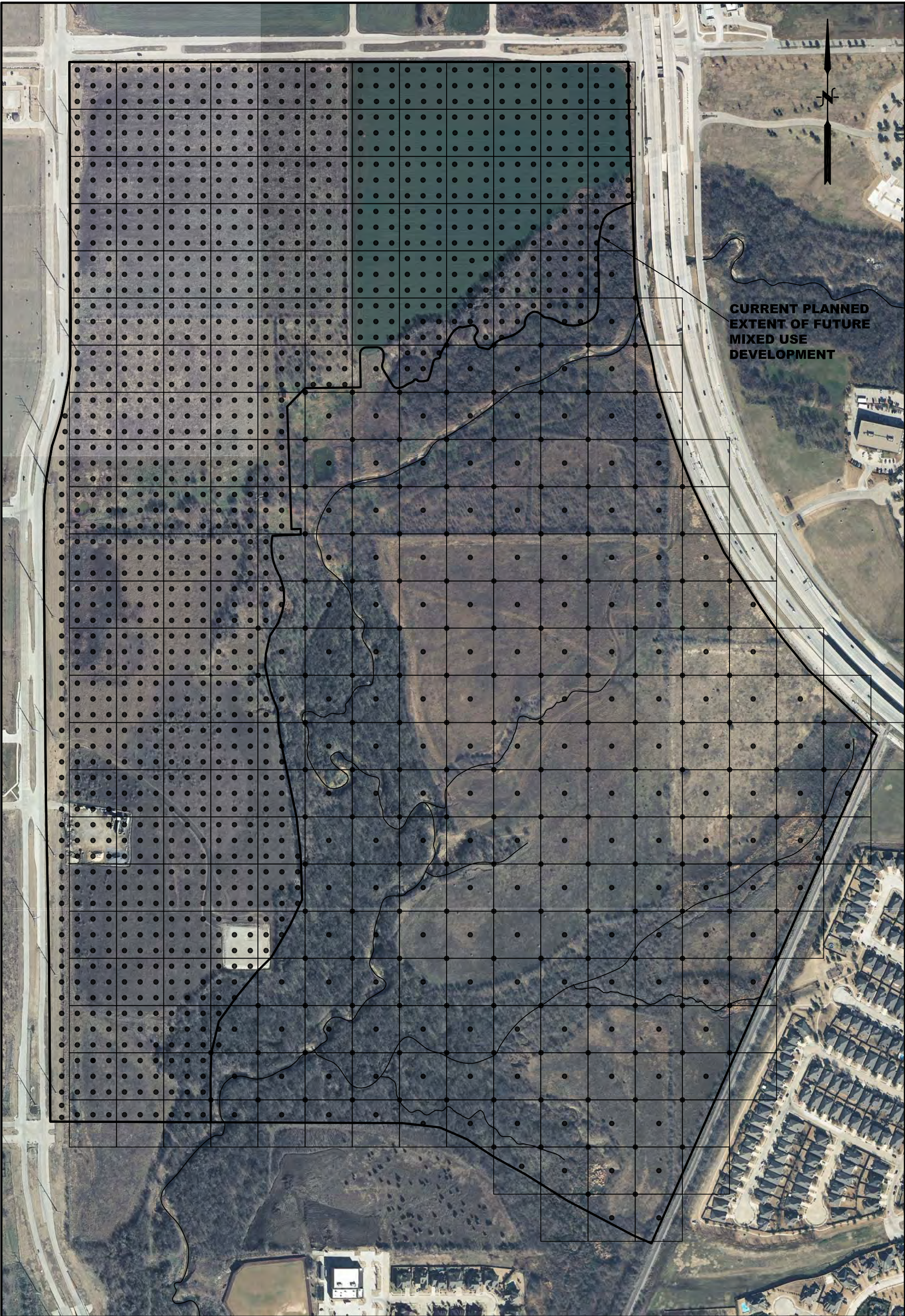
**LEGEND**  
— PROPERTY BOUNDARY

|  |      |              |                      |        |
|--|------|--------------|----------------------|--------|
|  |      |              |                      |        |
|  |      |              |                      |        |
|  |      |              |                      |        |
| REV.   | DATE | DESCRIPTION  | DR BY                | APP BY |
|  <b>COOK-JOYCE INC.</b><br>ENGINEERING AND CONSULTING<br>812 WEST ELEVENTH 512-474-9097<br>AUSTIN, TEXAS 78701<br>TEXAS REGISTERED ENGINEERING FIRM F-883 |      |              |                      |        |
| PROJECT: GRAND PARK<br>FRISCO, TEXAS   |      |              |                      |        |
| SHEET TITLE: VICINITY MAP  |      |              |                      |        |
| DES BY   |      |              | SCALE: SEE BAR SCALE |        |
| DR BY  | SDB  |              | PROJECT NO. 12061.01 |        |
| CHK BY   | RDV  |              | C/J NO. 12061024     |        |
| APP BY   | RDV  |              | SHEET 1 OF 1 SHEETS  |        |
| DATE ISSUED: 09-10-2013  |      | FIGURE NO. 1 |                      |        |
| PURPOSE: PURPOSE:  |      |              |                      |        |









| REV. | DATE | DESCRIPTION | DR BY | APP BY |
|------|------|-------------|-------|--------|
|      |      |             |       |        |
|      |      |             |       |        |
|      |      |             |       |        |
|      |      |             |       |        |

**COOK-JOYCE INC.**  
ENGINEERING AND CONSULTING  
812 WEST ELEVENTH 512-474-9097  
AUSTIN, TEXAS 78701  
TEXAS REGISTERED ENGINEERING FIRM F-883

|              |   |
|--------------|---|
| PROJECT:     | GRAND PARK<br>FRISCO, TEXAS             |
| SHEET TITLE: | PROPOSED UPLAND SAMPLE<br>LOCATION PLAN |

|                         |     |                      |
|-------------------------|-----|----------------------|
| DES BY                  | SDB | SCALE: 1" = 400'     |
| DR BY                   | RDV | PROJECT NO. 12061.01 |
| CHK BY                  | RDV | CJI NO. 12061031     |
| APP BY                  | RDV | SHEET 1 OF 1 SHEETS  |
| DATE ISSUED: 09-27-2013 |     | FIGURE NO. 3         |
| PURPOSE: APA WORKPLAN   |     |                      |





## **APPENDIX A**



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LIMITED SITE INVESTIGATION  
Sediment Sampling of Stewart Creek

Property:

Stewart Creek  
BNSF Railroad Bridge to  
Stonebrook Parkway  
Frisco, Texas

March 27, 2013  
Project No. 0111278

Prepared for:

City of Frisco  
c/o  
Russell & Rodriguez, L.L.P.  
1633 Williams Drive  
Building 2, Suite 200  
Georgetown, TX 78628

Prepared by:

**Southwest**  
GEOSCIENCE

2351 W. Northwest Hwy., Suite 3321  
Dallas, Texas 75220  
Ph: (214) 350-5469  
Fax: (214) 350-2914

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# Southwest GEOSCIENCE

2351 W. Northwest Hwy., Suite 3321

Dallas, Texas 75220

Ph: (214) 350-5469

Fax: (214) 350-2914

March 27, 2013

City of Frisco  
c/o Russell & Rodriguez, L.L.P.  
1633 Williams Drive  
Building 2, Suite 200  
Georgetown, TX 78628  
Attn : Mr. Kerry Russell

Re: Limited Site Investigation  
**Sediment Sampling of Stewart Creek**  
BNSF Railroad Bridge to Stonebrook Parkway  
Frisco, Texas  
SWG Project No. 0111278

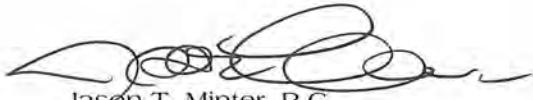
Dear Mr. Russell:

SWG is pleased to submit this Limited Site Investigation (LSI) report for the above-referenced Site. This investigation was performed in accordance with SWG's Proposal Number 01111316 dated September 21, 2011.

We appreciate the opportunity to perform these services for the City of Frisco, c/o Russell & Rodriguez, L.L.P. Please contact either of the undersigned at (214) 350-5469 if you have questions regarding the information provided in the report.

Sincerely,  
SOUTHWEST GEOSCIENCE

Prepared by:



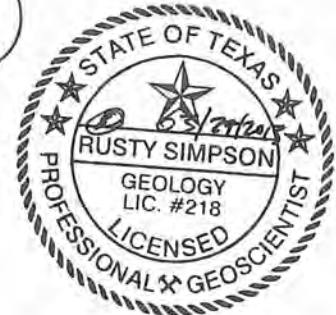
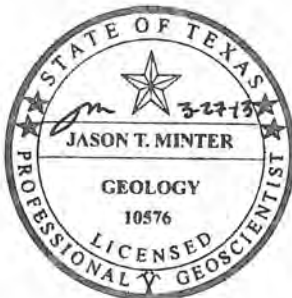
Jason T. Minter, P.G.  
Manager, Environmental Field Services

Reviewed by:



Rusty L. Simpson, P.G., C.P.G.  
Principal

Enclosure



## TABLE OF CONTENTS

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| 2.0 FIELD ACTIVITIES .....             | 2        |
| 3.0 LABORATORY ANALYTICAL METHODS..... | 3        |
| 4.0 DATA EVALUATION .....              | 3        |
| 5.0 FINDINGS AND RECOMMENDATIONS.....  | 4        |

## LIST OF APPENDICES

Appendix A: Figure 1- Topographic Map  
              Figure 2 - Site Map  
Appendix B: Photographs  
Appendix C: Table  
Appendix D: Laboratory Data Reports and Chain-of-Custody Documentation

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## **LIMITED SITE INVESTIGATION**

### **Sediment Sampling of Stewart Creek BNSF Railroad Bridge to Stonebrook Parkway Frisco, Texas SWG Project No. 0111278 March 27, 2013**

#### **1.0 INTRODUCTION**

##### **1.1 Site Description**

SWG has completed a Limited Site Investigation (LSI) for sediment sampling activities along Stewart Creek, at and along the proposed Grand Park project, from the eastern edge at the BNSF railroad bridge to Stonebrook Parkway in Frisco, Texas.

A topographic map is included as Figure 1, and a Site Map is included as Figure 2, Appendix A.

##### **1.2 Scope of Work**

SWG conducted sediment sampling activities in Stewart Creek, from the eastern edge at the BNSF railroad bridge to Stonebrook Parkway in Frisco, Texas. The proposed scope of work was based on the request of the City of Frisco for sediment sampling and analysis along the proposed Grand Park project as shown on the attached Figure 1. This investigation was requested to evaluate chemicals of concern in sediment in the vicinity of the Grand Park project.

The objective of the proposed scope of services was to evaluate arsenic, cadmium, lead, selenium and sulfate concentrations along Stewart Creek in sediment samples collected from 30 sampling locations based on the layout of the proposed Grand Park project. This scope of work was performed in accordance with SWG's Proposal Number 0111316 dated September 21, 2011.

##### **1.3 Standard of Care**

SWG's services were performed in accordance with standards customarily provided by a firm rendering the same or similar services in the area during the same time period. SWG makes no warranties, express or implied, as to the services performed hereunder. Additionally, SWG does not warrant the work of third parties supplying information used in the report (e.g. laboratories, regulatory agencies or other third parties). This scope of services was performed in accordance with the scope of work agreed with the client, as detailed in our proposal.

##### **1.4 Additional Scope Limitations**

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work and it should be noted that this information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, or not present during these services, and SWG cannot represent that the site contains no hazardous substances, toxic materials,

petroleum products, or other latent conditions beyond those identified during this LSI. Environmental conditions at other areas or portions of the Site may vary from those encountered at actual sample locations. SWG's findings, and recommendations are based solely upon data available to SWG at the time of these services.

## 1.5 Reliance

This report has been prepared for the exclusive use of the City of Frisco, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the City of Frisco and SWG. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, LSI report, and SWG's Agreement. The limitation of liability defined in the agreement is the aggregate limit of SWG's liability to the client and all relying parties unless otherwise agreed in writing.

## 2.0 FIELD ACTIVITIES

As part of this LSI, sediment samples were collected from 30 total sampling locations based on the layout of the proposed Grand Park project, as shown on Figure 1. Sample collection activities were divided into two phases. The first phase was performed between the BNSF railroad bridge and the Dallas North Tollway. The second phase of sediment sampling was performed west of the Dallas North Tollway, along the proposed area of the Grand Park project. The sediment sampling activities were concentrated in depositional areas along Stewart Creek and conducted in general accordance with the Texas Commission on Environmental Quality (TCEQ) *Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods (RG-415)*, dated December 2003.

### 2.1 Sediment Sampling

SWG's LSI field activities were conducted from November 17, 2011 to November 18, 2011 by Mr. Tommy Kim, Mr. John Koehnen and Mr. Jason Minter, P.G., SWG environmental professionals. As part of the approved scope of work, Eleven (11) sediment samples were collected between the BNSF railroad bridge and the Dallas North Tollway bridge. Nineteen (19) sediment samples were collected between the Dallas North Tollway and Stonebrook Parkway. The sediment sample locations were designated SC-SED-1 (west of the BNSF railroad bridge) through SC-SED-30 (north of Stonebrook Parkway).

Sample locations were targeted in areas of soft sediment deposition/accumulation within the depositional features and documented using field GPS equipment. At each location, sediment samples were collected from the 0.0 to 0.5 foot depth interval; however, finer grained bed sediments were sampled preferentially over coarser grained bed sediments.

Figure 1 presents the general boundaries and topography of the Site on the USGS topographic quadrangle map of Frisco, Texas (Appendix A). A Site Map is included as Figure 2 (Appendix A).

Sediment samples were collected using a decontaminated split core sampler. Sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to the beginning of the project and before collecting each sediment sample.

Battery chips were observed in the creek channel in two locations north of Stonebrook Parkway in the vicinity of SC SED-30 and SC SED-26. Additionally, potential slag was observed in the creek channel in the vicinity of the Dallas North Tollway bridge. Representative photographs of sediment sample locations including photographs of battery chips and potential slag are included as Appendix B.

## 2.2 Sediment Sampling Program

Sediment samples were collected and placed in laboratory prepared glassware, sealed with custody tape and placed on ice in a cooler which was secured with a custody seal. The sample coolers and completed chain-of-custody forms were relinquished to ERMI's analytical laboratory in Allen, Texas for normal turnaround.

## 3.0 LABORATORY ANALYTICAL METHODS

The sediment samples were analyzed for arsenic, cadmium, lead and selenium utilizing EPA Method SW-846#6010B and sulfate utilizing EPA Method 300.0.

Laboratory results are summarized in the tables included in Appendix B. The executed chain-of-custody form and laboratory data sheets are provided in Appendix C.

## 4.0 DATA EVALUATION

SWG compared the arsenic, cadmium, lead and selenium concentrations detected in the sediment samples to the freshwater sediment benchmarks and second effects levels for sediment referenced in the TCEQ guidance document *Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised)*, dated January 2006. Based on SWG's review, the TCEQ has not established ecological benchmarks or second effects levels for selenium or sulfate.

### Arsenic

The arsenic concentrations detected in the sediment samples ranged from 8.10 mg/Kg in SC-SED-18 to 47.2 mg/Kg in SC-SED-8. Arsenic concentrations detected in sediment at each location with the exception of SC-SED-18 exceeded the TCEQ ecological benchmark for sediment of 9.79 mg/Kg. SC-SED-8 exceeded the TCEQ second effects level for arsenic of 33 mg/Kg.

### Cadmium

The cadmium concentrations detected in the sediment samples ranged from 0.43 mg/Kg in SC-SED-18 to 4.16 mg/Kg in SC-SED-9. Cadmium concentrations detected in sediment at eighteen locations exceeded the TCEQ ecological benchmark for sediment of 0.99 mg/Kg; however, none of the detected sediment concentrations exceeded the TCEQ second effects level for cadmium of 4.98 mg/Kg.

### Lead

The lead concentrations detected in the sediment samples ranged from 20.5 mg/Kg in SC-SED-18 to 397 mg/Kg in SC-SED-5. The lead concentrations at seventeen locations exceeded the TCEQ ecological benchmark for sediment of 35.8 mg/Kg. Lead concentrations at SC-SED-5, SC-SED-6 and SC-SED-9 also exceeded the TCEQ second effects level for lead of 128 mg/Kg.

### **Selenium**

Selenium concentrations were not detected above the laboratory sample detection limits (SDLs). The TCEQ has not established an ecological benchmark or a second effects level for selenium in sediment.

### **Sulfate**

The sulfate concentrations detected in the sediment samples ranged from 31.0 mg/Kg in SC-SED-21 to 241 mg/Kg in SC-SED-5. The TCEQ has not established an ecological benchmark or a second effects level for sulfate in sediment.

## **5.0 FINDINGS AND RECOMMENDATIONS**

The objective of the proposed scope of services was to evaluate arsenic, cadmium, lead, selenium and sulfate concentrations along Stewart Creek in sediment samples collected from 30 sampling locations based on the layout of the proposed Grand Park project. The scope of work was performed in accordance with SWG's Proposal Number 01111316 dated September 21, 2011.

The findings and recommendations of this investigation are as follows:

- As part of the approved scope of work, Eleven (11) sediment samples were collected between the BNSF railroad bridge and the Dallas North Tollway. Nineteen (19) sediment samples were collected between the Dallas North Tollway and Stonebrook Parkway.
- Sample locations were targeted in areas of soft sediment deposition/accumulation within the stream bed and documented using field GPS equipment. At each location, sediment samples were collected from the 0.0 to 0.5 foot depth interval; however, finer grained bed sediments were sampled preferentially over coarser grained bed sediments.
- The laboratory analytical results indicate that arsenic, cadmium, lead and sulfate concentrations were detected in each of the samples collected. Selenium concentrations were not detected above laboratory SDLs.
- Based on the results of SWG's LSI, additional assessment is necessary to further evaluate the arsenic, cadmium and lead concentrations above the TCEQ ecological benchmarks and/or second effects levels for sediment and to further evaluate the presence of battery chips and potential slag observed during field activities.

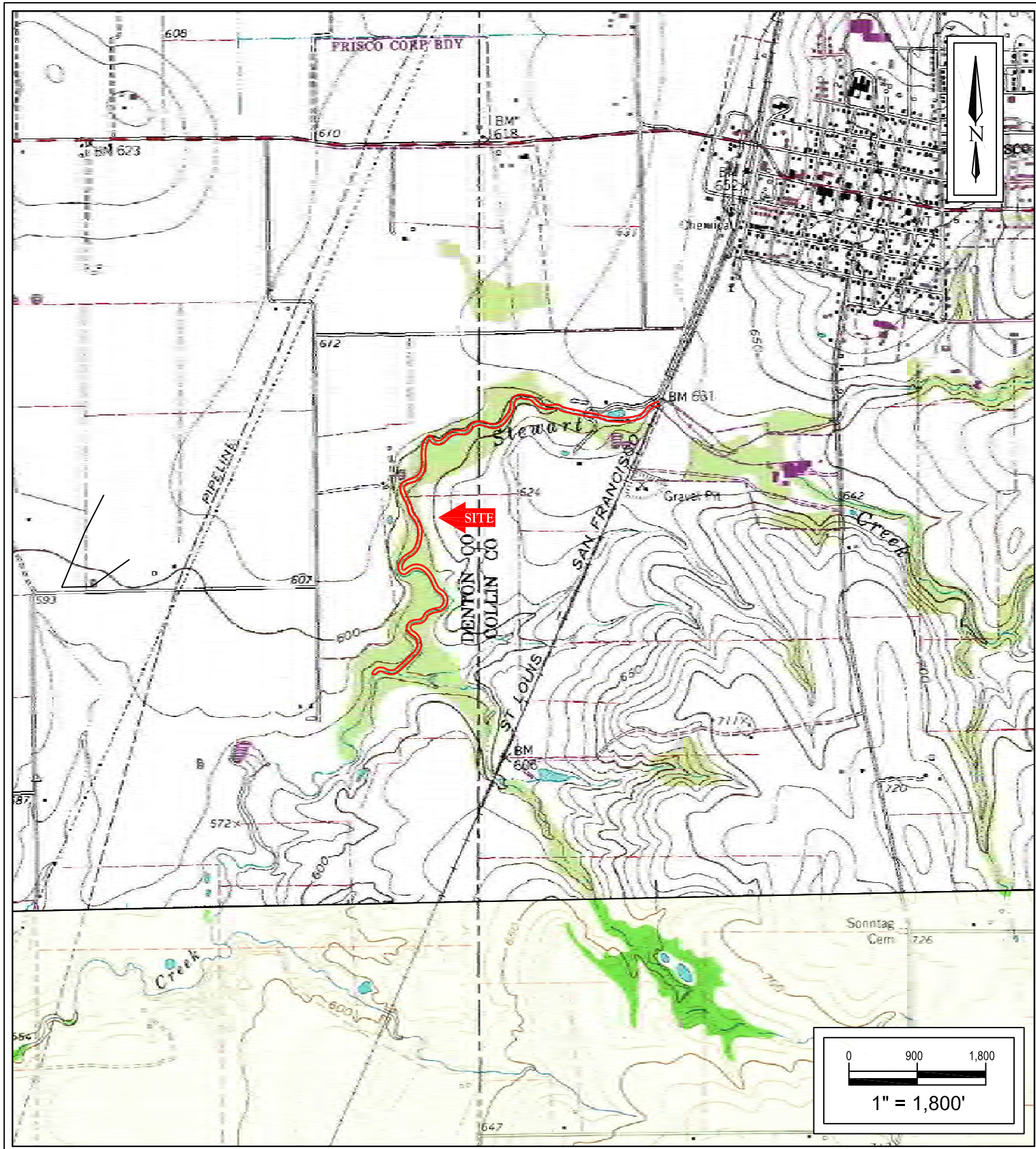
APPENDIX A

Figures

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Sediment Sampling of Stewart Creek  
Frisco, Texas

**Southwest**  
GEOSCIENCE

SWG Project No. 0111278

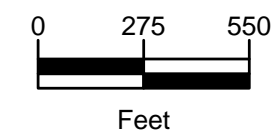
**Figure 1**  
**Topographic Map**  
Frisco & Hebron  
Texas Quadrangle  
Contour Interval = 10 Feet  
1981





**Legend**

 Sediment Sample Locations (11/2011)



**Figure 2**  
**Site Map**  
**Stewart Creek Sediment**  
**Sampling Locations**  
**November 2011**

**Sediment Sampling**  
**of Stewart Creek**

**SWG Project No. 0111278**

**Southwest**  
GEOSCIENCE



APPENDIX B

Photographs

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1.) Photo of Stewart Creek in the vicinity of sediment sample SC-SED 4.

November 18, 2011



2.) Photo of Stewart Creek in the vicinity of sediment sample SC-SED 7.

November 17, 2011





3.) Photo of Stewart Creek in the vicinity of sediment sample SC-SED 13.

November 18, 2011



4.) Photo of Stewart Creek in the vicinity of sediment sample SC-SED 19.

November 18, 2011





5.) Photo of Stewart Creek in the vicinity of sediment sample SC-SED 23.

November 18, 2011



6.) Photo of battery chips under water on top of sediment in Stewart Creek.

November 18, 2011





7.) Photo of Stewart Creek in the vicinity of sediment sample SC-SED 28.

November 18, 2011



8.) Representative photos of battery chips on a gravel deposit in Stewart Creek.

November 18, 2011



9.) Photo of potential slag observed near the Dallas North Tollway Bridge.

November 18, 2011



APPENDIX C

Table

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**TABLE 1**  
**METALS and SULFATE SEDIMENT ANALYTICAL RESULTS**  
**Stewart Creek East and West of the Dallas North Tollway**  
**Frisco, Texas**

| Sample I.D.  | Sample Date | Depth (feet) | Arsenic (mg/Kg) | Cadmium (mg/Kg) | Lead (mg/Kg) | Selenium (mg/Kg) | Sulfate (mg/Kg) |
|--|-------------|--------------|-----------------|-----------------|--------------|------------------|-----------------|
| TRRP Ecological Benchmarks for Sediment                    |             |              | 9.79            | 0.99            | 35.8         | NE               | NE              |
| TCEQ Second Effects Levels for Sediment                    |             |              | 33              | 4.98            | 128          | NE               | NE              |
| TRRP Human Health Sediment Protective Concentration Levels |             |              | 110             | 1,100           | 500          | 2,700            | NE              |
| SC-SED-1   | 11/18/11    | 0-0.5        | 11.9            | 0.61            | 38.2         | <1.09            | 39.3            |
| SC-SED-2   | 11/18/11    | 0-0.5        | 11.2            | 0.75            | 46.9         | <1.15            | 87.8            |
| SC-SED-3   | 11/18/11    | 0-0.5        | 18.6            | 2.01            | 63.8         | <1.06            | 85.5            |
| SC-SED-4   | 11/18/11    | 0-0.5        | 12.0            | 0.95            | 39.1         | <1.09            | 69.8            |
| SC-SED-5   | 11/17/11    | 0-0.5        | 14.4            | 0.90            | 397          | <1.20            | 241             |
| SC-SED-6   | 11/17/11    | 0-0.5        | 16.2            | 1.05            | 307          | <1.08            | 55.0            |
| SC-SED-7   | 11/17/11    | 0-0.5        | 16.1            | 0.54            | 35.6         | <1.07            | 60.2            |
| SC-SED-8   | 11/17/11    | 0-0.5        | 47.2            | 0.96            | 35.2         | <1.10            | 52.7            |
| SC-SED-9   | 11/17/11    | 0-0.5        | 20.5            | 4.16            | 162          | <1.06            | 43.1            |
| SC-SED-10  | 11/17/11    | 0-0.5        | 12.3            | 0.72            | 22.5         | <1.01            | 45.0            |
| SC-SED-11  | 11/17/11    | 0-0.5        | 29.4            | 1.11            | 46.8         | <1.02            | 38.2            |
| SC-SED-12  | 11/18/11    | 0-0.5        | 11.3            | 0.79            | 56.7         | <1.26            | 172             |
| SC-SED-13  | 11/18/11    | 0-0.5        | 31.1            | 0.84            | 33.7         | <1.00            | 58.3            |
| SC-SED-14  | 11/18/11    | 0-0.5        | 12.7            | 0.79            | 27.7         | <0.97            | 48.2            |
| SC-SED-15  | 11/18/11    | 0-0.5        | 12.9            | 1.54            | 35.3         | <1.01            | 58.0            |
| SC-SED-16  | 11/18/11    | 0-0.5        | 14.6            | 1.49            | 59.0         | <1.00            | 35.6            |
| SC-SED-17  | 11/18/11    | 0-0.5        | 18.3            | 1.19            | 43.1         | <0.97            | 40.2            |
| SC-SED-18  | 11/18/11    | 0-0.5        | 8.10            | 0.43            | 20.5         | <0.91            | 190             |
| SC-SED-19  | 11/18/11    | 0-0.5        | 19.5            | 1.47            | 37.6         | <1.18            | 93.0            |
| SC-SED-20  | 11/18/11    | 0-0.5        | 17.4            | 1.07            | 38.5         | <1.03            | 54.2            |
| SC-SED-21  | 11/18/11    | 0-0.5        | 18.0            | 2.19            | 49.5         | <0.96            | 31.0            |
| SC-SED-22  | 11/18/11    | 0-0.5        | 19.2            | 2.01            | 53.2         | <0.93            | 78.5            |
| SC-SED-23  | 11/18/11    | 0-0.5        | 16.1            | 3.69            | 34.2         | <1.15            | 190             |
| SC-SED-24  | 11/18/11    | 0-0.5        | 32.1            | 2.00            | 49.5         | <1.03            | 39.8            |
| SC-SED-25  | 11/18/11    | 0-0.5        | 15.1            | 1.03            | 21.6         | <1.07            | 45.0            |
| SC-SED-26  | 11/17/11    | 0-0.5        | 16.5            | 0.87            | 30.1         | <1.07            | 66.3            |
| SC-SED-27  | 11/17/11    | 0-0.5        | 14.3            | 1.09            | 31.8         | <1.00            | 54.1            |
| SC-SED-28  | 11/18/11    | 0-0.5        | 14.1            | 1.23            | 29.0         | <0.96            | 63.0            |
| SC-SED-29  | 11/18/11    | 0-0.5        | 18.2            | 1.75            | 35.9         | <1.00            | 37.2            |
| SC-SED-30  | 11/18/11    | 0-0.5        | 18.5            | 2.41            | 31.3         | <0.98            | 58.9            |

mg/Kg - milligrams/Kilogram

(j) - Denotes an estimated value between the laboratory sample detection limit (SDL) and the laboratory method detection limit (MDL).

Shading indicates a concentration above the TRRP Ecological Benchmark for Sediment

Bold and shading indicates a concentration above the TCEQ Second Effects Level

Benchmarks obtained from the TCEQ guidance document *Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised)*, dated January 2006.

< - Not detected above laboratory SDL.

N/A - Not Applicable

NE - Not Established

APPENDIX D

Laboratory Data Reports and  
Chain-of-Custody Documentation

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**Environmental Laboratories**

Bethany Tech Center • Suite 190  
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State Certifications

Arkansas: 88-0647  
Oklahoma: 8727



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Kansas: E-10388  
Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 1 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54

Attached is our analytical report for the samples received for your project. Below is a list of your individual sample descriptions with our corresponding laboratory number. We also have enclosed a copy of the Chain of Custody that was received with your samples and a form documenting the condition of your samples upon arrival. Please note any unused portion of the samples may be discarded upon expiration of the EPA holding time for the analysis performed or after 30 days from the above report date, unless you have requested otherwise.

**ERMI** Environmental Laboratories certifies that all results contained in this report were produced in accordance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) unless otherwise noted. The results presented apply to the samples analyzed in accordance with the chain-of-custody document(s) furnished with the samples. This report is intended for the sole use of the customer for whom the work was performed and must be reproduced, without modification, in its entirety.

**Sample Identification**

| <u>Laboratory ID #</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Sampled Date/Time</u> | <u>Received Date/Time</u> |
|------------------------|-------------------------|---------------|--------------------------|---------------------------|
| 1111546-01             | SC-SED 11               | Solid         | 11/17/11 14:56           | 11/18/11 17:05            |
| 1111546-02             | SC-SED 10               | Solid         | 11/17/11 15:25           | 11/18/11 17:05            |
| 1111546-03             | SC-SED 9                | Solid         | 11/17/11 15:38           | 11/18/11 17:05            |
| 1111546-04             | SC-SED 8                | Solid         | 11/17/11 15:56           | 11/18/11 17:05            |
| 1111546-05             | SC-SED 7                | Solid         | 11/17/11 16:47           | 11/18/11 17:05            |
| 1111546-06             | SC-SED 6                | Solid         | 11/17/11 17:05           | 11/18/11 17:05            |
| 1111546-07             | SC-SED 5                | Solid         | 11/17/11 17:26           | 11/18/11 17:05            |
| 1111546-08             | SC-SED 30               | Solid         | 11/18/11 10:50           | 11/18/11 17:05            |
| 1111546-09             | SC-SED 29               | Solid         | 11/18/11 11:25           | 11/18/11 17:05            |
| 1111546-10             | SC-SED 28               | Solid         | 11/18/11 11:40           | 11/18/11 17:05            |
| 1111546-11             | SC-SED 27               | Solid         | 11/18/11 13:30           | 11/18/11 17:05            |
| 1111546-12             | SC-SED 26               | Solid         | 11/18/11 13:40           | 11/18/11 17:05            |
| 1111546-13             | SC-SED 25               | Solid         | 11/18/11 14:00           | 11/18/11 17:05            |
| 1111546-14             | SC-SED 24               | Solid         | 11/18/11 14:05           | 11/18/11 17:05            |
| 1111546-15             | SC-SED 23               | Solid         | 11/18/11 15:00           | 11/18/11 17:05            |
| 1111546-16             | SC-SED 22               | Solid         | 11/18/11 15:20           | 11/18/11 17:05            |
| 1111546-17             | SC-SED 21               | Solid         | 11/18/11 15:30           | 11/18/11 17:05            |
| 1111546-18             | SC-SED 20               | Solid         | 11/18/11 15:40           | 11/18/11 17:05            |
| 1111546-19             | SC-SED 19               | Solid         | 11/18/11 15:50           | 11/18/11 17:05            |

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**Report of Sample Analysis**

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2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 2 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54

The analytical data and results contained in this report, as well as their supporting data, conform with Texas Risk Reduction Program (TRRP), 30 TAC, Section 350, requirements and are of sufficient and documented quality to meet both TRRP objectives, TCEQ regulatory guidance No. RG-366/TRRP-13 and the project-based objective of achieving the lowest method detection limit (i.e., the TRRP Critical PCL where reasonably achievable or, if not reasonably achievable, the MQL). All information concerning analytical parameters, methods and protocols that might bear upon or otherwise affect the accuracy of the analytical data in this report have been provided or otherwise disclosed herein. The data were obtained using applicable and appropriate EPA SW-846 or Texas Commission on Environmental Quality approved analytical protocols, methodologies and quality assurance/quality control standards. **ERMI Environmental Laboratories** certifies that its quality control program is substantially and materially consistent with the International Organization for Standardization "Guide 25: General Requirements the Competence of Calibration and Testing Laboratories (ISO 25 3rd Edition, 1990)," as amended or the quality standards outlined in the National Environmental Laboratory Accreditation Program, as amended. The entire analytical data package for this report, including the supporting quality control data, will be retained and maintained for at least five (5) years (or such longer period of time as may be required by TRRP) from the report date at the offices of **ERMI Environmental Laboratories, 400 W. Bethany, Suite 190, Allen, Texas 75013.**

I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Thank you for the opportunity to serve your environmental chemistry analysis needs. If you have any questions or concerns regarding this report please contact our Customer Service Department at the phone number below.

Respectfully submitted,

Kendall K. Brown  
President

**Environmental Laboratories**

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
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Page: Page 3 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54

Laboratory ID #:  
1111546-01

Sample Type  
Grab

Sample Description  
SC-SED 11

Matrix  
Solid  
Sample Date/Time  
11/17/11 1456

Sample Collected By  
Jason Minter/John  
Koehnman/Tommy Kim

Customer

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag       |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |            |
| Sulfate (Total) as SO <sub>4</sub>                  | 38.2      | 1.22  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/21/11 2207      | ANM   |            |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |            |
| % Solids  | 82        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |            |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |            |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 52.08 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |            |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |            |
| Arsenic   | 29.4      | 0.40  | 0.25  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2050      | SPS   | Q-21, R-01 |
| Cadmium   | 1.11      | 0.47  | 0.221 | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2050      | SPS   | R-01, J    |
| Lead  | 46.8      | 0.89  | 0.42  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2050      | SPS   | Q-21, R-01 |
| Selenium  | ND        | 1.02  | 0.4   | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2050      | SPS   | R-01       |

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**Report of Sample Analysis**

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-02  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 10 |                            | <u>Sample Date/Time</u><br>11/17/11 1525 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 45.0      | 1.27  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/21/11 2223      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 79        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.50 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 12.3      | 0.40  | 0.25  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2058      | SPS   | R-01    |
| Cadmium   | 0.72      | 0.47  | 0.221 | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2058      | SPS   | R-01, J |
| Lead  | 22.5      | 0.88  | 0.42  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2058      | SPS   | R-01    |
| Selenium  | ND        | 1.01  | 0.4   | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2058      | SPS   | R-01    |

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**Report of Sample Analysis**

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2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54

|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-03 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 9 |                            | <u>Sample Date/Time</u><br>11/17/11 1538 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 43.1      | 1.30  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/21/11 2240      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 77        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 51.02 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 20.5      | 0.42  | 0.25  | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2106      | SPS   | R-01 |
| Cadmium   | 4.16      | 0.49  | 0.221 | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2106      | SPS   | R-01 |
| Lead  | 162       | 0.93  | 0.42  | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2106      | SPS   | R-01 |
| Selenium  | ND        | 1.06  | 0.4   | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2106      | SPS   | R-01 |



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**Report of Sample Analysis**

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2351 W. Northwest Hwy, Suite 3321  
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|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-04 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 8 |                            | <u>Sample Date/Time</u><br>11/17/11 1556 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 52.7      | 1.36  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/21/11 2345      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 74        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.51 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 47.2      | 0.43  | 0.25  | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2134      | SPS   | R-01    |
| Cadmium   | 0.96      | 0.51  | 0.221 | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2134      | SPS   | R-01, J |
| Lead  | 35.2      | 0.96  | 0.42  | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2134      | SPS   | R-01    |
| Selenium  | ND        | 1.10  | 0.4   | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2134      | SPS   | R-01    |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
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ATTN: Liz ScaggsPage: Page 7 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
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|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-05 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 7 |                            | <u>Sample Date/Time</u><br>11/17/11 1647 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 60.2      | 1.38  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0002      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 72        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 48.54 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 16.1      | 0.42  | 0.25  | mg/kg dry | 4.85  | M4   | 1K28039 | 11/28/11 2142      | SPS   | R-01    |
| Cadmium   | 0.54      | 0.50  | 0.221 | mg/kg dry | 4.85  | M4   | 1K28039 | 11/28/11 2142      | SPS   | R-01, J |
| Lead  | 35.6      | 0.94  | 0.42  | mg/kg dry | 4.85  | M4   | 1K28039 | 11/28/11 2142      | SPS   | R-01    |
| Selenium  | ND        | 1.07  | 0.4   | mg/kg dry | 4.85  | M4   | 1K28039 | 11/28/11 2142      | SPS   | R-01    |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
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ATTN: Liz ScaggsPage: Page 8 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
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|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-06 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 6 |                            | <u>Sample Date/Time</u><br>11/17/11 1705 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 55.0      | 1.38  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0018      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 72        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.02 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 16.2      | 0.43  | 0.25  | mg/kg dry | 4.90  | M4   | 1K28039 | 11/28/11 2151      | SPS   | R-01    |
| Cadmium   | 1.05      | 0.50  | 0.221 | mg/kg dry | 4.90  | M4   | 1K28039 | 11/28/11 2151      | SPS   | R-01, J |
| Lead  | 307       | 0.95  | 0.42  | mg/kg dry | 4.90  | M4   | 1K28039 | 11/28/11 2151      | SPS   | R-01    |
| Selenium  | ND        | 1.08  | 0.4   | mg/kg dry | 4.90  | M4   | 1K28039 | 11/28/11 2151      | SPS   | R-01    |

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
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ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
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Print Date/Time: 11/29/11 16:54

|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-07 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 5 |                            | <u>Sample Date/Time</u><br>11/17/11 1726 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 241       | 1.44  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0051      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 69        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 52.08 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 14.4      | 0.47  | 0.25  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2159      | SPS   | R-01    |
| Cadmium   | 0.90      | 0.56  | 0.221 | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2159      | SPS   | R-01, J |
| Lead  | 397       | 1.05  | 0.42  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2159      | SPS   | R-01    |
| Selenium  | ND        | 1.20  | 0.4   | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2159      | SPS   | R-01    |

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Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-08  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 30 |                            | <u>Sample Date/Time</u><br>11/18/11 1050 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 58.9      | 1.23  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0107      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 81        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.50 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 18.5      | 0.39  | 0.25  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2206      | SPS   | R-01 |
| Cadmium   | 2.41      | 0.45  | 0.221 | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2206      | SPS   | R-01 |
| Lead  | 31.3      | 0.86  | 0.42  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2206      | SPS   | R-01 |
| Selenium  | ND        | 0.98  | 0.4   | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2206      | SPS   | R-01 |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
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ATTN: Liz ScaggsPage: Page 11 of 26  
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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-09  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 29 |                            | <u>Sample Date/Time</u><br>11/18/11 1125 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 37.2      | 1.25  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0124      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 80        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.00 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 18.2      | 0.39  | 0.25  | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2214      | SPS   | R-01 |
| Cadmium   | 1.75      | 0.46  | 0.221 | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2214      | SPS   | R-01 |
| Lead  | 35.9      | 0.87  | 0.42  | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2214      | SPS   | R-01 |
| Selenium  | ND        | 1.00  | 0.4   | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2214      | SPS   | R-01 |

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**Report of Sample Analysis**

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-10  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 28 |                            | <u>Sample Date/Time</u><br>11/18/11 1140 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 63.0      | 1.22  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0156      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 82        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.50 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 14.1      | 0.38  | 0.25  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2222      | SPS   | R-01    |
| Cadmium   | 1.23      | 0.45  | 0.221 | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2222      | SPS   | R-01, J |
| Lead  | 29.0      | 0.84  | 0.42  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2222      | SPS   | R-01    |
| Selenium  | ND        | 0.96  | 0.4   | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2222      | SPS   | R-01    |

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**Report of Sample Analysis**

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-11  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 27 |                            | <u>Sample Date/Time</u><br>11/18/11 1330 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag                |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------------------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |                     |
| Sulfate (Total) as SO <sub>4</sub>                  | 54.1      | 1.22  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0213      | ANM   |                     |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |                     |
| % Solids  | 82        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |                     |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |                     |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 51.02 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |                     |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |                     |
| Arsenic   | 14.3      | 0.39  | 0.25  | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2230      | SPS   | Q-20, Q-22,<br>R-01 |
| Cadmium   | 1.09      | 0.46  | 0.221 | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2230      | SPS   | R-01, J             |
| Lead  | 31.8      | 0.87  | 0.42  | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2230      | SPS   | Q-21, Q-22,<br>R-01 |
| Selenium  | ND        | 1.00  | 0.4   | mg/kg dry | 5.10  | M4   | 1K28039 | 11/28/11 2230      | SPS   | R-01                |



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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-12  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 26 |                            | <u>Sample Date/Time</u><br>11/18/11 1340 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 66.3      | 1.33  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0229      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 75        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.51 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 16.5      | 0.42  | 0.25  | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2238      | SPS   | R-01    |
| Cadmium   | 0.87      | 0.50  | 0.221 | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2238      | SPS   | R-01, J |
| Lead  | 30.1      | 0.94  | 0.42  | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2238      | SPS   | R-01    |
| Selenium  | ND        | 1.07  | 0.4   | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2238      | SPS   | R-01    |

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**Report of Sample Analysis**

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-13  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 25 |                            | <u>Sample Date/Time</u><br>11/18/11 1400 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 45.0      | 1.28  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0335      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 78        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 52.08 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 15.1      | 0.42  | 0.25  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2246      | SPS   | R-01    |
| Cadmium   | 1.03      | 0.49  | 0.221 | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2246      | SPS   | R-01, J |
| Lead  | 21.6      | 0.93  | 0.42  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2246      | SPS   | R-01    |
| Selenium  | ND        | 1.07  | 0.4   | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2246      | SPS   | R-01    |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-14  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 24 |                            | <u>Sample Date/Time</u><br>11/18/11 1405 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 39.8      | 1.25  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0351      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 80        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 51.55 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 32.1      | 0.41  | 0.25  | mg/kg dry | 5.15  | M4   | 1K28039 | 11/28/11 2315      | SPS   | R-01 |
| Cadmium   | 2.00      | 0.48  | 0.221 | mg/kg dry | 5.15  | M4   | 1K28039 | 11/28/11 2315      | SPS   | R-01 |
| Lead  | 49.5      | 0.90  | 0.42  | mg/kg dry | 5.15  | M4   | 1K28039 | 11/28/11 2315      | SPS   | R-01 |
| Selenium  | ND        | 1.03  | 0.4   | mg/kg dry | 5.15  | M4   | 1K28039 | 11/28/11 2315      | SPS   | R-01 |

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-15  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 23 |                            | <u>Sample Date/Time</u><br>11/18/11 1500 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 190       | 1.38  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0408      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 73        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 52.08 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 16.1      | 0.45  | 0.25  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2330      | SPS   | R-01 |
| Cadmium   | 3.69      | 0.53  | 0.221 | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2330      | SPS   | R-01 |
| Lead  | 34.2      | 1.00  | 0.42  | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2330      | SPS   | R-01 |
| Selenium  | ND        | 1.15  | 0.4   | mg/kg dry | 5.21  | M4   | 1K28039 | 11/28/11 2330      | SPS   | R-01 |

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Oklahoma: 8727



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Kansas: E-10388  
Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-16  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 22 |                            | <u>Sample Date/Time</u><br>11/18/11 1520 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 78.5      | 1.18  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0440      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 85        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.50 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 19.2      | 0.37  | 0.25  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2337      | SPS   | R-01 |
| Cadmium   | 2.01      | 0.43  | 0.221 | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2337      | SPS   | R-01 |
| Lead  | 53.2      | 0.82  | 0.42  | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2337      | SPS   | R-01 |
| Selenium  | ND        | 0.93  | 0.4   | mg/kg dry | 4.95  | M4   | 1K28039 | 11/28/11 2337      | SPS   | R-01 |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 19 of 26  
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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-17  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 21 |                            | <u>Sample Date/Time</u><br>11/18/11 1530 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 31.0      | 1.19  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0457      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 84        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.51 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 18.0      | 0.38  | 0.25  | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2346      | SPS   | R-01 |
| Cadmium   | 2.19      | 0.44  | 0.221 | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2346      | SPS   | R-01 |
| Lead  | 49.5      | 0.84  | 0.42  | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2346      | SPS   | R-01 |
| Selenium  | ND        | 0.96  | 0.4   | mg/kg dry | 5.05  | M4   | 1K28039 | 11/28/11 2346      | SPS   | R-01 |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-18  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 20 |                            | <u>Sample Date/Time</u><br>11/18/11 1540 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 54.2      | 1.29  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0513      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 77        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.00 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 17.4      | 0.41  | 0.25  | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2354      | SPS   | R-01    |
| Cadmium   | 1.07      | 0.48  | 0.221 | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2354      | SPS   | R-01, J |
| Lead  | 38.5      | 0.91  | 0.42  | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2354      | SPS   | R-01    |
| Selenium  | ND        | 1.03  | 0.4   | mg/kg dry | 5.00  | M4   | 1K28039 | 11/28/11 2354      | SPS   | R-01    |

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|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111546-19  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 19 |                            | <u>Sample Date/Time</u><br>11/18/11 1550 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 93.0      | 1.47  | 1     | mg/kg dry | 1.00  | I2   | 1K21052 | 11/22/11 0546      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 68        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22006 | 11/22/11 1125      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.00 | DB1  | 1K28039 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 19.5      | 0.46  | 0.25  | mg/kg dry | 5.00  | M4   | 1K28039 | 11/29/11 0002      | SPS   | R-01    |
| Cadmium   | 1.47      | 0.55  | 0.221 | mg/kg dry | 5.00  | M4   | 1K28039 | 11/29/11 0002      | SPS   | R-01, J |
| Lead  | 37.6      | 1.03  | 0.42  | mg/kg dry | 5.00  | M4   | 1K28039 | 11/29/11 0002      | SPS   | R-01    |
| Selenium  | ND        | 1.18  | 0.4   | mg/kg dry | 5.00  | M4   | 1K28039 | 11/29/11 0002      | SPS   | R-01    |



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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
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ATTN: Liz ScaggsPage: Page 22 of 26  
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Project #: 0111278  
Print Date/Time: 11/29/11 16:54**Conventional Chemistry Parameters - Quality Control**

| Analyte(s)  | Result | *SDI  | Units     | Spike Level | Source Result      | %REC | %REC Limits | RPD | RPD Limit | Flag |
|---|--------|-------|-----------|-------------|--------------------|------|-------------|-----|-----------|------|
| <b>Blank (1K21052-BLK1)</b>                               |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/21/11 20:12         |        |       |           |             |                    |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | ND     | 1.00  | mg/kg wet |             |                    |      |             |     |           |      |
| <b>Laboratory Control Sample (1K21052-BS1)</b>            |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/21/11 20:28         |        |       |           |             |                    |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 48.4   | 1.00  | mg/kg wet | 50.0        |                    | 97   | 90-110      |     |           |      |
| <b>Laboratory Control Sample Duplicate (1K21052-BSD1)</b> |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/21/11 20:45         |        |       |           |             |                    |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 48.2   | 1.00  | mg/kg wet | 50.0        |                    | 96   | 90-110      | 0.4 | 20        |      |
| <b>Matrix Spike (1K21052-MS1) 1X</b>                      |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/21/11 21:01         |        |       |           |             |                    |      |             |     |           |      |
|   |        |       |           |             | Source: 1111493-01 |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 15900  | 101   | mg/kg dry | 5050        | 11000              | 96   | 90-110      |     |           |      |
| <b>Matrix Spike (1K21052-MS2) 1X</b>                      |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/22/11 06:02         |        |       |           |             |                    |      |             |     |           |      |
|   |        |       |           |             | Source: 1111546-11 |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 117    | 1.36  | mg/kg dry | 68.0        | 54.1               | 92   | 90-110      |     |           |      |
| <b>Matrix Spike Duplicate (1K21052-MSD1) 1X</b>           |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/21/11 21:18         |        |       |           |             |                    |      |             |     |           |      |
|   |        |       |           |             | Source: 1111493-01 |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 15900  | 101   | mg/kg dry | 5050        | 11000              | 97   | 90-110      | 0.1 | 20        |      |
| <b>Matrix Spike Duplicate (1K21052-MSD2) 1X</b>           |        |       |           |             |                    |      |             |     |           |      |
| Prepared: 11/21/11 09:13 Analyzed: 11/22/11 06:19         |        |       |           |             |                    |      |             |     |           |      |
|   |        |       |           |             | Source: 1111546-11 |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 119    | 1.36  | mg/kg dry | 68.0        | 54.1               | 95   | 90-110      | 2   | 20        |      |
| <b>Blank (1K22006-BLK1)</b>                               |        |       |           |             |                    |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 11:25                       |        |       |           |             |                    |      |             |     |           |      |
| % Solids  | ND     | 0.040 | %         |             |                    |      |             |     |           |      |

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**Report of Sample Analysis**

Southwest Geoscience  
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**Conventional Chemistry Parameters - Quality Control**

| Analyte(s)                          | Result | *SDI  | Units | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag |
|-------------------------------------|--------|-------|-------|-------------|---------------------------|------|-------------|-----|-----------|------|
| <b>Duplicate (1K22006-DUP1)</b>     |        |       |       |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 11:25 |        |       |       |             | <b>Source: 1111546-01</b> |      |             |     |           |      |
| % Solids                            | 77     | 0.040 | %     |             | 82                        |      |             | 6   | 7         |      |
| <b>Duplicate (1K22006-DUP2)</b>     |        |       |       |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 11:25 |        |       |       |             | <b>Source: 1111546-11</b> |      |             |     |           |      |
| % Solids                            | 79     | 0.040 | %     |             | 82                        |      |             | 3   | 7         |      |

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| Analyte(s)  | Result    | *SDI | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag       |
|---|-----------|------|-----------|-------------|---------------|------|-------------|-----|-----------|------------|
| <b>Blank (1K28039-BLK1)</b>                               |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      |             |     |           |            |
| Arsenic   | ND        | 0.06 | mg/kg wet |             |               |      |             |     |           |            |
| Cadmium   | ND        | 0.07 | mg/kg wet |             |               |      |             |     |           |            |
| Lead  | ND        | 0.14 | mg/kg wet |             |               |      |             |     |           |            |
| Selenium  | ND        | 0.16 | mg/kg wet |             |               |      |             |     |           |            |
| <b>Laboratory Control Sample (1K28039-BS1)</b>            |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      | 0-0         |     |           |            |
| Arsenic   | 23.0      | 0.06 | mg/kg wet | 24.5        |               | 94   | 80-120      |     |           |            |
| Cadmium   | 23.9      | 0.07 | mg/kg wet | 24.5        |               | 97   | 80-120      |     |           |            |
| Lead  | 22.0      | 0.14 | mg/kg wet | 24.5        |               | 90   | 80-120      |     |           |            |
| Selenium  | 44.3      | 0.16 | mg/kg wet | 49.0        |               | 90   | 80-120      |     |           |            |
| <b>Laboratory Control Sample Duplicate (1K28039-BSD1)</b> |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      | 0-0         |     | 0         |            |
| Arsenic   | 23.9      | 0.06 | mg/kg wet | 25.0        |               | 96   | 80-120      | 4   | 20        |            |
| Cadmium   | 24.9      | 0.07 | mg/kg wet | 25.0        |               | 100  | 80-120      | 4   | 20        |            |
| Lead  | 23.1      | 0.14 | mg/kg wet | 25.0        |               | 92   | 80-120      | 5   | 20        |            |
| Selenium  | 46.4      | 0.16 | mg/kg wet | 50.0        |               | 93   | 80-120      | 5   | 20        |            |
| <b>Matrix Spike (1K28039-MS1)</b>                         |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             | ND            |      | 0-0         |     |           |            |
| Arsenic   | 41.8      | 0.78 | mg/kg dry | 30.8        | 29.4          | 40   | 75-125      |     |           | R-01, Q-02 |
| Cadmium   | 28.9      | 0.91 | mg/kg dry | 30.8        | 1.11          | 90   | 75-125      |     |           | R-01       |
| Lead  | 67.0      | 1.73 | mg/kg dry | 30.8        | 46.8          | 65   | 75-125      |     |           | Q-02, R-01 |
| Selenium  | 48.2      | 1.97 | mg/kg dry | 61.7        | ND            | 78   | 75-125      |     |           | R-01       |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
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ATTN: Liz ScaggsPage: Page 25 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54**Metals (Total) - Quality Control**

| Analyte(s)                                   | Result    | *SDI | Units     | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag             |
|--|-----------|------|-----------|-------------|---------------------------|------|-------------|-----|-----------|------------------|
| <b>Matrix Spike (1K28039-MS2)</b>            |           |      |           |             |                           |      |             |     |           |                  |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111546-11</b> |      |             |     |           |                  |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     |           |                  |
| Arsenic                                      | 40.0      | 0.76 | mg/kg dry | 30.0        | 14.3                      | 86   | 75-125      |     |           | R-01             |
| Cadmium                                      | 29.6      | 0.89 | mg/kg dry | 30.0        | 1.09                      | 95   | 75-125      |     |           | R-01             |
| Lead   | 51.2      | 1.68 | mg/kg dry | 30.0        | 31.8                      | 65   | 75-125      |     |           | Q-02, R-01       |
| Selenium                                     | 52.6      | 1.92 | mg/kg dry | 60.0        | ND                        | 88   | 75-125      |     |           | R-01             |
| <b>Matrix Spike Duplicate (1K28039-MSD1)</b> |           |      |           |             |                           |      |             |     |           |                  |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111546-01</b> |      |             |     |           |                  |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     | 0         |                  |
| Arsenic                                      | 42.3      | 0.79 | mg/kg dry | 31.5        | 29.4                      | 41   | 75-125      | 1   | 20        | Q-02, R-01       |
| Cadmium                                      | 33.5      | 0.93 | mg/kg dry | 31.5        | 1.11                      | 103  | 75-125      | 15  | 20        | R-01             |
| Lead   | 63.9      | 1.76 | mg/kg dry | 31.5        | 46.8                      | 54   | 75-125      | 5   | 20        | Q-02, R-01       |
| Selenium                                     | 58.0      | 2.01 | mg/kg dry | 62.9        | ND                        | 92   | 75-125      | 18  | 20        | R-01             |
| <b>Matrix Spike Duplicate (1K28039-MSD2)</b> |           |      |           |             |                           |      |             |     |           |                  |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111546-11</b> |      |             |     |           |                  |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     | 0         |                  |
| Arsenic                                      | 57.1      | 0.74 | mg/kg dry | 29.4        | 14.3                      | 145  | 75-125      | 35  | 20        | Q-02, Q-04, R-01 |
| Cadmium                                      | 32.1      | 0.87 | mg/kg dry | 29.4        | 1.09                      | 105  | 75-125      | 8   | 20        | R-01             |
| Lead   | 65.4      | 1.65 | mg/kg dry | 29.4        | 31.8                      | 114  | 75-125      | 24  | 20        | Q-04, R-01       |
| Selenium                                     | 53.0      | 1.88 | mg/kg dry | 58.8        | ND                        | 90   | 75-125      | 0.8 | 20        | R-01             |

**Environmental Laboratories**Bethany Tech Center • Suite 190  
400 W. Bethany Rd. • Allen, Texas 75013State CertificationsArkansas: 88-0647  
Oklahoma: 8727Louisiana: 02007  
Kansas: E-10388  
Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 26 of 26  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/29/11 16:54**Notes and Definitions**

The results presented in this report were generated using those methods given in 40 CFR Part 136 for Water and Wastewater samples and in SW-846 for RCRA/Solid Waste samples.

|          |   |
|----------|---|
| J        | This value is above the method detection limit but below the reporting limit.   |
| Q-02     | The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range. |
| Q-04     | The RPD of this analyte between the MS(s) was outside of the acceptable range. The RPD of this same analyte between the LCS(s) was within the acceptable range.   |
| Q-20     | The recovery of this analyte in the MS was higher than the acceptable range. This indicates a high bias to the result presented.  |
| Q-21     | The recovery of this analyte in the MS was lower than the acceptable range. This indicates a low bias to the result presented.  |
| Q-22     | The RPD between the MS(s) sample analyses was outside the acceptable range. This indicates the result was not as precise as expected.   |
| R-01     | The higher reporting limit is due to dilutions required for analysis as a result of a high concentration of target and/or non-target parameters in this sample.   |
| ND       | Analyte NOT DETECTED at or above the reporting limit  |
| dry      | Sample results reported on a dry weight basis   |
| LCS/LCSD | Laboratory Control Sample/Laboratory Control Sample Duplicate   |
| MS/MSD   | Matrix Spike/Matrix Spike Duplicate   |
| RPD      | Relative Percent Difference   |
| mg/kg    | milligrams per kilogram   |
| mg/l     | milligrams per liter  |
| ug/kg    | micrograms per kilogram   |
| ug/l     | micrograms per liter  |
| exc      | Not covered under scope of NELAP accreditation.   |
| F*       | Calculated factor rounded to 3 significant figures. Concentration factor when <1.00 and dilution factor when >1.00.   |
| Inst     | Instrument Identification   |
| Anlst    | Analyst Initials  |
| SDL      | Sample Detection Limit  |
| MQL      | Method Quantitation Limit   |
| naa      | This analysis/parameter is not accreditable under the current NELAP program   |

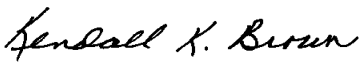
# Laboratory Data Package Cover Page

This data package for Laboratory Job Number 1111546 consists of:

- ☒ This signature page, the laboratory review checklist, and the following reportable data:
- ☒ **R1** Field chain-of-custody documentation;
- ☒ **R2** Sample identification cross-reference;
- ☒ **R3** Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ **R4** Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ **R5** Test reports/summary forms for blank samples;
- ☒ **R6** Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- ☒ **R7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ **R8** Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ **R9** List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- ☒ **R10** Other problems or anomalies.
- ☒ The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

**Release Statement:** I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:** [ ] This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

|                  |   |                          |          |
|------------------|---|--------------------------|----------|
| Kendall K. Brown |  | President                | 11/29/11 |
| Name (Printed)   | Signature   | Official Title (Printed) | Date     |



Laboratory Review Checklist: Reportable Data

|                         |                |  |     |                               |                 |                                |                  |
|-------------------------|----------------|--|-----|-------------------------------|-----------------|--------------------------------|------------------|
| <b>Laboratory Name:</b> |                | <b>ERM Environmental Laboratories</b>  |     | <b>LRC Date:</b>              |                 | <b>11/29/11</b>                |                  |
| <b>Project Name:</b>    |                | <b>SC Sediment Sampling</b>  |     | <b>Laboratory Job Number:</b> |                 | <b>1111546</b>                 |                  |
| <b>Reviewer Name:</b>   |                | <b>Leslie Underwood</b>  |     | <b>Prep Batch Number(s):</b>  |                 | <b>1K21052,1K22006,1K28039</b> |                  |
| # <sup>1</sup>          | A <sup>2</sup> | Description  | Yes | No                            | NA <sup>3</sup> | NR <sup>4</sup>                | ER# <sup>5</sup> |
| R1                      | OI             | <b>Chain-of-custody (C-O-C)</b>  |     |                               |                 |                                |                  |
|                         |                | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?                                      | X   |                               |                 |                                |                  |
|                         |                | Were all departures from standard conditions described in an exception report?   | X   |                               |                 |                                |                  |
| R2                      | OI             | <b>Sample and quality control (QC) identification</b>  |     |                               |                 |                                |                  |
|                         |                | Are all field sample ID numbers cross-referenced to the laboratory ID numbers?   | X   |                               |                 |                                |                  |
|                         |                | Are all laboratory ID numbers cross-referenced to the corresponding QC data?   | X   |                               |                 |                                |                  |
| R3                      | OI             | <b>Test reports</b>  |     |                               |                 |                                |                  |
|                         |                | Were all samples prepared and analyzed within holding times?   | X   |                               |                 |                                |                  |
|                         |                | Other than those results < MQL, were all other raw values bracketed by calibration standards?                                    | X   |                               |                 |                                |                  |
|                         |                | Were calculations checked by a peer or supervisor?   | X   |                               |                 |                                |                  |
|                         |                | Were all analyte identifications checked by a peer or supervisor?  | X   |                               |                 |                                |                  |
|                         |                | Were sample quantitation limits reported for all analytes not detected?  | X   |                               |                 |                                |                  |
|                         |                | Were all results for soil and sediment samples reported on a dry weight basis?   | X   |                               |                 |                                |                  |
|                         |                | Were % moisture (or solids) reported for all soil and sediment samples?  | X   |                               |                 |                                |                  |
|                         |                | If required for the project, TICs reported?  |     |                               | X               |                                |                  |
| R4                      | O              | <b>Surrogate recovery data</b>   |     |                               |                 |                                |                  |
|                         |                | Were surrogates added prior to extraction?   |     |                               | X               |                                |                  |
|                         |                | Were surrogate percent recoveries in all samples within the laboratory QC limits?  |     |                               | X               |                                |                  |
| R5                      | OI             | <b>Test reports/summary forms for blank samples</b>  |     |                               |                 |                                |                  |
|                         |                | Were appropriate type(s) of blanks analyzed?   | X   |                               |                 |                                |                  |
|                         |                | Were blanks analyzed at the appropriate frequency?   | X   |                               |                 |                                |                  |
|                         |                | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?    | X   |                               |                 |                                |                  |
|                         |                | Were blank concentrations < MQL?   | X   |                               |                 |                                |                  |
| R6                      | OI             | <b>Laboratory control samples (LCS):</b>   |     |                               |                 |                                |                  |
|                         |                | Were all COCs included in the LCS?   | X   |                               |                 |                                |                  |
|                         |                | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?                                    | X   |                               |                 |                                |                  |
|                         |                | Were LCSs analyzed at the required frequency?  | X   |                               |                 |                                |                  |
|                         |                | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?  | X   |                               |                 |                                |                  |
|                         |                | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?       | X   |                               |                 |                                |                  |
|                         |                | Was the LCSD RPD within QC limits?   | X   |                               |                 |                                |                  |
| R7                      | OI             | <b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>   |     |                               |                 |                                |                  |
|                         |                | Were the project/method specified analytes included in the MS and MSD?   | X   |                               |                 |                                |                  |
|                         |                | Were MS/MSD analyzed at the appropriate frequency?   | X   |                               |                 |                                |                  |
|                         |                | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?  |     | X                             |                 |                                | E001             |
|                         |                | Were MS/MSD RPDs within laboratory QC limits?  |     | X                             |                 |                                | E002             |
| R8                      | OI             | <b>Analytical duplicate data</b>   |     |                               |                 |                                |                  |
|                         |                | Were appropriate analytical duplicates analyzed for each matrix?   | X   |                               |                 |                                |                  |
|                         |                | Were analytical duplicates analyzed at the appropriate frequency?  | X   |                               |                 |                                |                  |
|                         |                | Were RPDs or relative standard deviations within the laboratory QC limits?   | X   |                               |                 |                                |                  |
| R9                      | OI             | <b>Method quantitation limits (MQLs):</b>  |     |                               |                 |                                |                  |
|                         |                | Are the MQLs for each method analyte included in the laboratory data package?  | X   |                               |                 |                                |                  |
|                         |                | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?   | X   |                               |                 |                                |                  |
|                         |                | Are unadjusted MQLs included in the laboratory data package?   | X   |                               |                 |                                |                  |
| R10                     | OI             | <b>Other problems/anomalies</b>  |     |                               |                 |                                |                  |
|                         |                | Are all known problems/anomalies/special conditions noted in this LRC and ER?  | X   |                               |                 |                                |                  |
|                         |                | Were all necessary corrective actions performed for the reported data?   | X   |                               |                 |                                |                  |
|                         |                | Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results? | X   |                               |                 |                                |                  |

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).



**Laboratory Review Checklist: Reportable Data**

| <b>Laboratory Name:</b> |                | <b>ERMI Environmental Laboratories</b>   | <b>LRC Date:</b>             |    | <b>11/29/11</b>                |                 |                  |  |  |
|-------------------------|----------------|--|------------------------------|----|--------------------------------|-----------------|------------------|--|--|
| <b>Project Name:</b>    |                | <b>SC Sediment Sampling</b>  | <b>Laboratory Job</b>        |    | <b>1111546</b>                 |                 |                  |  |  |
| <b>Reviewer Name:</b>   |                | <b>Leslie Underwood</b>  | <b>Prep Batch Number(s):</b> |    | <b>1K21052,1K22006,1K28039</b> |                 |                  |  |  |
| # <sup>1</sup>          | A <sup>2</sup> | Description  | Yes                          | No | NA <sup>3</sup>                | NR <sup>4</sup> | ER# <sup>5</sup> |  |  |
| <b>S1</b>               | <b>OI</b>      | <b>Initial calibration (ICAL)</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were response factors and/or relative response factors for each analyte within QC limits?              | X                            |    |                                |                 |                  |  |  |
|                         |                | Were percent RSDs or correlation coefficient criteria met?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the number of standards recommended in the method used for all analytes?                           | X                            |    |                                |                 |                  |  |  |
|                         |                | Were all points generated between the lowest and highest standard used to calculate the curve?         | X                            |    |                                |                 |                  |  |  |
|                         |                | Are ICAL data available for all instruments used?  | X                            |    |                                |                 |                  |  |  |
|                         |                | Has the initial calibration curve been verified using an appropriate second source standard?           | X                            |    |                                |                 |                  |  |  |
| <b>S2</b>               | <b>OI</b>      | <b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration</b>       |                              |    |                                |                 |                  |  |  |
|                         |                | Was the CCV analyzed at the method-required frequency?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Were percent differences for each analyte within the method-required QC limits?                        | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the ICAL curve verified for each analyte?  | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the absolute value of the analyte concentration in the inorganic CCB < MDL?                        | X                            |    |                                |                 |                  |  |  |
| <b>S3</b>               | <b>O</b>       | <b>Mass spectral tuning:</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was the appropriate compound for the method used for tuning?   |                              |    | X                              |                 |                  |  |  |
|                         |                | Were ion abundance data within the method-required QC limits?  |                              |    | X                              |                 |                  |  |  |
| <b>S4</b>               | <b>O</b>       | <b>Internal standards (IS):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were IS area counts and retention times within the method-required QC limits?                          |                              |    | X                              |                 |                  |  |  |
| <b>S5</b>               | <b>OI</b>      | <b>Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section</b>        |                              |    |                                |                 |                  |  |  |
|                         |                | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?                  | X                            |    |                                |                 |                  |  |  |
|                         |                | Were data associated with manual integrations flagged on the raw data?                                 | X                            |    |                                |                 |                  |  |  |
| <b>S6</b>               | <b>O</b>       | <b>Dual column confirmation</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Did dual column confirmation results meet the method-required QC?                                      |                              |    | X                              |                 |                  |  |  |
| <b>S7</b>               | <b>O</b>       | <b>Tentatively identified compounds (TICs):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?              |                              |    | X                              |                 |                  |  |  |
| <b>S8</b>               | <b>I</b>       | <b>Interference Check Sample (ICS) results:</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were percent recoveries within method QC limits?   | X                            |    |                                |                 |                  |  |  |
| <b>S9</b>               | <b>I</b>       | <b>Serial dilutions, post digestion spikes, and method of standard additions</b>                       |                              |    |                                |                 |                  |  |  |
|                         |                | Were percent differences, recoveries, and the linearity within the QC limits specified in the method?  | X                            |    |                                |                 |                  |  |  |
| <b>S10</b>              | <b>OI</b>      | <b>Method detection limit (MDL) studies</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Was a MDL study performed for each reported analyte?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Is the MDL either adjusted or supported by the analysis of DCSs?                                       | X                            |    |                                |                 |                  |  |  |
| <b>S11</b>              | <b>OI</b>      | <b>Proficiency test reports:</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | X                            |    |                                |                 |                  |  |  |
| <b>S12</b>              | <b>OI</b>      | <b>Standards documentation</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?      | X                            |    |                                |                 |                  |  |  |
| <b>S13</b>              | <b>OI</b>      | <b>Compound/analyte identification procedures</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Are the procedures for compound/analyte identification documented?                                     | X                            |    |                                |                 |                  |  |  |
| <b>S14</b>              | <b>OI</b>      | <b>Demonstration of analyst competency (DOC)</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?                                       | X                            |    |                                |                 |                  |  |  |
|                         |                | Is documentation of the analyst's competency up-to-date and on file?                                   | X                            |    |                                |                 |                  |  |  |
| <b>S15</b>              | <b>OI</b>      | <b>Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)</b>     |                              |    |                                |                 |                  |  |  |
|                         |                | Are all the methods used to generate the data documented, verified, and validated, where applicable?   | X                            |    |                                |                 |                  |  |  |
| <b>S16</b>              | <b>OI</b>      | <b>Laboratory standard operating procedures (SOPs):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Are laboratory SOPs current and on file for each method performed?                                     | X                            |    |                                |                 |                  |  |  |

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).




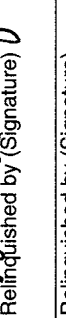
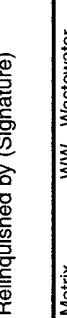
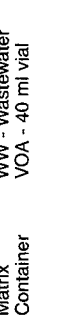




**Laboratory Review Checklist: Exception Reports**

|                         |   |                              |                                |
|-------------------------|---|------------------------------|--------------------------------|
| <b>Laboratory Name:</b> | <b>ERM Environmental Laboratories</b>   | <b>LRC Date:</b>             | <b>11/29/11</b>                |
| <b>Project Name:</b>    | <b>SC Sediment Sampling</b>   | <b>Laboratory Job</b>        | <b>1111546</b>                 |
| <b>Reviewer Name:</b>   | <b>Leslie Underwood</b>   | <b>Prep Batch Number(s):</b> | <b>1K21052,1K22006,1K28039</b> |
| <b>ER#<sup>1</sup></b>  | <b>Description</b>  |                              |                                |
| E001                    | <p>Matrix Spike Recovery for Arsenic (40%) was outside acceptance limits (75-125) in 1K28039-MS1 for As Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a low bias to the result presented for the source sample (1111546-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Lead (65%) was outside acceptance limits (75-125) in 1K28039-MS1 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a low bias to the result presented for the source sample (1111546-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Lead (65%) was outside acceptance limits (75-125) in 1K28039-MS2 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a low bias to the result presented for the source sample (1111546-11) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Arsenic (41%) was outside acceptance limits (75-125) in 1K28039-MSD1 for As Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a low bias to the result presented for the source sample (1111546-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Lead (54%) was outside acceptance limits (75-125) in 1K28039-MSD1 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a low bias to the result presented for the source sample (1111546-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Arsenic (145%) was outside acceptance limits (75-125) in 1K28039-MSD2 for As Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a high bias to the result presented for the source sample (1111546-11) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> |                              |                                |
| E002                    | <p>Matrix Spike Duplicate RPD for Arsenic (35%) was above the acceptance limit (20) in 1K28039-MSD2 for As Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The RPD of this analyte between the MS(s) was outside of the acceptable range. This indicates the result was not as precise as expected for the source sample (1111546-11) reported from this batch. The RPD of this same analyte between the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Duplicate RPD for Lead (24%) was above the acceptance limit (20) in 1K28039-MSD2 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The RPD of this analyte between the MS(s) was outside of the acceptable range. This indicates the result was not as precise as expected for the source sample (1111546-11) reported from this batch. The RPD of this same analyte between the LCS(s) was within the acceptable range.</li> </ul>  |                              |                                |

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

| <h1 style="margin:0;">Southwest</h1> <h2 style="margin:0;">GEOSCIENCE</h2> <p style="margin:0;">Environmental &amp; Hydrogeologic Consultants</p>                  |                                     | Laboratory: <u>ERMI</u>  |   | ANALYSIS REQUESTED                                  |                                | Lab use only<br>Due Date:                   |                    |         |              |           |     |           |
|--|-------------------------------------|--|---|---|--------------------------------|---|--------------------|---------|--------------|-----------|-----|-----------|
|  |                                     | Address: _____   |   |   |                                |   |                    |         |              |           |     |           |
| Office Location <u>DALLAS, TX</u>  |                                     | Contact: _____   |   | Temp. of coolers when received (C°):<br><u>FR-9</u> |                                | Page <u>1</u> of <u>2</u>                   |                    |         |              |           |     |           |
| Project Manager <u>LIZ SCAGGS</u>  |                                     | Phone: <u>972-777-1123</u>   |   |   |                                |   |                    |         |              |           |     |           |
| Sampler's Name<br><u>JASON MYSTER/TIMOTHY KIM</u>  |                                     | Sampler's Signature<br> |   | No/Type of Containers                               |                                | Lab Sample ID (Lab Use Only)                |                    |         |              |           |     |           |
| Project Name<br><u>SC SEDIMENT SAMPLING</u>  |                                     | Project No.<br><u>0111278</u>  |   |   |                                |   |                    |         |              |           |     |           |
| Matrix   | Date                                | Time   | G<br>C<br>o<br>m<br>p                   | G<br>a<br>b   | Identifying Marks of Sample(s) | Depth<br>in<br>Soil                         | Depth<br>in<br>Bag | VOA     | A/G<br>1 Lt. | 250<br>ml | P/O |           |
| S  | 11/17/11                            | 1456   |   | X   | SC-SED 11                      | 0   | 6                  |         |              |           | 1   | 111546.01 |
| S  | 11/17/11                            | 1525   |   | X   | SC-SED 10                      | 0   | 6                  |         |              |           | 1   | 111546.02 |
| S  | 11/17/11                            | 1538   |   | X   | SC-SED 9                       | 0   | 6                  |         |              |           | 1   | 111546.03 |
| S  | 11/17/11                            | 1556   |   | X   | SC-SED 8                       | 0   | 6                  |         |              |           | 1   | 111546.04 |
| S  | 11/17/11                            | 1647   |   | X   | SC-SED 7                       | 0   | 6                  |         |              |           | 1   | 111546.05 |
| S  | 11/17/11                            | 1705   |   | X   | SC-SED 6                       | 0   | 6                  |         |              |           | 1   | 111546.06 |
| S  | 11/17/11                            | 1726   |   | X   | SC-SED 5                       | 0   | 6                  |         |              |           | 1   | 111546.07 |
| S  | 11/18/11                            | 1050   |   | X   | SC-SED 30                      | 0   | 6                  |         |              |           | 1   | 111546.08 |
| S  | 11/18/11                            | 1125   |   | X   | SC-SED 29                      | 0   | 6                  |         |              |           | 1   | 111546.09 |
| S  | 11/18/11                            | 1149   |   | X   | SC-SED 28                      | 0   | 6                  |         |              |           | 1   | 111546.10 |
| Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush |                                     |  |   |   |                                |   |                    |         |              |           |     |           |
| Relinquished by (Signature)<br>   |                                     |  | Date: <u>11/18/11</u>                   |   |                                | Time: <u>1620</u>                           |                    |         | NOTES:       |           |     |           |
| Relinquished by (Signature)<br>   |                                     |  | Date: <u>11/18/11</u>                   |   |                                | Time: <u>1705</u>                           |                    |         |              |           |     |           |
| Relinquished by (Signature)<br>   |                                     |  | Date: _____                             |   |                                | Time: _____                                 |                    |         |              |           |     |           |
| Relinquished by (Signature)<br>   |                                     |  | Date: _____                             |   |                                | Time: _____                                 |                    |         |              |           |     |           |
| Relinquished by (Signature)<br>   |                                     |  | Date: _____                             |   |                                | Time: _____                                 |                    |         |              |           |     |           |
| Matrix Container   | WW - Wastewater<br>VOA - 40 ml vial | S - Soil<br>A/G - Amber / Or Glass 1 Liter   | SD - Solid<br>250 ml - Glass wide mouth | L - Liquid<br>250 ml - Glass wide mouth             | A - Air Bag                    | C - Charcoal tube<br>P/O - Plastic or other | SL - Sludge        | O - Oil |              |           |     |           |

| <h1 style="margin: 0;">Southwest</h1> <p><b>GEO SCIENCE</b></p> Environmental & Hydrogeologic Consultants |          | Laboratory: <u>ERM I</u><br>Address:<br><br>Contact:<br><br>Phone: <u>972-27-1123</u><br>PO/SO #:   |         | ANALYSIS REQUESTED<br><br><br><u>As Pb Se Cd</u><br><u>Sel fate</u> |                                | Lab use only<br>Due Date:<br><br>Temp. of coolers when received (C°):<br><u>88</u> 2     3     4     5<br>Page <u>2</u> of <u>2</u> |           |       |           |        |     |                              |
|---|----------|---|---------|---|--------------------------------|---|-----------|-------|-----------|--------|-----|------------------------------|
| <b>Office Location</b> <u>DALLAS, TX</u><br><br><b>Project Manager</b> <u>LIZ SCAUGGS</u>                 |          | <b>Sampler's Name</b> <u>JASON MONTGOMERY / TOMMY KINGSTON KOENIG</u><br>Project No. <u>011/278</u> Project Name <u>SC SEDIMENT SAMPLING</u> NO Type of Containers _____<br>Sampler's Signature _____ |         |   |                                |   |           |       |           |        |     |                              |
| Matrix  | Date     | Time  | C o m p | G r a b   | Identifying Marks of Sample(s) | T e m p ° C   | P i n t s | V O A | A/G 1 Lt. | 250 ml | P/O | Lab Sample ID (Lab Use Only) |
| S   | 11/18/11 | 1330  | X       | X   | SC-SEP 27                      | 0   | 6         |       |           |        | 1   | 111546-11                    |
| S   | 11/18/11 | 1340  | X       | X   | SC-SEP 26                      | 0   | 6         |       |           |        | 1   | 111546-12                    |
| S   | 11/18/11 | 1400  | X       | X   | SC-SEP 25                      | 0   | 6         |       |           |        | 1   | 111546-13                    |
| S   | 11/18/11 | 1405  | X       | X   | SC-SEP 24                      | 0   | 6         |       |           |        | 1   | 111546-14                    |
| S   | 11/18/11 | 1500  | X       | X   | SC-SEP 23                      | 0   | 6         |       |           |        | 1   | 111546-15                    |
| S   | 11/18/11 | 1520  | X       | X   | SC-SEP 22                      | 0   | 6         |       |           |        | 1   | 111546-16                    |
| S   | 11/18/11 | 1530  | X       | X   | SC-SEP 21                      | 6   | 6         |       |           |        | 1   | 111546-17                    |
| S   | 11/18/11 | 1540  | X       | X   | SC-SEP 20                      | 0   | 6         |       |           |        | 1   | 111546-18                    |
| S   | 11/18/11 | 1550  | X       | X   | SC-SEP 19                      | 0   | 6         |       |           |        | 1   | 111546-19                    |

| Turn around time                  |                       | <input checked="" type="checkbox"/> Normal | <input type="checkbox"/> 25% Rush | <input type="checkbox"/> 50% Rush | <input type="checkbox"/> 100% Rush | NOTES:            |  |
|-----------------------------------|-----------------------|--|-----------------------------------|-----------------------------------|------------------------------------|-------------------|--|
| Relinquished by (Signature) _____ | Date: <u>11/18/11</u> | Time: <u>1620</u>                          | Received by: (Signature) _____    |                                   | Date: <u>11/18/11</u>              | Time: <u>1620</u> |  |
| Relinquished by (Signature) _____ | Date: <u>11/18/11</u> | Time: <u>1705</u>                          | Received by: (Signature) _____    |                                   | Date: <u>11/18/11</u>              | Time: <u>1705</u> |  |
| Relinquished by (Signature) _____ | Date: _____           | Time: _____                                | Received by: (Signature) _____    |                                   | Date: _____                        | Time: _____       |  |
| Relinquished by (Signature) _____ | Date: _____           | Time: _____                                | Received by: (Signature) _____    |                                   | Date: _____                        | Time: _____       |  |

| Matrix Container | WW - Wastewater VOA - 40 ml vial | W - Water A/G - Amber / Or Glass 1 Liter | S - Soil SD - Solid 250 ml - Plastic or other | L - Liquid 250 ml - Air Bag | C - Charcoal tube P/O - Plastic or other | O - Oil SL - sludge |
|------------------|----------------------------------|--|---|-----------------------------|--|---------------------|
|                  |                                  |  |   |                             |  |                     |

1111546



P.O. BOX 940303  
PLANO, TX 75094-0303  
(972) 881-7577

NOTARY SERVICE AVAILABLE

No.

|  |                         |  |                       |             |
|--|-------------------------|--|-----------------------|-------------|
| <b>SHIPPER</b><br>NAME: <u>B Southwest GEOSCIENCE</u><br>ADDRESS: <u>11000 Tollway / Cottonwood</u> SUITE<br>CITY: <u>Enrico, TX</u><br>REFERENCE NO.: |                         | DATE: <u>11-18-11</u>  |                       |             |
|  |                         | Falcon Charges<br><input type="checkbox"/> PREPAID<br><input type="checkbox"/> COLLECT<br><input type="checkbox"/> ROUND TRIP<br><input type="checkbox"/> NIGHT-WEEKEND            |                       |             |
|  |                         | Type of Delivery<br><input type="checkbox"/> X-Press<br><input type="checkbox"/> 2 HOUR<br><input type="checkbox"/> 4 HOUR<br><input type="checkbox"/> NEXT DAY                    |                       |             |
|  |                         | <b>CONSIGNEE</b><br>NAME: <u>ERM1</u><br>ADDRESS: <u>400 W. Bethany</u> SUITE<br>CITY: <u>Allen, TX</u><br>ATTN:   |                       |             |
| NO. PCS.   | DESCRIPTION AND REMARKS |  | WEIGHT                | CHARGES     |
|  | <u>SAMPLES</u>          |  |                       |             |
| WAITING TIME   |                         | NOT RESPONSIBLE FOR FREIGHT CLAIMS AFTER 72 HRS. NOT RESPONSIBLE FOR CONCEALED DAMAGE, DUE AND PAYABLE PLANO, COLLIN COUNTY, TEXAS<br>\$50 DECLARED VALUE UNLESS SPECIFIED HERE \$ |                       |             |
| DRIVER NAME & NO.  | DRIVER NAME & NO.       | TIME OF DEL.   | RECEIVED BY           | RECEIVED BY |
| <u>Arde Velazquez</u>  |                         | <u>5:55 AM</u>   | <u>Arde Velazquez</u> | X           |

**ERM1** Environmental Laboratories  
Bethany Tech Center  
400 W. Bethany, Suite 190  
Allen, Texas 75013  
972-727-1123 (Local) • 800-228-ERM1  
972-727-1175 (FAX)

DATE: 11/18/11

SAMPLE I.D.: John

SAMPLE TYPE:  
☐ GRAB ☐ COMPOSITE ☐ OTHER

PARAMETERS:

OF CONTAINERS

COMMENTS:

COLLECTED BY: John

PRESERVED: ☐ YES ☐ NO

OTHER: 11/18

ERM1 SAMPLE NO.:

X-409

**ERM1** Environmental Laboratories  
Bethany Tech Center  
400 W. Bethany, Suite 190  
Allen, Texas 75013  
972-727-1123 (Local) • 800-228-ERM1  
972-727-1175 (FAX)

DATE: 11/18/11

SAMPLE I.D.: John

SAMPLE TYPE:  
☐ GRAB ☐ COMPOSITE ☐ OTHER

PARAMETERS:

OF CONTAINERS

COMMENTS:

COLLECTED BY: John

PRESERVED: ☐ YES ☐ NO

OTHER: 11/18/11

ERM1 SAMPLE NO.:

X-409

Lab Number(s): 1111546**ERMI****Sample Preservation Documentation\***On Ice (Circle One): ☒ YES OR NO (check if on Dry Ice \_\_\_\_\_)

| Parameters   | Containers<br># | Size | Required Preservation   | Sample<br>Container                              | Circle pH<br>Note any discrepancy  |
|--|-----------------|------|---|--|--|
| Metals   |                 |      | pH < 2  | Glass or Plastic                                 | pH < 2   |
| Dissolved Metals   |                 |      | Unpreserved prior to being filtered, Cool**                                   | Glass or Plastic                                 |  |
| Hexavalent Chromium  |                 |      | CWA - pH 9.3-9.7, Cool;<br>RCRA - Cool  | Glass or Plastic                                 | Checked At Analysis  |
| Semivolatiles,<br>Pesticides, PCBs,<br>Herbicides                                |                 |      | Cool  | Glass only<br>with Teflon lid                    | Chlorine <input type="checkbox"/> yes <input type="checkbox"/> no  |
| VOA (BTEX,<br>MTBE, 624, 8260,<br>TPH-GRO)                                       |                 |      | Cool, pH < 2<br>Zero Head Space   | 40 ml VOA vial                                   | DO NOT OPEN  |
| VOA<br>(TPH-1005)  |                 |      | Cool,<br>Zero Head Space<br>Please check if collected in<br>pre-weighed vials | 40 ml VOA vial                                   | DO NOT OPEN  |
| Phos., NO <sub>3</sub> /NO <sub>2</sub> ,<br>NH <sub>3</sub> N, COD,<br>TKN, TOC |                 |      | Cool, pH < 2  | Glass or Plastic                                 | pH < 2   |
| TDS, BOD,<br>CBOD, Cond, pH,<br>TSS, F, SO <sub>4</sub> , Cl,<br>Alk, Sulfite    |                 |      | Cool  | Glass or Plastic,<br>Plastic only if F           |  |
| Phenols,<br>TPH-DRO  |                 |      | Cool, pH < 2  | Glass only<br>Teflon lid _____<br>Foil lid _____ | pH < 2   |
| Oil & Grease,<br>TPH (by 1664a)  |                 |      | Cool, pH < 2  | Glass only<br>Teflon lid _____<br>Foil lid _____ | DO NOT<br>Check pH   |
| Cyanide  |                 |      | Cool, pH > 12   | Glass or Plastic                                 | pH > 12<br>Chlorine <input type="checkbox"/> yes <input type="checkbox"/> no<br>Sulfide <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> na |
| Sulfide  |                 |      | Cool, pH > 9  | Glass or Plastic                                 | pH > 9   |
| Bacteria   |                 |      | Cool  | Plastic<br>Sterile Cup                           |  |
| (Soil) Sludge,<br>Solid,<br>Oil, Liquid  | 19              | 902  | Cool<br>Note: please check if<br>collected in pre-weighed<br>vials            | g/lw   |  |

Metals Preserved By Login ☐ yes ☐ noTrip Blanks Received ☐ yes ☒ no

COMMENTS: \_\_\_\_\_

\*This form is used to document sample preservation. Circle parameter requested. Fill in number and size of containers received. Check pH (adjust if needed) and note if different from what is required and make a notation of any samples not received on ice. Note any incorrect sample containers or preservation on chain-of-custody.

\*\*Cool means cooled to ≤6°C but not frozen.

Preservation Checked By Date 11-18-11Time 1240

1000.0-3.2

2/17/09KW

kdy 7/10/08

Q:\Form Masters\1000.0-3.2 Sample Preservation Form



**Environmental Laboratories**

Bethany Tech Center • Suite 190  
400 W. Bethany Rd. • Allen, Texas 75013

State Certifications

Arkansas: 88-0647  
Oklahoma: 8727



Louisiana: 02007  
Kansas: E-10388  
Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 1 of 11  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:32

Attached is our analytical report for the samples received for your project. Below is a list of your individual sample descriptions with our corresponding laboratory number. We also have enclosed a copy of the Chain of Custody that was received with your samples and a form documenting the condition of your samples upon arrival. Please note any unused portion of the samples may be discarded upon expiration of the EPA holding time for the analysis performed or after 30 days from the above report date, unless you have requested otherwise.

**ERMI** Environmental Laboratories certifies that all results contained in this report were produced in accordance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) unless otherwise noted. The results presented apply to the samples analyzed in accordance with the chain-of-custody document(s) furnished with the samples. This report is intended for the sole use of the customer for whom the work was performed and must be reproduced, without modification, in its entirety.

**Sample Identification**

| <u>Laboratory ID #</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Sampled Date/Time</u> | <u>Received Date/Time</u> |
|------------------------|-------------------------|---------------|--------------------------|---------------------------|
| 1111547-01             | SC-SED 4                | Solid         | 11/18/11 09:10           | 11/18/11 17:05            |
| 1111547-02             | SC-SED 3                | Solid         | 11/18/11 09:25           | 11/18/11 17:05            |
| 1111547-03             | SC-SED 2                | Solid         | 11/18/11 09:35           | 11/18/11 17:05            |
| 1111547-04             | SC-SED 1                | Solid         | 11/18/11 09:50           | 11/18/11 17:05            |

**Environmental Laboratories**

Bethany Tech Center • Suite 190  
400 W. Bethany Rd. • Allen, Texas 75013

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Louisiana: 02007  
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Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 2 of 11  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:32

The analytical data and results contained in this report, as well as their supporting data, conform with Texas Risk Reduction Program (TRRP), 30 TAC, Section 350, requirements and are of sufficient and documented quality to meet both TRRP objectives, TCEQ regulatory guidance No. RG-366/TRRP-13 and the project-based objective of achieving the lowest method detection limit (i.e., the TRRP Critical PCL where reasonably achievable or, if not reasonably achievable, the MQL). All information concerning analytical parameters, methods and protocols that might bear upon or otherwise affect the accuracy of the analytical data in this report have been provided or otherwise disclosed herein. The data were obtained using applicable and appropriate EPA SW-846 or Texas Commission on Environmental Quality approved analytical protocols, methodologies and quality assurance/quality control standards. **ERMI Environmental Laboratories** certifies that its quality control program is substantially and materially consistent with the International Organization for Standardization "Guide 25: General Requirements the Competence of Calibration and Testing Laboratories (ISO 25 3rd Edition, 1990)," as amended or the quality standards outlined in the National Environmental Laboratory Accreditation Program, as amended. The entire analytical data package for this report, including the supporting quality control data, will be retained and maintained for at least five (5) years (or such longer period of time as may be required by TRRP) from the report date at the offices of **ERMI Environmental Laboratories, 400 W. Bethany, Suite 190, Allen, Texas 75013.**

I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Thank you for the opportunity to serve your environmental chemistry analysis needs. If you have any questions or concerns regarding this report please contact our Customer Service Department at the phone number below.

Respectfully submitted,

Kendall K. Brown  
President

**Environmental Laboratories**

Bethany Tech Center • Suite 190  
400 W. Bethany Rd. • Allen, Texas 75013

State Certifications

Arkansas: 88-0647  
Oklahoma: 8727



Louisiana: 02007  
Kansas: E-10388  
Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 3 of 11  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:32

Laboratory ID #:  
1111547-01

Sample Type  
Grab

Matrix

Solid

Sample Collected By

Jason Minter/John  
Koehnman/Tommy Kim

Customer

Sample Description  
SC-SED 4

Sample Date/Time  
11/18/11 0910

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag             |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------------------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |                  |
| Sulfate (Total) as SO <sub>4</sub>                  | 69.8      | 0.180 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1424      | ANM   |                  |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |                  |
| % Solids  | 72        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |                  |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |                  |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.02 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |                  |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |                  |
| Arsenic   | 12.0      | 0.43  | 0.25  | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0200      | SPS   | Q-20, Q-22, R-01 |
| Cadmium   | 0.95      | 0.50  | 0.221 | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0200      | SPS   | Q-20, R-01, J    |
| Lead  | 39.1      | 0.95  | 0.42  | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0200      | SPS   | Q-20, Q-22, R-01 |
| Selenium  | ND        | 1.09  | 0.4   | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0200      | SPS   | R-01             |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 4 of 11  
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|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111547-02 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 3 |                            | <u>Sample Date/Time</u><br>11/18/11 0925 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 85.5      | 0.170 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1443      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 76        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.51 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 18.6      | 0.42  | 0.25  | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0018      | SPS   | R-01 |
| Cadmium   | 2.01      | 0.49  | 0.221 | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0018      | SPS   | R-01 |
| Lead  | 63.8      | 0.92  | 0.42  | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0018      | SPS   | R-01 |
| Selenium  | ND        | 1.06  | 0.4   | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0018      | SPS   | R-01 |

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**Report of Sample Analysis**

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|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111547-03 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 2 |                            | <u>Sample Date/Time</u><br>11/18/11 0935 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 87.8      | 0.194 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1548      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 67        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 48.08 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 11.2      | 0.45  | 0.25  | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0026      | SPS   | R-01    |
| Cadmium   | 0.75      | 0.53  | 0.221 | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0026      | SPS   | R-01, J |
| Lead  | 46.9      | 1.01  | 0.42  | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0026      | SPS   | R-01    |
| Selenium  | ND        | 1.15  | 0.4   | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0026      | SPS   | R-01    |



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**Report of Sample Analysis**

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|                                       |                            |  |  |          |
|---------------------------------------|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111547-04 | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 1 |                            | <u>Sample Date/Time</u><br>11/18/11 0950 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 39.3      | 0.168 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1621      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 77        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 52.63 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 11.9      | 0.43  | 0.25  | mg/kg dry | 5.26  | M4   | 1K28040 | 11/29/11 0034      | SPS   | R-01    |
| Cadmium   | 0.61      | 0.50  | 0.221 | mg/kg dry | 5.26  | M4   | 1K28040 | 11/29/11 0034      | SPS   | R-01, J |
| Lead  | 38.2      | 0.95  | 0.42  | mg/kg dry | 5.26  | M4   | 1K28040 | 11/29/11 0034      | SPS   | R-01    |
| Selenium  | ND        | 1.09  | 0.4   | mg/kg dry | 5.26  | M4   | 1K28040 | 11/29/11 0034      | SPS   | R-01    |

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ATTN: Liz ScaggsPage: Page 7 of 11  
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Project #: 0111278  
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| Analyte(s)  | Result | *SDI  | Units     | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag |
|---|--------|-------|-----------|-------------|---------------------------|------|-------------|-----|-----------|------|
| <b>Blank (1K22017-BLK1)</b>                               |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 13:02         |        |       |           |             |                           |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | ND     | 0.130 | mg/kg wet |             |                           |      |             |     |           |      |
| <b>Laboratory Control Sample (1K22017-BS1)</b>            |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 13:19         |        |       |           |             |                           |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 46.3   | 0.130 | mg/kg wet | 50.0        |                           | 93   | 90-110      |     |           |      |
| <b>Laboratory Control Sample Duplicate (1K22017-BSD1)</b> |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 16:38         |        |       |           |             |                           |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 47.6   | 0.130 | mg/kg wet | 50.0        |                           | 95   | 90-110      | 3   | 20        |      |
| <b>Matrix Spike (1K22017-MS1) 1x</b>                      |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 13:52         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111547-01</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 140    | 0.200 | mg/kg dry | 76.9        | 69.8                      | 91   | 90-110      |     |           |      |
| <b>Matrix Spike (1K22017-MS2) 1x</b>                      |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 20:44         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111557-07</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 257    | 0.221 | mg/kg dry | 85.1        | 172                       | 100  | 90-110      |     |           |      |
| <b>Matrix Spike Duplicate (1K22017-MSD1) 1x</b>           |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 14:08         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111547-01</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 141    | 0.200 | mg/kg dry | 76.9        | 69.8                      | 92   | 90-110      | 0.6 | 20        |      |
| <b>Matrix Spike Duplicate (1K22017-MSD2) 1x</b>           |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 21:00         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111557-07</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 257    | 0.221 | mg/kg dry | 85.1        | 172                       | 99   | 90-110      | 0.3 | 20        |      |
| <b>Blank (1K22018-BLK1)</b>                               |        |       |           |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 15:48                       |        |       |           |             |                           |      |             |     |           |      |
| % Solids  | ND     | 0.040 | %         |             |                           |      |             |     |           |      |

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**Report of Sample Analysis**

Southwest Geoscience  
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**Conventional Chemistry Parameters - Quality Control**

| Analyte(s)                          | Result | *SDI  | Units | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag |
|-------------------------------------|--------|-------|-------|-------------|---------------------------|------|-------------|-----|-----------|------|
| <b>Duplicate (1K22018-DUP1)</b>     |        |       |       |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 15:48 |        |       |       |             | <b>Source: 1111493-01</b> |      |             |     |           |      |
| % Solids                            | 1.0    | 0.040 | %     |             | 1.1                       |      |             | 10  | 7         | Q-26 |
| <b>Duplicate (1K22018-DUP2)</b>     |        |       |       |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 15:48 |        |       |       |             | <b>Source: 1111563-01</b> |      |             |     |           |      |
| % Solids                            | 84     | 0.040 | %     |             | 84                        |      |             | 0.2 | 7         |      |

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| Analyte(s)  | Result    | *SDI | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag       |
|---|-----------|------|-----------|-------------|---------------|------|-------------|-----|-----------|------------|
| <b>Blank (1K28040-BLK1)</b>                               |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      |             |     |           |            |
| Arsenic   | ND        | 0.06 | mg/kg wet |             |               |      |             |     |           |            |
| Cadmium   | ND        | 0.07 | mg/kg wet |             |               |      |             |     |           |            |
| Lead  | ND        | 0.14 | mg/kg wet |             |               |      |             |     |           |            |
| Selenium  | ND        | 0.16 | mg/kg wet |             |               |      |             |     |           |            |
| <b>Laboratory Control Sample (1K28040-BS1)</b>            |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      | 0-0         |     |           |            |
| Arsenic   | 21.2      | 0.06 | mg/kg wet | 24.5        |               | 86   | 80-120      |     |           |            |
| Cadmium   | 22.3      | 0.07 | mg/kg wet | 24.5        |               | 91   | 80-120      |     |           |            |
| Lead  | 21.6      | 0.14 | mg/kg wet | 24.5        |               | 88   | 80-120      |     |           |            |
| Selenium  | 43.0      | 0.16 | mg/kg wet | 49.0        |               | 88   | 80-120      |     |           |            |
| <b>Laboratory Control Sample Duplicate (1K28040-BSD1)</b> |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      | 0-0         |     | 0         |            |
| Arsenic   | 22.6      | 0.06 | mg/kg wet | 25.3        |               | 89   | 80-120      | 7   | 20        |            |
| Cadmium   | 23.6      | 0.07 | mg/kg wet | 25.3        |               | 93   | 80-120      | 6   | 20        |            |
| Lead  | 22.8      | 0.14 | mg/kg wet | 25.3        |               | 90   | 80-120      | 5   | 20        |            |
| Selenium  | 45.3      | 0.16 | mg/kg wet | 50.5        |               | 90   | 80-120      | 5   | 20        |            |
| <b>Matrix Spike (1K28040-MS1)</b>                         |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             | ND            |      | 0-0         |     |           |            |
| Arsenic   | 55.3      | 0.86 | mg/kg dry | 33.9        | 12.0          | 128  | 75-125      |     |           | Q-02, R-01 |
| Cadmium   | 37.8      | 1.00 | mg/kg dry | 33.9        | 0.95          | 109  | 75-125      |     |           | R-01       |
| Lead  | 92.3      | 1.90 | mg/kg dry | 33.9        | 39.1          | 157  | 75-125      |     |           | Q-02, R-01 |
| Selenium  | 66.3      | 2.17 | mg/kg dry | 67.9        | ND            | 98   | 75-125      |     |           | R-01       |

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ATTN: Liz ScaggsPage: Page 10 of 11  
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| Analyte(s)                                   | Result    | *SDI | Units     | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag       |
|--|-----------|------|-----------|-------------|---------------------------|------|-------------|-----|-----------|------------|
| <b>Matrix Spike (1K28040-MS2)</b>            |           |      |           |             |                           |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111557-05</b> |      |             |     |           |            |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     |           |            |
| Arsenic                                      | 42.9      | 0.77 | mg/kg dry | 30.7        | 12.7                      | 99   | 75-125      |     |           | R-01       |
| Cadmium                                      | 31.2      | 0.91 | mg/kg dry | 30.7        | 0.79                      | 99   | 75-125      |     |           | R-01       |
| Lead   | 75.9      | 1.72 | mg/kg dry | 30.7        | 27.7                      | 157  | 75-125      |     |           | Q-02, R-01 |
| Selenium                                     | 58.0      | 1.96 | mg/kg dry | 61.3        | ND                        | 95   | 75-125      |     |           | R-01       |
| <b>Matrix Spike Duplicate (1K28040-MSD1)</b> |           |      |           |             |                           |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111547-01</b> |      |             |     |           |            |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     | 0         |            |
| Arsenic                                      | 42.5      | 0.90 | mg/kg dry | 35.7        | 12.0                      | 85   | 75-125      | 26  | 20        | Q-04, R-01 |
| Cadmium                                      | 45.8      | 1.06 | mg/kg dry | 35.7        | 0.95                      | 126  | 75-125      | 19  | 20        | Q-02, R-01 |
| Lead   | 67.8      | 2.00 | mg/kg dry | 35.7        | 39.1                      | 81   | 75-125      | 31  | 20        | Q-04, R-01 |
| Selenium                                     | 72.2      | 2.28 | mg/kg dry | 71.4        | ND                        | 101  | 75-125      | 8   | 20        | R-01       |
| <b>Matrix Spike Duplicate (1K28040-MSD2)</b> |           |      |           |             |                           |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111557-05</b> |      |             |     |           |            |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     | 0         |            |
| Arsenic                                      | 40.1      | 0.74 | mg/kg dry | 29.5        | 12.7                      | 93   | 75-125      | 7   | 20        | R-01       |
| Cadmium                                      | 29.9      | 0.87 | mg/kg dry | 29.5        | 0.79                      | 99   | 75-125      | 4   | 20        | R-01       |
| Lead   | 65.4      | 1.65 | mg/kg dry | 29.5        | 27.7                      | 128  | 75-125      | 15  | 20        | Q-02, R-01 |
| Selenium                                     | 56.0      | 1.89 | mg/kg dry | 58.9        | ND                        | 95   | 75-125      | 4   | 20        | R-01       |

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**Notes and Definitions**

The results presented in this report were generated using those methods given in 40 CFR Part 136 for Water and Wastewater samples and in SW-846 for RCRA/Solid Waste samples.

|          |   |
|----------|---|
| J        | This value is above the method detection limit but below the reporting limit.   |
| Q-02     | The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range. |
| Q-04     | The RPD of this analyte between the MS(s) was outside of the acceptable range. The RPD of this same analyte between the LCS(s) was within the acceptable range.   |
| Q-20     | The recovery of this analyte in the MS was higher than the acceptable range. This indicates a high bias to the result presented.  |
| Q-22     | The RPD between the MS(s) sample analyses was outside the acceptable range. This indicates the result was not as precise as expected.   |
| Q-26     | The RPD between duplicate analyses was outside of the acceptable range. This indicates the result was not as precise as expected.   |
| R-01     | The higher reporting limit is due to dilutions required for analysis as a result of a high concentration of target and/or non-target parameters in this sample.   |
| ND       | Analyte NOT DETECTED at or above the reporting limit  |
| dry      | Sample results reported on a dry weight basis   |
| LCS/LCSD | Laboratory Control Sample/Laboratory Control Sample Duplicate   |
| MS/MSD   | Matrix Spike/Matrix Spike Duplicate   |
| RPD      | Relative Percent Difference   |
| mg/kg    | milligrams per kilogram   |
| mg/l     | milligrams per liter  |
| ug/kg    | micrograms per kilogram   |
| ug/l     | micrograms per liter  |
| exc      | Not covered under scope of NELAP accreditation.   |
| F*       | Calculated factor rounded to 3 significant figures. Concentration factor when <1.00 and dilution factor when >1.00.   |
| Inst     | Instrument Identification   |
| Anlst    | Analyst Initials  |
| SDL      | Sample Detection Limit  |
| MQL      | Method Quantitation Limit   |
| naa      | This analysis/parameter is not accreditable under the current NELAP program   |



# Laboratory Data Package Cover Page

This data package for Laboratory Job Number 1111547 consists of:

- ☒ This signature page, the laboratory review checklist, and the following reportable data:
- ☒ **R1** Field chain-of-custody documentation;
- ☒ **R2** Sample identification cross-reference;
- ☒ **R3** Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ **R4** Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ **R5** Test reports/summary forms for blank samples;
- ☒ **R6** Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- ☒ **R7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ **R8** Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ **R9** List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- ☒ **R10** Other problems or anomalies.
- ☒ The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

**Release Statement:** I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:** [ ] This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Kendall K. Brown

Name (Printed)

*Kendall K. Brown*

Signature

President

Official Title (Printed)

11/30/11

Date

Laboratory Review Checklist: Reportable Data

|                         |                |  |     |                               |                 |                                |                  |
|-------------------------|----------------|--|-----|-------------------------------|-----------------|--------------------------------|------------------|
| <b>Laboratory Name:</b> |                | <b>ERM Environmental Laboratories</b>  |     | <b>LRC Date:</b>              |                 | <b>11/30/11</b>                |                  |
| <b>Project Name:</b>    |                | <b>SC Sediment Sampling</b>  |     | <b>Laboratory Job Number:</b> |                 | <b>1111547</b>                 |                  |
| <b>Reviewer Name:</b>   |                | <b>Leslie Underwood</b>  |     | <b>Prep Batch Number(s):</b>  |                 | <b>1K22017,1K22018,1K28040</b> |                  |
| # <sup>1</sup>          | A <sup>2</sup> | Description  | Yes | No                            | NA <sup>3</sup> | NR <sup>4</sup>                | ER# <sup>5</sup> |
| R1                      | OI             | <b>Chain-of-custody (C-O-C)</b>  |     |                               |                 |                                |                  |
|                         |                | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?                                      | X   |                               |                 |                                |                  |
|                         |                | Were all departures from standard conditions described in an exception report?   | X   |                               |                 |                                |                  |
| R2                      | OI             | <b>Sample and quality control (QC) identification</b>  |     |                               |                 |                                |                  |
|                         |                | Are all field sample ID numbers cross-referenced to the laboratory ID numbers?   | X   |                               |                 |                                |                  |
|                         |                | Are all laboratory ID numbers cross-referenced to the corresponding QC data?   | X   |                               |                 |                                |                  |
| R3                      | OI             | <b>Test reports</b>  |     |                               |                 |                                |                  |
|                         |                | Were all samples prepared and analyzed within holding times?   | X   |                               |                 |                                |                  |
|                         |                | Other than those results < MQL, were all other raw values bracketed by calibration standards?                                    | X   |                               |                 |                                |                  |
|                         |                | Were calculations checked by a peer or supervisor?   | X   |                               |                 |                                |                  |
|                         |                | Were all analyte identifications checked by a peer or supervisor?  | X   |                               |                 |                                |                  |
|                         |                | Were sample quantitation limits reported for all analytes not detected?  | X   |                               |                 |                                |                  |
|                         |                | Were all results for soil and sediment samples reported on a dry weight basis?   | X   |                               |                 |                                |                  |
|                         |                | Were % moisture (or solids) reported for all soil and sediment samples?  | X   |                               |                 |                                |                  |
|                         |                | If required for the project, TICs reported?  |     |                               | X               |                                |                  |
| R4                      | O              | <b>Surrogate recovery data</b>   |     |                               |                 |                                |                  |
|                         |                | Were surrogates added prior to extraction?   |     |                               | X               |                                |                  |
|                         |                | Were surrogate percent recoveries in all samples within the laboratory QC limits?  |     |                               | X               |                                |                  |
| R5                      | OI             | <b>Test reports/summary forms for blank samples</b>  |     |                               |                 |                                |                  |
|                         |                | Were appropriate type(s) of blanks analyzed?   | X   |                               |                 |                                |                  |
|                         |                | Were blanks analyzed at the appropriate frequency?   | X   |                               |                 |                                |                  |
|                         |                | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?    | X   |                               |                 |                                |                  |
|                         |                | Were blank concentrations < MQL?   | X   |                               |                 |                                |                  |
| R6                      | OI             | <b>Laboratory control samples (LCS):</b>   |     |                               |                 |                                |                  |
|                         |                | Were all COCs included in the LCS?   | X   |                               |                 |                                |                  |
|                         |                | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?                                    | X   |                               |                 |                                |                  |
|                         |                | Were LCSs analyzed at the required frequency?  | X   |                               |                 |                                |                  |
|                         |                | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?  | X   |                               |                 |                                |                  |
|                         |                | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?       | X   |                               |                 |                                |                  |
|                         |                | Was the LCSD RPD within QC limits?   | X   |                               |                 |                                |                  |
| R7                      | OI             | <b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>   |     |                               |                 |                                |                  |
|                         |                | Were the project/method specified analytes included in the MS and MSD?   | X   |                               |                 |                                |                  |
|                         |                | Were MS/MSD analyzed at the appropriate frequency?   | X   |                               |                 |                                |                  |
|                         |                | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?  |     | X                             |                 |                                | E001             |
|                         |                | Were MS/MSD RPDs within laboratory QC limits?  |     | X                             |                 |                                | E002             |
| R8                      | OI             | <b>Analytical duplicate data</b>   |     |                               |                 |                                |                  |
|                         |                | Were appropriate analytical duplicates analyzed for each matrix?   | X   |                               |                 |                                |                  |
|                         |                | Were analytical duplicates analyzed at the appropriate frequency?  | X   |                               |                 |                                |                  |
|                         |                | Were RPDs or relative standard deviations within the laboratory QC limits?   |     | X                             |                 |                                | E003             |
| R9                      | OI             | <b>Method quantitation limits (MQLs):</b>  |     |                               |                 |                                |                  |
|                         |                | Are the MQLs for each method analyte included in the laboratory data package?  | X   |                               |                 |                                |                  |
|                         |                | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?   | X   |                               |                 |                                |                  |
|                         |                | Are unadjusted MQLs included in the laboratory data package?   | X   |                               |                 |                                |                  |
| R10                     | OI             | <b>Other problems/anomalies</b>  |     |                               |                 |                                |                  |
|                         |                | Are all known problems/anomalies/special conditions noted in this LRC and ER?  | X   |                               |                 |                                |                  |
|                         |                | Were all necessary corrective actions performed for the reported data?   | X   |                               |                 |                                |                  |
|                         |                | Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results? | X   |                               |                 |                                |                  |

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);  
3. NA = Not applicable;  
4. NR = Not reviewed;  
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).



**Laboratory Review Checklist: Reportable Data**

| <b>Laboratory Name:</b> |                | <b>ERMI Environmental Laboratories</b>   | <b>LRC Date:</b>             |    | <b>11/30/11</b>                |                 |                  |  |  |
|-------------------------|----------------|--|------------------------------|----|--------------------------------|-----------------|------------------|--|--|
| <b>Project Name:</b>    |                | <b>SC Sediment Sampling</b>  | <b>Laboratory Job</b>        |    | <b>1111547</b>                 |                 |                  |  |  |
| <b>Reviewer Name:</b>   |                | <b>Leslie Underwood</b>  | <b>Prep Batch Number(s):</b> |    | <b>1K22017,1K22018,1K28040</b> |                 |                  |  |  |
| # <sup>1</sup>          | A <sup>2</sup> | Description  | Yes                          | No | NA <sup>3</sup>                | NR <sup>4</sup> | ER# <sup>5</sup> |  |  |
| <b>S1</b>               | <b>OI</b>      | <b>Initial calibration (ICAL)</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were response factors and/or relative response factors for each analyte within QC limits?              | X                            |    |                                |                 |                  |  |  |
|                         |                | Were percent RSDs or correlation coefficient criteria met?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the number of standards recommended in the method used for all analytes?                           | X                            |    |                                |                 |                  |  |  |
|                         |                | Were all points generated between the lowest and highest standard used to calculate the curve?         | X                            |    |                                |                 |                  |  |  |
|                         |                | Are ICAL data available for all instruments used?  | X                            |    |                                |                 |                  |  |  |
|                         |                | Has the initial calibration curve been verified using an appropriate second source standard?           | X                            |    |                                |                 |                  |  |  |
| <b>S2</b>               | <b>OI</b>      | <b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration</b>       |                              |    |                                |                 |                  |  |  |
|                         |                | Was the CCV analyzed at the method-required frequency?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Were percent differences for each analyte within the method-required QC limits?                        | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the ICAL curve verified for each analyte?  | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the absolute value of the analyte concentration in the inorganic CCB < MDL?                        | X                            |    |                                |                 |                  |  |  |
| <b>S3</b>               | <b>O</b>       | <b>Mass spectral tuning:</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was the appropriate compound for the method used for tuning?   |                              |    | X                              |                 |                  |  |  |
|                         |                | Were ion abundance data within the method-required QC limits?  |                              |    | X                              |                 |                  |  |  |
| <b>S4</b>               | <b>O</b>       | <b>Internal standards (IS):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were IS area counts and retention times within the method-required QC limits?                          |                              |    | X                              |                 |                  |  |  |
| <b>S5</b>               | <b>OI</b>      | <b>Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section</b>        |                              |    |                                |                 |                  |  |  |
|                         |                | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?                  | X                            |    |                                |                 |                  |  |  |
|                         |                | Were data associated with manual integrations flagged on the raw data?                                 | X                            |    |                                |                 |                  |  |  |
| <b>S6</b>               | <b>O</b>       | <b>Dual column confirmation</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Did dual column confirmation results meet the method-required QC?                                      |                              |    | X                              |                 |                  |  |  |
| <b>S7</b>               | <b>O</b>       | <b>Tentatively identified compounds (TICs):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?              |                              |    | X                              |                 |                  |  |  |
| <b>S8</b>               | <b>I</b>       | <b>Interference Check Sample (ICS) results:</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were percent recoveries within method QC limits?   | X                            |    |                                |                 |                  |  |  |
| <b>S9</b>               | <b>I</b>       | <b>Serial dilutions, post digestion spikes, and method of standard additions</b>                       |                              |    |                                |                 |                  |  |  |
|                         |                | Were percent differences, recoveries, and the linearity within the QC limits specified in the method?  | X                            |    |                                |                 |                  |  |  |
| <b>S10</b>              | <b>OI</b>      | <b>Method detection limit (MDL) studies</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Was a MDL study performed for each reported analyte?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Is the MDL either adjusted or supported by the analysis of DCSs?                                       | X                            |    |                                |                 |                  |  |  |
| <b>S11</b>              | <b>OI</b>      | <b>Proficiency test reports:</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | X                            |    |                                |                 |                  |  |  |
| <b>S12</b>              | <b>OI</b>      | <b>Standards documentation</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?      | X                            |    |                                |                 |                  |  |  |
| <b>S13</b>              | <b>OI</b>      | <b>Compound/analyte identification procedures</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Are the procedures for compound/analyte identification documented?                                     | X                            |    |                                |                 |                  |  |  |
| <b>S14</b>              | <b>OI</b>      | <b>Demonstration of analyst competency (DOC)</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?                                       | X                            |    |                                |                 |                  |  |  |
|                         |                | Is documentation of the analyst's competency up-to-date and on file?                                   | X                            |    |                                |                 |                  |  |  |
| <b>S15</b>              | <b>OI</b>      | <b>Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)</b>     |                              |    |                                |                 |                  |  |  |
|                         |                | Are all the methods used to generate the data documented, verified, and validated, where applicable?   | X                            |    |                                |                 |                  |  |  |
| <b>S16</b>              | <b>OI</b>      | <b>Laboratory standard operating procedures (SOPs):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Are laboratory SOPs current and on file for each method performed?                                     | X                            |    |                                |                 |                  |  |  |

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

**Laboratory Review Checklist: Exception Reports**

| <b>Laboratory Name:</b> | <b>ERM Environmental Laboratories</b>   | <b>LRC Date:</b>             | <b>11/30/11</b>                |
|-------------------------|---|------------------------------|--------------------------------|
| <b>Project Name:</b>    | <b>SC Sediment Sampling</b>   | <b>Laboratory Job</b>        | <b>1111547</b>                 |
| <b>Reviewer Name:</b>   | <b>Leslie Underwood</b>   | <b>Prep Batch Number(s):</b> | <b>1K22017,1K22018,1K28040</b> |
| <b>ER#<sup>1</sup></b>  | <b>Description</b>  |                              |                                |
| E001                    | <p>Matrix Spike Recovery for Arsenic (128%) was outside acceptance limits (75-125) in 1K28040-MS1 for As Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a high bias to the result presented for the source sample (1111547-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Lead (157%) was outside acceptance limits (75-125) in 1K28040-MS1 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a high bias to the result presented for the source sample (1111547-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Lead (157%) was outside acceptance limits (75-125) in 1K28040-MS2 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Cadmium (126%) was outside acceptance limits (75-125) in 1K28040-MSD1 for Cd Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a high bias to the result presented for the source sample (1111547-01) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Recovery for Lead (128%) was outside acceptance limits (75-125) in 1K28040-MSD2 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range.</li> </ul> |                              |                                |
| E002                    | <p>Matrix Spike Duplicate RPD for Arsenic (26%) was above the acceptance limit (20) in 1K28040-MSD1 for As Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The RPD of this analyte between the MS(s) was outside of the acceptable range. This indicates the result was not as precise as expected for the source sample (1111547-01) reported from this batch. The RPD of this same analyte between the LCS(s) was within the acceptable range.</li> </ul> <p>Matrix Spike Duplicate RPD for Lead (31%) was above the acceptance limit (20) in 1K28040-MSD1 for Pb Total ICP 6010B</p> <ul style="list-style-type: none"> <li>- The RPD of this analyte between the MS(s) was outside of the acceptable range. This indicates the result was not as precise as expected for the source sample (1111547-01) reported from this batch. The RPD of this same analyte between the LCS(s) was within the acceptable range.</li> </ul>  |                              |                                |
| E003                    | <p>Duplicate RPD for % Solids (10%) was above the acceptance limit (7) in 1K22018-DUP1 for Dry Weight 2540G</p> <ul style="list-style-type: none"> <li>- The RPD between duplicate analyses was outside of the acceptable range. This indicates the result was not as precise as expected.</li> </ul>   |                              |                                |

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)



111547



P.O. BOX 940303  
PLANO, TX 75094-0303  
(972) 881-7577

NOTARY SERVICE AVAILABLE

No.

|  |                         |                               |  |  |             |                                   |
|--|-------------------------|-------------------------------|--|--|-------------|-----------------------------------|
| SHIPPER  | NAME                    | B Southwest GEOSCIENCE        |  | DATE   | 11-18-11    |                                   |
|  | ADDRESS                 | 11200 Tollway / Cotton Center |  |  |             |                                   |
|  | CITY                    | Irving, TX                    |  |  |             |                                   |
|  | REFERENCE NO.           |                               |  |  |             |                                   |
| CONSIGNEE  | NAME                    | ERMI                          |  |  |             |                                   |
|  | ADDRESS                 | 400 W. Bethany                |  |  |             |                                   |
|  | CITY                    | Allen, TX                     |  |  |             |                                   |
|  | ATTN:                   |                               |  |  |             |                                   |
|  |                         |                               |  | Falcon Charges                               |             | Type of Delivery                  |
|  |                         |                               |  | <input type="checkbox"/> PREPAID             |             | <input type="checkbox"/> X-Press  |
|  |                         |                               |  | <input type="checkbox"/> COLLECT             |             | <input type="checkbox"/> 2 HOUR   |
|  |                         |                               |  | <input type="checkbox"/> ROUND TRIP          |             | <input type="checkbox"/> 4 HOUR   |
|  |                         |                               |  | <input type="checkbox"/> NIGHT-WEEKEND       |             | <input type="checkbox"/> NEXT DAY |
| NO. PCS.   | DESCRIPTION AND REMARKS |                               |  | WEIGHT                                       | CHARGES     |                                   |
| 1  | SAMPLES                 |                               |  |  |             |                                   |
|  |                         |                               |  |  |             |                                   |
|  |                         |                               |  |  |             |                                   |
|  |                         |                               |  |  |             |                                   |
| WAITING TIME   |                         |                               |  | TOTAL CHARGES                                |             |                                   |
| NOT RESPONSIBLE FOR FREIGHT CLAIMS AFTER 72 HRS. NOT RESPONSIBLE FOR CONCEALED DAMAGE, DUE AND PAYABLE PLANO, COLLIN COUNTY, TEXAS |                         |                               |  | \$50 DECLARED VALUE UNLESS SPECIFIED HERE \$ |             |                                   |
| DRIVER NAME & NO.  |                         | DRIVER NAME & NO.             |  | TIME OF DEL.                                 | RECEIVED BY | RECEIVED BY                       |
| H. Verde   |                         | H. Verde                      |  | 3:55 PM                                      | H. Verde    | X                                 |

**ERMI** Environmental Laboratories  
Bethany Tech Center  
400 W. Bethany, Suite 190  
Allen, Texas 75013  
972-727-1123 (Local) • 800-228-ERMI  
972-727-1175 (Fax)

DATE: *11/18/11*

SAMPLE I.D.: *11/18/11*

SAMPLE TYPE:  
☐ GRAB ☐ COMPOSITE ☐ OTHER

PARAMETERS:

COMMENTS: *11/18*

COLLECTED BY: *11/18*

PRESERVED: ☐ YES ☐ NO

OTHER: *11/18*

ERMI SAMPLE NO.:

X-409

**ERMI** Environmental Laboratories  
Bethany Tech Center  
400 W. Bethany, Suite 190  
Allen, Texas 75013  
972-727-1123 (Local) • 800-228-ERMI  
972-727-1175 (Fax)

DATE: *11/18/11*

SAMPLE I.D.: *11/18/11*

SAMPLE TYPE:  
☐ GRAB ☐ COMPOSITE ☐ OTHER

PARAMETERS:

COMMENTS: *11/18/11*

COLLECTED BY: *11/18/11*

PRESERVED: ☐ YES ☐ NO

OTHER: *11/18/11*

ERMI SAMPLE NO.:

X-409



Lab Number(s): 1111547**ERMI****Sample Preservation Documentation\***On Ice (Circle One): **YES** OR NO (check if on Dry Ice \_\_\_\_\_)

| Parameters   | Containers<br># | Size | Required Preservation   | Sample<br>Container                              | Circle pH<br>Note any discrepancy  |
|--|-----------------|------|---|--|--|
| Metals   |                 |      | pH < 2  | Glass or Plastic                                 | pH < 2   |
| Dissolved Metals   |                 |      | Unpreserved prior to being filtered, Cool**                                   | Glass or Plastic                                 |  |
| Hexavalent Chromium  |                 |      | CWA - pH 9.3-9.7, Cool;<br>RCRA - Cool  | Glass or Plastic                                 | Checked At Analysis  |
| Semivolatiles,<br>Pesticides, PCBs,<br>Herbicides                                |                 |      | Cool  | Glass only<br>with Teflon lid                    | Chlorine <input type="checkbox"/> yes <input type="checkbox"/> no  |
| VOA (BTEX,<br>MTBE, 624, 8260,<br>TPH-GRO)                                       |                 |      | Cool, pH < 2<br>Zero Head Space   | 40 ml VOA vial                                   | DO NOT OPEN  |
| VOA<br>(TPH-1005)  |                 |      | Cool,<br>Zero Head Space<br>Please check if collected in<br>pre-weighed vials | 40 ml VOA vial                                   | DO NOT OPEN  |
| Phos., NO <sub>3</sub> /NO <sub>2</sub> ,<br>NH <sub>3</sub> N, COD,<br>TKN, TOC |                 |      | Cool, pH < 2  | Glass or Plastic                                 | pH < 2   |
| TDS, BOD,<br>CBOD, Cond, pH,<br>TSS, F, SO <sub>4</sub> , Cl,<br>Alk, Sulfite    |                 |      | Cool  | Glass or Plastic, Plastic<br>only if F           |  |
| Phenols,<br>TPH-DRO  |                 |      | Cool, pH < 2  | Glass only<br>Teflon lid _____<br>Foil lid _____ | pH < 2   |
| Oil & Grease,<br>TPH (by 1664a)  |                 |      | Cool, pH < 2  | Glass only<br>Teflon lid _____<br>Foil lid _____ | DO NOT<br>Check pH   |
| Cyanide  |                 |      | Cool, pH > 12   | Glass or Plastic                                 | pH > 12<br>Chlorine <input type="checkbox"/> yes <input type="checkbox"/> no<br>Sulfide <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> na |
| Sulfide  |                 |      | Cool, pH > 9  | Glass or Plastic                                 | pH > 9   |
| Bacteria   |                 |      | Cool  | Plastic<br>Sterile Cup                           |  |
| Soil, Sludge,<br>Solid,<br>Oil, Liquid   | 4               | 92   | Cool<br>Note: please check if<br>collected in pre-weighed<br>vials            | 9/10   |  |

Metals Preserved By Login ☐yes ☐noTrip Blanks Received ☐yes ☒no

COMMENTS: \_\_\_\_\_

\*This form is used to document sample preservation. Circle parameter requested. Fill in number and size of containers received. Check pH (adjust if needed) and note if different from what is required and make a notation of any samples not received on ice. Note any incorrect sample containers or preservation on chain-of-custody.

\*\*Cool means cooled to ≤6°C but not frozen.

Preservation Checked By \_\_\_\_\_

Date

Time

1000.0-3.2

kdy 7/10/08

Q:\Form Masters\1000.0-3.2 Sample Preservation Form

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State Certifications

Arkansas: 88-0647  
Oklahoma: 8727



Louisiana: 02007  
Kansas: E-10388  
Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 1 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

Attached is our analytical report for the samples received for your project. Below is a list of your individual sample descriptions with our corresponding laboratory number. We also have enclosed a copy of the Chain of Custody that was received with your samples and a form documenting the condition of your samples upon arrival. Please note any unused portion of the samples may be discarded upon expiration of the EPA holding time for the analysis performed or after 30 days from the above report date, unless you have requested otherwise.

**ERMI** Environmental Laboratories certifies that all results contained in this report were produced in accordance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) unless otherwise noted. The results presented apply to the samples analyzed in accordance with the chain-of-custody document(s) furnished with the samples. This report is intended for the sole use of the customer for whom the work was performed and must be reproduced, without modification, in its entirety.

**Sample Identification**

| <u>Laboratory ID #</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Sampled Date/Time</u> | <u>Received Date/Time</u> |
|------------------------|-------------------------|---------------|--------------------------|---------------------------|
| 1111557-01             | SC-SED 18               | Solid         | 11/18/11 16:20           | 11/19/11 11:40            |
| 1111557-02             | SC-SED 17               | Solid         | 11/18/11 16:35           | 11/19/11 11:40            |
| 1111557-03             | SC-SED 16               | Solid         | 11/18/11 16:45           | 11/19/11 11:40            |
| 1111557-04             | SC-SED 15               | Solid         | 11/18/11 16:50           | 11/19/11 11:40            |
| 1111557-05             | SC-SED 14               | Solid         | 11/18/11 17:00           | 11/19/11 11:40            |
| 1111557-06             | SC-SED 13               | Solid         | 11/18/11 17:10           | 11/19/11 11:40            |
| 1111557-07             | SC-SED 12               | Solid         | 11/18/11 17:15           | 11/19/11 11:40            |

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**Report of Sample Analysis**

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Page: Page 2 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

The analytical data and results contained in this report, as well as their supporting data, conform with Texas Risk Reduction Program (TRRP), 30 TAC, Section 350, requirements and are of sufficient and documented quality to meet both TRRP objectives, TCEQ regulatory guidance No. RG-366/TRRP-13 and the project-based objective of achieving the lowest method detection limit (i.e., the TRRP Critical PCL where reasonably achievable or, if not reasonably achievable, the MQL). All information concerning analytical parameters, methods and protocols that might bear upon or otherwise affect the accuracy of the analytical data in this report have been provided or otherwise disclosed herein. The data were obtained using applicable and appropriate EPA SW-846 or Texas Commission on Environmental Quality approved analytical protocols, methodologies and quality assurance/quality control standards. **ERMI Environmental Laboratories** certifies that its quality control program is substantially and materially consistent with the International Organization for Standardization "Guide 25: General Requirements the Competence of Calibration and Testing Laboratories (ISO 25 3rd Edition, 1990)," as amended or the quality standards outlined in the National Environmental Laboratory Accreditation Program, as amended. The entire analytical data package for this report, including the supporting quality control data, will be retained and maintained for at least five (5) years (or such longer period of time as may be required by TRRP) from the report date at the offices of **ERMI Environmental Laboratories, 400 W. Bethany, Suite 190, Allen, Texas 75013.**

I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Thank you for the opportunity to serve your environmental chemistry analysis needs. If you have any questions or concerns regarding this report please contact our Customer Service Department at the phone number below.

Respectfully submitted,

Kendall K. Brown  
President

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

Laboratory ID #:  
1111557-01

Sample Type  
Grab

Sample Description  
SC-SED 18

Matrix  
Solid  
Sample Date/Time  
11/18/11 1620

Sample Collected By  
Jason Minter/John  
Koehnman/Tommy Kim

Customer

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 190       | 0.154 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1654      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 85        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 48.08 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 8.10      | 0.36  | 0.25  | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0010      | SPS   | R-01    |
| Cadmium   | 0.43      | 0.42  | 0.221 | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0010      | SPS   | R-01, J |
| Lead  | 20.5      | 0.80  | 0.42  | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0010      | SPS   | R-01    |
| Selenium  | ND        | 0.91  | 0.4   | mg/kg dry | 4.81  | M4   | 1K28040 | 11/29/11 0010      | SPS   | R-01    |

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
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ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111557-02  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 17 |                            | <u>Sample Date/Time</u><br>11/18/11 1635 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 40.2      | 0.158 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1710      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 82        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.00 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 18.3      | 0.38  | 0.25  | mg/kg dry | 5.00  | M4   | 1K28040 | 11/29/11 0244      | SPS   | R-01    |
| Cadmium   | 1.19      | 0.45  | 0.221 | mg/kg dry | 5.00  | M4   | 1K28040 | 11/29/11 0244      | SPS   | R-01, J |
| Lead  | 43.1      | 0.85  | 0.42  | mg/kg dry | 5.00  | M4   | 1K28040 | 11/29/11 0244      | SPS   | R-01    |
| Selenium  | ND        | 0.97  | 0.4   | mg/kg dry | 5.00  | M4   | 1K28040 | 11/29/11 0244      | SPS   | R-01    |

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111557-03  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 16 |                            | <u>Sample Date/Time</u><br>11/18/11 1645 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 35.6      | 0.163 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1727      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 80        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.50 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 14.6      | 0.39  | 0.25  | mg/kg dry | 4.95  | M4   | 1K28040 | 11/29/11 0252      | SPS   | R-01 |
| Cadmium   | 1.49      | 0.46  | 0.221 | mg/kg dry | 4.95  | M4   | 1K28040 | 11/29/11 0252      | SPS   | R-01 |
| Lead  | 59.0      | 0.87  | 0.42  | mg/kg dry | 4.95  | M4   | 1K28040 | 11/29/11 0252      | SPS   | R-01 |
| Selenium  | ND        | 1.00  | 0.4   | mg/kg dry | 4.95  | M4   | 1K28040 | 11/29/11 0252      | SPS   | R-01 |



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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 6 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111557-04  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 15 |                            | <u>Sample Date/Time</u><br>11/18/11 1650 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |      |
| Sulfate (Total) as SO <sub>4</sub>                  | 58.0      | 0.167 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1743      | ANM   |      |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |      |
| % Solids  | 78        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |      |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 49.02 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |      |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |      |
| Arsenic   | 12.9      | 0.40  | 0.25  | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0300      | SPS   | R-01 |
| Cadmium   | 1.54      | 0.47  | 0.221 | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0300      | SPS   | R-01 |
| Lead  | 35.3      | 0.88  | 0.42  | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0300      | SPS   | R-01 |
| Selenium  | ND        | 1.01  | 0.4   | mg/kg dry | 4.90  | M4   | 1K28040 | 11/29/11 0300      | SPS   | R-01 |

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**Report of Sample Analysis**

Southwest Geoscience  
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ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111557-05  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 14 |                            | <u>Sample Date/Time</u><br>11/18/11 1700 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag       |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|------------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |            |
| Sulfate (Total) as SO <sub>4</sub>                  | 48.2      | 0.156 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1816      | ANM   |            |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |            |
| % Solids  | 83        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |            |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |            |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 50.51 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |            |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |            |
| Arsenic   | 12.7      | 0.38  | 0.25  | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0208      | SPS   | R-01       |
| Cadmium   | 0.79      | 0.45  | 0.221 | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0208      | SPS   | R-01, J    |
| Lead  | 27.7      | 0.85  | 0.42  | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0208      | SPS   | Q-20, R-01 |
| Selenium  | ND        | 0.97  | 0.4   | mg/kg dry | 5.05  | M4   | 1K28040 | 11/29/11 0208      | SPS   | R-01       |

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

Page: Page 8 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111557-06  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 13 |                            | <u>Sample Date/Time</u><br>11/18/11 1710 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 58.3      | 0.167 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1832      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 78        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 48.54 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 31.1      | 0.39  | 0.25  | mg/kg dry | 4.85  | M4   | 1K28040 | 11/29/11 0316      | SPS   | R-01    |
| Cadmium   | 0.84      | 0.46  | 0.221 | mg/kg dry | 4.85  | M4   | 1K28040 | 11/29/11 0316      | SPS   | R-01, J |
| Lead  | 33.7      | 0.87  | 0.42  | mg/kg dry | 4.85  | M4   | 1K28040 | 11/29/11 0316      | SPS   | R-01    |
| Selenium  | ND        | 1.00  | 0.4   | mg/kg dry | 4.85  | M4   | 1K28040 | 11/29/11 0316      | SPS   | R-01    |

**Environmental Laboratories**

Bethany Tech Center • Suite 190  
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State Certifications

Arkansas: 88-0647  
Oklahoma: 8727



Louisiana: 02007  
Kansas: E-10388  
Texas: T104704232-11-2

**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

|  |                            |  |  |          |
|--|----------------------------|--|--|----------|
| <u>Laboratory ID #:</u><br>1111557-07  | <u>Sample Type</u><br>Grab | <u>Matrix</u><br>Solid                   | <u>Sample Collected By</u><br>Jason Minter/John<br>Koehnan/Tommy Kim | Customer |
| <u>Sample Description</u><br>SC-SED 12 |                            | <u>Sample Date/Time</u><br>11/18/11 1715 |  |          |

| Analyte(s)  | Result    | SDL   | MQL   | Units     | F*    | Inst | Batch   | Analysis Date/Time | Anlst | Flag    |
|---|-----------|-------|-------|-----------|-------|------|---------|--------------------|-------|---------|
| <b>Conventional Chemistry Parameters, EPA 300.0</b> |           |       |       |           |       |      |         |                    |       |         |
| Sulfate (Total) as SO <sub>4</sub>                  | 172       | 0.199 | 1     | mg/kg dry | 1.00  | I2   | 1K22017 | 11/22/11 1849      | ANM   |         |
| <b>Conventional Chemistry Parameters, SM 2540G</b>  |           |       |       |           |       |      |         |                    |       |         |
| % Solids  | 65        | 0.040 | 0.2   | %         | 1.00  | W3   | 1K22018 | 11/22/11 1548      | KTF   |         |
| <b>Metals (Total), EPA 3050B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Acid Digestion of Sludges/Solids                    | Completed | N/A   | N/A   | -         | 51.55 | DB1  | 1K28040 | 11/28/11 0821      | MDG   |         |
| <b>Metals (Total), EPA 6010B</b>                    |           |       |       |           |       |      |         |                    |       |         |
| Arsenic   | 11.3      | 0.50  | 0.25  | mg/kg dry | 5.15  | M4   | 1K28040 | 11/29/11 0324      | SPS   | R-01    |
| Cadmium   | 0.79      | 0.58  | 0.221 | mg/kg dry | 5.15  | M4   | 1K28040 | 11/29/11 0324      | SPS   | R-01, J |
| Lead  | 56.7      | 1.11  | 0.42  | mg/kg dry | 5.15  | M4   | 1K28040 | 11/29/11 0324      | SPS   | R-01    |
| Selenium  | ND        | 1.26  | 0.4   | mg/kg dry | 5.15  | M4   | 1K28040 | 11/29/11 0324      | SPS   | R-01    |

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400 W. Bethany Rd. • Allen, Texas 75013State CertificationsArkansas: 88-0647  
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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 10 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07**Conventional Chemistry Parameters - Quality Control**

| Analyte(s)  | Result | *SDI  | Units     | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag |
|---|--------|-------|-----------|-------------|---------------------------|------|-------------|-----|-----------|------|
| <b>Blank (1K22017-BLK1)</b>                               |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 13:02         |        |       |           |             |                           |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | ND     | 0.130 | mg/kg wet |             |                           |      |             |     |           |      |
| <b>Laboratory Control Sample (1K22017-BS1)</b>            |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 13:19         |        |       |           |             |                           |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 46.3   | 0.130 | mg/kg wet | 50.0        |                           | 93   | 90-110      |     |           |      |
| <b>Laboratory Control Sample Duplicate (1K22017-BSD1)</b> |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 16:38         |        |       |           |             |                           |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 47.6   | 0.130 | mg/kg wet | 50.0        |                           | 95   | 90-110      | 3   | 20        |      |
| <b>Matrix Spike (1K22017-MS1) 1x</b>                      |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 13:52         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111547-01</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 140    | 0.200 | mg/kg dry | 76.9        | 69.8                      | 91   | 90-110      |     |           |      |
| <b>Matrix Spike (1K22017-MS2) 1x</b>                      |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 20:44         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111557-07</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 257    | 0.221 | mg/kg dry | 85.1        | 172                       | 100  | 90-110      |     |           |      |
| <b>Matrix Spike Duplicate (1K22017-MSD1) 1x</b>           |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 14:08         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111547-01</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 141    | 0.200 | mg/kg dry | 76.9        | 69.8                      | 92   | 90-110      | 0.6 | 20        |      |
| <b>Matrix Spike Duplicate (1K22017-MSD2) 1x</b>           |        |       |           |             |                           |      |             |     |           |      |
| Prepared: 11/22/11 12:30 Analyzed: 11/22/11 21:00         |        |       |           |             |                           |      |             |     |           |      |
|   |        |       |           |             | <b>Source: 1111557-07</b> |      |             |     |           |      |
| Sulfate (Total) as SO <sub>4</sub>                        | 257    | 0.221 | mg/kg dry | 85.1        | 172                       | 99   | 90-110      | 0.3 | 20        |      |
| <b>Blank (1K22018-BLK1)</b>                               |        |       |           |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 15:48                       |        |       |           |             |                           |      |             |     |           |      |
| % Solids  | ND     | 0.040 | %         |             |                           |      |             |     |           |      |

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**Report of Sample Analysis**

Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz Scaggs

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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

**Conventional Chemistry Parameters - Quality Control**

| Analyte(s)                          | Result | *SDI  | Units | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag |
|-------------------------------------|--------|-------|-------|-------------|---------------------------|------|-------------|-----|-----------|------|
| <b>Duplicate (1K22018-DUP1)</b>     |        |       |       |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 15:48 |        |       |       |             | <b>Source: 1111493-01</b> |      |             |     |           |      |
| % Solids                            | 1.0    | 0.040 | %     |             | 1.1                       |      |             | 10  | 7         | Q-26 |
| <b>Duplicate (1K22018-DUP2)</b>     |        |       |       |             |                           |      |             |     |           |      |
| Prepared & Analyzed: 11/22/11 15:48 |        |       |       |             | <b>Source: 1111563-01</b> |      |             |     |           |      |
| % Solids                            | 84     | 0.040 | %     |             | 84                        |      |             | 0.2 | 7         |      |



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**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 12 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07**Metals (Total) - Quality Control**

| Analyte(s)  | Result    | *SDI | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag       |
|---|-----------|------|-----------|-------------|---------------|------|-------------|-----|-----------|------------|
| <b>Blank (1K28040-BLK1)</b>                               |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      |             |     |           |            |
| Arsenic   | ND        | 0.06 | mg/kg wet |             |               |      |             |     |           |            |
| Cadmium   | ND        | 0.07 | mg/kg wet |             |               |      |             |     |           |            |
| Lead  | ND        | 0.14 | mg/kg wet |             |               |      |             |     |           |            |
| Selenium  | ND        | 0.16 | mg/kg wet |             |               |      |             |     |           |            |
| <b>Laboratory Control Sample (1K28040-BS1)</b>            |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      | 0-0         |     |           |            |
| Arsenic   | 21.2      | 0.06 | mg/kg wet | 24.5        |               | 86   | 80-120      |     |           |            |
| Cadmium   | 22.3      | 0.07 | mg/kg wet | 24.5        |               | 91   | 80-120      |     |           |            |
| Lead  | 21.6      | 0.14 | mg/kg wet | 24.5        |               | 88   | 80-120      |     |           |            |
| Selenium  | 43.0      | 0.16 | mg/kg wet | 49.0        |               | 88   | 80-120      |     |           |            |
| <b>Laboratory Control Sample Duplicate (1K28040-BSD1)</b> |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             |               |      | 0-0         |     | 0         |            |
| Arsenic   | 22.6      | 0.06 | mg/kg wet | 25.3        |               | 89   | 80-120      | 7   | 20        |            |
| Cadmium   | 23.6      | 0.07 | mg/kg wet | 25.3        |               | 93   | 80-120      | 6   | 20        |            |
| Lead  | 22.8      | 0.14 | mg/kg wet | 25.3        |               | 90   | 80-120      | 5   | 20        |            |
| Selenium  | 45.3      | 0.16 | mg/kg wet | 50.5        |               | 90   | 80-120      | 5   | 20        |            |
| <b>Matrix Spike (1K28040-MS1)</b>                         |           |      |           |             |               |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21                       |           |      |           |             |               |      |             |     |           |            |
| Acid Digestion of Sludges/Solids                          | Completed | N/A  | -         |             | ND            |      | 0-0         |     |           |            |
| Arsenic   | 55.3      | 0.86 | mg/kg dry | 33.9        | 12.0          | 128  | 75-125      |     |           | Q-02, R-01 |
| Cadmium   | 37.8      | 1.00 | mg/kg dry | 33.9        | 0.95          | 109  | 75-125      |     |           | R-01       |
| Lead  | 92.3      | 1.90 | mg/kg dry | 33.9        | 39.1          | 157  | 75-125      |     |           | Q-02, R-01 |
| Selenium  | 66.3      | 2.17 | mg/kg dry | 67.9        | ND            | 98   | 75-125      |     |           | R-01       |

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Texas: T104704232-11-2**Report of Sample Analysis**Southwest Geoscience  
2351 W. Northwest Hwy, Suite 3321  
Dallas, TX 75220  
ATTN: Liz ScaggsPage: Page 13 of 14  
Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07**Metals (Total) - Quality Control**

| Analyte(s)                                   | Result    | *SDI | Units     | Spike Level | Source Result             | %REC | %REC Limits | RPD | RPD Limit | Flag       |
|--|-----------|------|-----------|-------------|---------------------------|------|-------------|-----|-----------|------------|
| <b>Matrix Spike (1K28040-MS2)</b>            |           |      |           |             |                           |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111557-05</b> |      |             |     |           |            |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     |           |            |
| Arsenic                                      | 42.9      | 0.77 | mg/kg dry | 30.7        | 12.7                      | 99   | 75-125      |     |           | R-01       |
| Cadmium                                      | 31.2      | 0.91 | mg/kg dry | 30.7        | 0.79                      | 99   | 75-125      |     |           | R-01       |
| Lead   | 75.9      | 1.72 | mg/kg dry | 30.7        | 27.7                      | 157  | 75-125      |     |           | Q-02, R-01 |
| Selenium                                     | 58.0      | 1.96 | mg/kg dry | 61.3        | ND                        | 95   | 75-125      |     |           | R-01       |
| <b>Matrix Spike Duplicate (1K28040-MSD1)</b> |           |      |           |             |                           |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111547-01</b> |      |             |     |           |            |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     | 0         |            |
| Arsenic                                      | 42.5      | 0.90 | mg/kg dry | 35.7        | 12.0                      | 85   | 75-125      | 26  | 20        | Q-04, R-01 |
| Cadmium                                      | 45.8      | 1.06 | mg/kg dry | 35.7        | 0.95                      | 126  | 75-125      | 19  | 20        | Q-02, R-01 |
| Lead   | 67.8      | 2.00 | mg/kg dry | 35.7        | 39.1                      | 81   | 75-125      | 31  | 20        | Q-04, R-01 |
| Selenium                                     | 72.2      | 2.28 | mg/kg dry | 71.4        | ND                        | 101  | 75-125      | 8   | 20        | R-01       |
| <b>Matrix Spike Duplicate (1K28040-MSD2)</b> |           |      |           |             |                           |      |             |     |           |            |
| Prepared & Analyzed: 11/28/11 08:21          |           |      |           |             | <b>Source: 1111557-05</b> |      |             |     |           |            |
| Acid Digestion of Sludges/Solids             | Completed | N/A  | -         |             | ND                        |      | 0-0         |     | 0         |            |
| Arsenic                                      | 40.1      | 0.74 | mg/kg dry | 29.5        | 12.7                      | 93   | 75-125      | 7   | 20        | R-01       |
| Cadmium                                      | 29.9      | 0.87 | mg/kg dry | 29.5        | 0.79                      | 99   | 75-125      | 4   | 20        | R-01       |
| Lead   | 65.4      | 1.65 | mg/kg dry | 29.5        | 27.7                      | 128  | 75-125      | 15  | 20        | Q-02, R-01 |
| Selenium                                     | 56.0      | 1.89 | mg/kg dry | 58.9        | ND                        | 95   | 75-125      | 4   | 20        | R-01       |



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## Report of Sample Analysis

Southwest Geoscience  
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Project: SC Sediment Sampling  
Project #: 0111278  
Print Date/Time: 11/30/11 17:07

### Notes and Definitions

The results presented in this report were generated using those methods given in 40 CFR Part 136 for Water and Wastewater samples and in SW-846 for RCRA/Solid Waste samples.

|          |   |
|----------|---|
| J        | This value is above the method detection limit but below the reporting limit.   |
| Q-02     | The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range. |
| Q-04     | The RPD of this analyte between the MS(s) was outside of the acceptable range. The RPD of this same analyte between the LCS(s) was within the acceptable range.   |
| Q-20     | The recovery of this analyte in the MS was higher than the acceptable range. This indicates a high bias to the result presented.  |
| Q-26     | The RPD between duplicate analyses was outside of the acceptable range. This indicates the result was not as precise as expected.   |
| R-01     | The higher reporting limit is due to dilutions required for analysis as a result of a high concentration of target and/or non-target parameters in this sample.   |
| ND       | Analyte NOT DETECTED at or above the reporting limit  |
| dry      | Sample results reported on a dry weight basis   |
| LCS/LCSD | Laboratory Control Sample/Laboratory Control Sample Duplicate   |
| MS/MSD   | Matrix Spike/Matrix Spike Duplicate   |
| RPD      | Relative Percent Difference   |
| mg/kg    | milligrams per kilogram   |
| mg/l     | milligrams per liter  |
| ug/kg    | micrograms per kilogram   |
| ug/l     | micrograms per liter  |
| exc      | Not covered under scope of NELAP accreditation.   |
| F*       | Calculated factor rounded to 3 significant figures. Concentration factor when <1.00 and dilution factor when >1.00.   |
| Inst     | Instrument Identification   |
| Anlst    | Analyst Initials  |
| SDL      | Sample Detection Limit  |
| MQL      | Method Quantitation Limit   |
| naa      | This analysis/parameter is not accreditable under the current NELAP program   |

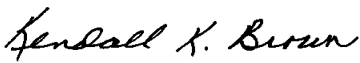
# Laboratory Data Package Cover Page

This data package for Laboratory Job Number 1111557 consists of:

- ☒ This signature page, the laboratory review checklist, and the following reportable data:
- ☒ **R1** Field chain-of-custody documentation;
- ☒ **R2** Sample identification cross-reference;
- ☒ **R3** Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- ☒ **R4** Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- ☒ **R5** Test reports/summary forms for blank samples;
- ☒ **R6** Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- ☒ **R7** Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- ☒ **R8** Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- ☒ **R9** List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- ☒ **R10** Other problems or anomalies.
- ☒ The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

**Release Statement:** I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:** [ ] This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

|                  |   |                          |          |
|------------------|---|--------------------------|----------|
| Kendall K. Brown |  | President                | 11/30/11 |
| Name (Printed)   | Signature   | Official Title (Printed) | Date     |



Laboratory Review Checklist: Reportable Data

| <b>Laboratory Name:</b> |                | ERM Environmental Laboratories   | <b>LRC Date:</b>              |    | 11/30/11                |                 |                  |      |  |
|-------------------------|----------------|--|-------------------------------|----|-------------------------|-----------------|------------------|------|--|
| <b>Project Name:</b>    |                | SC Sediment Sampling   | <b>Laboratory Job Number:</b> |    | 1111557                 |                 |                  |      |  |
| <b>Reviewer Name:</b>   |                | Leslie Underwood   | <b>Prep Batch Number(s):</b>  |    | 1K22017,1K22018,1K28040 |                 |                  |      |  |
| # <sup>1</sup>          | A <sup>2</sup> | Description  | Yes                           | No | NA <sup>3</sup>         | NR <sup>4</sup> | ER# <sup>5</sup> |      |  |
| R1                      | OI             | <b>Chain-of-custody (C-O-C)</b>  |                               |    |                         |                 |                  |      |  |
|                         |                | Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?                                      | X                             |    |                         |                 |                  |      |  |
|                         |                | Were all departures from standard conditions described in an exception report?   | X                             |    |                         |                 |                  |      |  |
| R2                      | OI             | <b>Sample and quality control (QC) identification</b>  |                               |    |                         |                 |                  |      |  |
|                         |                | Are all field sample ID numbers cross-referenced to the laboratory ID numbers?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Are all laboratory ID numbers cross-referenced to the corresponding QC data?   | X                             |    |                         |                 |                  |      |  |
| R3                      | OI             | <b>Test reports</b>  |                               |    |                         |                 |                  |      |  |
|                         |                | Were all samples prepared and analyzed within holding times?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Other than those results < MQL, were all other raw values bracketed by calibration standards?                                    | X                             |    |                         |                 |                  |      |  |
|                         |                | Were calculations checked by a peer or supervisor?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were all analyte identifications checked by a peer or supervisor?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Were sample quantitation limits reported for all analytes not detected?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Were all results for soil and sediment samples reported on a dry weight basis?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were % moisture (or solids) reported for all soil and sediment samples?  | X                             |    |                         |                 |                  |      |  |
|                         |                | If required for the project, TICs reported?  |                               |    |                         | X               |                  |      |  |
| R4                      | O              | <b>Surrogate recovery data</b>   |                               |    |                         |                 |                  |      |  |
|                         |                | Were surrogates added prior to extraction?   |                               |    |                         | X               |                  |      |  |
|                         |                | Were surrogate percent recoveries in all samples within the laboratory QC limits?  |                               |    |                         | X               |                  |      |  |
| R5                      | OI             | <b>Test reports/summary forms for blank samples</b>  |                               |    |                         |                 |                  |      |  |
|                         |                | Were appropriate type(s) of blanks analyzed?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were blanks analyzed at the appropriate frequency?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?    | X                             |    |                         |                 |                  |      |  |
|                         |                | Were blank concentrations < MQL?   | X                             |    |                         |                 |                  |      |  |
| R6                      | OI             | <b>Laboratory control samples (LCS):</b>   |                               |    |                         |                 |                  |      |  |
|                         |                | Were all COCs included in the LCS?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?                                    | X                             |    |                         |                 |                  |      |  |
|                         |                | Were LCSs analyzed at the required frequency?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?       | X                             |    |                         |                 |                  |      |  |
|                         |                | Was the LCSD RPD within QC limits?   | X                             |    |                         |                 |                  |      |  |
| R7                      | OI             | <b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>   |                               |    |                         |                 |                  |      |  |
|                         |                | Were the project/method specified analytes included in the MS and MSD?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were MS/MSD analyzed at the appropriate frequency?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?  |                               | X  |                         |                 |                  | E001 |  |
|                         |                | Were MS/MSD RPDs within laboratory QC limits?  |                               | X  |                         |                 |                  | E002 |  |
| R8                      | OI             | <b>Analytical duplicate data</b>   |                               |    |                         |                 |                  |      |  |
|                         |                | Were appropriate analytical duplicates analyzed for each matrix?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Were analytical duplicates analyzed at the appropriate frequency?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Were RPDs or relative standard deviations within the laboratory QC limits?   |                               | X  |                         |                 |                  | E003 |  |
| R9                      | OI             | <b>Method quantitation limits (MQLs):</b>  |                               |    |                         |                 |                  |      |  |
|                         |                | Are the MQLs for each method analyte included in the laboratory data package?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Are unadjusted MQLs included in the laboratory data package?   | X                             |    |                         |                 |                  |      |  |
| R10                     | OI             | <b>Other problems/anomalies</b>  |                               |    |                         |                 |                  |      |  |
|                         |                | Are all known problems/anomalies/special conditions noted in this LRC and ER?  | X                             |    |                         |                 |                  |      |  |
|                         |                | Were all necessary corrective actions performed for the reported data?   | X                             |    |                         |                 |                  |      |  |
|                         |                | Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results? | X                             |    |                         |                 |                  |      |  |

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- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).





**Laboratory Review Checklist: Reportable Data**

| <b>Laboratory Name:</b> |                | <b>ERMI Environmental Laboratories</b>   | <b>LRC Date:</b>             |    | <b>11/30/11</b>                |                 |                  |  |  |
|-------------------------|----------------|--|------------------------------|----|--------------------------------|-----------------|------------------|--|--|
| <b>Project Name:</b>    |                | <b>SC Sediment Sampling</b>  | <b>Laboratory Job</b>        |    | <b>1111557</b>                 |                 |                  |  |  |
| <b>Reviewer Name:</b>   |                | <b>Leslie Underwood</b>  | <b>Prep Batch Number(s):</b> |    | <b>1K22017,1K22018,1K28040</b> |                 |                  |  |  |
| # <sup>1</sup>          | A <sup>2</sup> | Description  | Yes                          | No | NA <sup>3</sup>                | NR <sup>4</sup> | ER# <sup>5</sup> |  |  |
| <b>S1</b>               | <b>OI</b>      | <b>Initial calibration (ICAL)</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were response factors and/or relative response factors for each analyte within QC limits?              | X                            |    |                                |                 |                  |  |  |
|                         |                | Were percent RSDs or correlation coefficient criteria met?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the number of standards recommended in the method used for all analytes?                           | X                            |    |                                |                 |                  |  |  |
|                         |                | Were all points generated between the lowest and highest standard used to calculate the curve?         | X                            |    |                                |                 |                  |  |  |
|                         |                | Are ICAL data available for all instruments used?  | X                            |    |                                |                 |                  |  |  |
|                         |                | Has the initial calibration curve been verified using an appropriate second source standard?           | X                            |    |                                |                 |                  |  |  |
| <b>S2</b>               | <b>OI</b>      | <b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration</b>       |                              |    |                                |                 |                  |  |  |
|                         |                | Was the CCV analyzed at the method-required frequency?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Were percent differences for each analyte within the method-required QC limits?                        | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the ICAL curve verified for each analyte?  | X                            |    |                                |                 |                  |  |  |
|                         |                | Was the absolute value of the analyte concentration in the inorganic CCB < MDL?                        | X                            |    |                                |                 |                  |  |  |
| <b>S3</b>               | <b>O</b>       | <b>Mass spectral tuning:</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was the appropriate compound for the method used for tuning?   |                              |    | X                              |                 |                  |  |  |
|                         |                | Were ion abundance data within the method-required QC limits?  |                              |    | X                              |                 |                  |  |  |
| <b>S4</b>               | <b>O</b>       | <b>Internal standards (IS):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were IS area counts and retention times within the method-required QC limits?                          |                              |    | X                              |                 |                  |  |  |
| <b>S5</b>               | <b>OI</b>      | <b>Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section</b>        |                              |    |                                |                 |                  |  |  |
|                         |                | Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?                  | X                            |    |                                |                 |                  |  |  |
|                         |                | Were data associated with manual integrations flagged on the raw data?                                 | X                            |    |                                |                 |                  |  |  |
| <b>S6</b>               | <b>O</b>       | <b>Dual column confirmation</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Did dual column confirmation results meet the method-required QC?                                      |                              |    | X                              |                 |                  |  |  |
| <b>S7</b>               | <b>O</b>       | <b>Tentatively identified compounds (TICs):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?              |                              |    | X                              |                 |                  |  |  |
| <b>S8</b>               | <b>I</b>       | <b>Interference Check Sample (ICS) results:</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Were percent recoveries within method QC limits?   | X                            |    |                                |                 |                  |  |  |
| <b>S9</b>               | <b>I</b>       | <b>Serial dilutions, post digestion spikes, and method of standard additions</b>                       |                              |    |                                |                 |                  |  |  |
|                         |                | Were percent differences, recoveries, and the linearity within the QC limits specified in the method?  | X                            |    |                                |                 |                  |  |  |
| <b>S10</b>              | <b>OI</b>      | <b>Method detection limit (MDL) studies</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Was a MDL study performed for each reported analyte?   | X                            |    |                                |                 |                  |  |  |
|                         |                | Is the MDL either adjusted or supported by the analysis of DCSs?                                       | X                            |    |                                |                 |                  |  |  |
| <b>S11</b>              | <b>OI</b>      | <b>Proficiency test reports:</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies? | X                            |    |                                |                 |                  |  |  |
| <b>S12</b>              | <b>OI</b>      | <b>Standards documentation</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?      | X                            |    |                                |                 |                  |  |  |
| <b>S13</b>              | <b>OI</b>      | <b>Compound/analyte identification procedures</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Are the procedures for compound/analyte identification documented?                                     | X                            |    |                                |                 |                  |  |  |
| <b>S14</b>              | <b>OI</b>      | <b>Demonstration of analyst competency (DOC)</b>   |                              |    |                                |                 |                  |  |  |
|                         |                | Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?                                       | X                            |    |                                |                 |                  |  |  |
|                         |                | Is documentation of the analyst's competency up-to-date and on file?                                   | X                            |    |                                |                 |                  |  |  |
| <b>S15</b>              | <b>OI</b>      | <b>Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)</b>     |                              |    |                                |                 |                  |  |  |
|                         |                | Are all the methods used to generate the data documented, verified, and validated, where applicable?   | X                            |    |                                |                 |                  |  |  |
| <b>S16</b>              | <b>OI</b>      | <b>Laboratory standard operating procedures (SOPs):</b>  |                              |    |                                |                 |                  |  |  |
|                         |                | Are laboratory SOPs current and on file for each method performed?                                     | X                            |    |                                |                 |                  |  |  |

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2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

3. NA = Not applicable;

4. NR = Not reviewed;

5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

**Laboratory Review Checklist: Exception Reports**

|                         |  |                              |                                |
|-------------------------|--|------------------------------|--------------------------------|
| <b>Laboratory Name:</b> | <b>ERM Environmental Laboratories</b>  | <b>LRC Date:</b>             | <b>11/30/11</b>                |
| <b>Project Name:</b>    | <b>SC Sediment Sampling</b>  | <b>Laboratory Job</b>        | <b>1111557</b>                 |
| <b>Reviewer Name:</b>   | <b>Leslie Underwood</b>  | <b>Prep Batch Number(s):</b> | <b>1K22017,1K22018,1K28040</b> |
| <b>ER#<sup>1</sup></b>  | <b>Description</b>   |                              |                                |
| E001                    | <p>Matrix Spike Recovery for Arsenic (128%) was outside acceptance limits (75-125) in 1K28040-MS1 for As Total ICP 6010B<br/>         - The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range.</p> <p>Matrix Spike Recovery for Lead (157%) was outside acceptance limits (75-125) in 1K28040-MS1 for Pb Total ICP 6010B<br/>         - The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range.</p> <p>Matrix Spike Recovery for Lead (157%) was outside acceptance limits (75-125) in 1K28040-MS2 for Pb Total ICP 6010B<br/>         - The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a high bias to the result presented for the source sample (1111557-05) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</p> <p>Matrix Spike Recovery for Cadmium (126%) was outside acceptance limits (75-125) in 1K28040-MSD1 for Cd Total ICP 6010B<br/>         - The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. The recovery of this analyte in the LCS(s) was within the acceptable range.</p> <p>Matrix Spike Recovery for Lead (128%) was outside acceptance limits (75-125) in 1K28040-MSD2 for Pb Total ICP 6010B<br/>         - The recovery of this analyte in the MS was outside the acceptable range due to interference, large dilutions required for analysis or a combination of these factors. This indicates a high bias to the result presented for the source sample (1111557-05) reported from this batch. The recovery of this analyte in the LCS(s) was within the acceptable range.</p> |                              |                                |
| E002                    | <p>Matrix Spike Duplicate RPD for Arsenic (26%) was above the acceptance limit (20) in 1K28040-MSD1 for As Total ICP 6010B<br/>         - The RPD of this analyte between the MS(s) was outside of the acceptable range. The RPD of this same analyte between the LCS(s) was within the acceptable range.</p> <p>Matrix Spike Duplicate RPD for Lead (31%) was above the acceptance limit (20) in 1K28040-MSD1 for Pb Total ICP 6010B<br/>         - The RPD of this analyte between the MS(s) was outside of the acceptable range. The RPD of this same analyte between the LCS(s) was within the acceptable range.</p>   |                              |                                |
| E003                    | <p>Duplicate RPD for % Solids (10%) was above the acceptance limit (7) in 1K22018-DUP1 for Dry Weight 2540G<br/>         - The RPD between duplicate analyses was outside of the acceptable range. This indicates the result was not as precise as expected.</p>   |                              |                                |

1. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

|  |  |  |  |   |  |  |  |
|--|--|--|--|---|--|--|--|
| <h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0;">Environmental &amp; Hydrogeologic Consultants</p> |  | <p style="margin: 0;">Laboratory: <u>ERMI</u></p> <p style="margin: 0;">Address: _____</p> <p style="margin: 0;">Contact: _____</p> <p style="margin: 0;">Phone: <u>972-727-1123</u></p> <p style="margin: 0;">PO/ISO #: _____</p> |  | <p style="margin: 0;">ANALYSIS REQUESTED</p>  |  | <p style="margin: 0;">Lab use only</p> <p style="margin: 0;">Due Date: _____</p> |  |
| <p style="margin: 0;">Office Location <u>Dallas, TX</u></p>  |  | <p style="margin: 0;">Temp. of coolers when received (C°): <u>IR-01</u></p> <p style="margin: 0;">Page <u>20</u> of <u>5</u></p>   |  | <p style="margin: 0;">Temp. of coolers when received (C°): <u>IR-01</u></p> <p style="margin: 0;">Page _____ of _____</p> |  | <p style="margin: 0;">Lab Sample ID (Lab Use Only)</p>                           |  |
| <p style="margin: 0;">Project Manager <u>Liz Seabos</u></p>  |  | <p style="margin: 0;">Sampler's Signature <u>[Signature]</u></p>   |  | <p style="margin: 0;">Project Name <u>SC SEDIMENT SAMPLING</u></p>  |  | <p style="margin: 0;">Name of Containers</p>                                     |  |
| <p style="margin: 0;">Proj. No. <u>011278</u></p>  |  | <p style="margin: 0;">Identifying Marks of Sample(s)</p>   |  | <p style="margin: 0;">Date</p>  |  | <p style="margin: 0;">Time</p>   |  |
| <p style="margin: 0;">Matrix</p>   |  | <p style="margin: 0;">G r a b</p>  |  | <p style="margin: 0;">C o m p</p>   |  | <p style="margin: 0;">Vol. / A/G 1 Lt. / 250 ml</p>                              |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 18</p>  |  | <p style="margin: 0;">11/12/11</p>  |  | <p style="margin: 0;">1600</p>   |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 17</p>  |  | <p style="margin: 0;">11/12/11</p>  |  | <p style="margin: 0;">1635</p>   |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 16</p>  |  | <p style="margin: 0;">11/12/11</p>  |  | <p style="margin: 0;">1645</p>   |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 15</p>  |  | <p style="margin: 0;">11/12/11</p>  |  | <p style="margin: 0;">1650</p>   |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 14</p>  |  | <p style="margin: 0;">11/12/11</p>  |  | <p style="margin: 0;">1700</p>   |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 13</p>  |  | <p style="margin: 0;">11/12/11</p>  |  | <p style="margin: 0;">1710</p>   |  |
| <p style="margin: 0;">S</p>  |  | <p style="margin: 0;">SC-SEP 12</p>  |  | <p style="margin: 0;">11/13/11</p>  |  | <p style="margin: 0;">1715</p>   |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-01</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-02</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-03</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-04</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-05</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-06</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-07</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-08</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-09</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-10</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-11</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-12</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-13</p>  |  |
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| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-15</p>  |  |
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| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-17</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-18</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-19</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-20</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-21</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-22</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-23</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-24</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-25</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-26</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-27</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-28</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-29</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-30</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-31</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-32</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-33</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-34</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-35</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-36</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-37</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-38</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-39</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-40</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-41</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-42</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-43</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-44</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-45</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-46</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-47</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-48</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-49</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-50</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-51</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-52</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-53</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-54</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-55</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-56</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-57</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-58</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-59</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  | <p style="margin: 0;">1715</p>  |  | <p style="margin: 0;">111557-60</p>  |  |
| <p style="margin: 0;">pr-biller</p>  |  | <p style="margin: 0;">11/13/11</p>   |  |   |  |  |  |

Lab Number(s): 111557

**ERM**

# Sample Preservation Documentation\*

On Ice (Circle One) YES OR NO (check if on Dry Ice \_\_\_\_\_)

| Parameters   | Containers<br># | Size | Required Preservation   | Sample<br>Container                              | Circle pH<br>Note any discrepancy  |
|--|-----------------|------|---|--|--|
| Metals   |                 |      | pH < 2  | Glass or<br>Plastic                              | pH < 2   |
| Dissolved Metals   |                 |      | Unpreserved prior to being<br>filtered, Cool**                                | Glass or<br>Plastic                              |  |
| Hexavalent<br>Chromium   |                 |      | CWA - pH 9.3-9.7, Cool;<br>RCRA - Cool  | Glass or<br>Plastic                              | Checked At Analysis  |
| Semivolatiles,<br>Pesticides, PCBs,<br>Herbicides                                |                 |      | Cool  | Glass only<br>with Teflon lid                    | Chlorine <input type="checkbox"/> yes <input type="checkbox"/> no  |
| VOA (BTEX,<br>MTBE, 624, 8260,<br>TPH-GRO)                                       |                 |      | Cool, pH < 2<br>Zero Head Space   | 40 ml VOA vial                                   | DO NOT<br>OPEN   |
| VOA<br>(TPH-1005)  |                 |      | Cool,<br>Zero Head Space<br>Please check if collected in<br>pre-weighed vials | 40 ml VOA vial                                   | DO NOT OPEN  |
| Phos., NO <sub>3</sub> /NO <sub>2</sub> ,<br>NH <sub>3</sub> N, COD,<br>TKN, TOC |                 |      | Cool, pH < 2  | Glass or<br>Plastic                              | pH < 2   |
| TDS, BOD,<br>CBOD, Cond, pH,<br>TSS, F, SO <sub>4</sub> , Cl,<br>Alk, Sulfite    |                 |      | Cool  | Glass or<br>Plastic, Plastic<br>only if F        |  |
| Phenols,<br>TPH-DRO  |                 |      | Cool, pH < 2  | Glass only<br>Teflon lid _____<br>Foil lid _____ | pH < 2   |
| Oil & Grease,<br>TPH (by 1664a)  |                 |      | Cool, pH < 2  | Glass only<br>Teflon lid _____<br>Foil lid _____ | DO NOT<br>Check pH   |
| Cyanide  |                 |      | Cool, pH > 12   | Glass or<br>Plastic                              | pH > 12<br>Chlorine <input type="checkbox"/> yes <input type="checkbox"/> no<br>Sulfide <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> na |
| Sulfide  |                 |      | Cool, pH > 9  | Glass or<br>Plastic                              | pH > 9   |
| Bacteria   |                 |      | Cool  | Plastic<br>Sterile Cup                           |  |
| Soil, Sludge,<br>Solid,<br>Oil, Liquid   | 7               | 92   | Cool<br>Note: please check if<br>collected in pre-weighed<br>vials            | g/l  |  |

Metals Preserved By Login ☐yes ☐no

Trip Blanks Received ☐yes ☒no

COMMENTS: \_\_\_\_\_

\*This form is used to document sample preservation. Circle parameter requested. Fill in number and size of containers received. Check pH (adjust if needed) and note if different from what is required and make a notation of any samples not received on ice. Note any incorrect sample containers or preservation on chain-of-custody.

\*\*Cool means cooled to ≤6°C but not frozen.

Preservation Checked By \_\_\_\_\_

Date

Time

1000.0-3.2

kdy 7/10/08

Q:\Form Masters\1000.0-3.2 Sample Preservation Form