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**KANSAS OXIDE SITE
REVISED REMOVAL SITE
EVALUATION (RSE) REPORT
603 SUNSHINE ROAD
KANSAS CITY, KANSAS**

FINAL

PROJECT NO. 112417

OCTOBER 11, 2012

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ENVIRONMENTAL REMEDIATION**

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October 11, 2012
Project No. 112417

Metals & Additives Corporation, Inc.
C/O: Lathrop & Gage, LLP
2345 Grand Blvd, Suite 2200
Kansas City, Missouri 64108

**RE: Kansas Oxide Site
Revised Removal Site Evaluation (RSE) Report
603 Sunshine Road
Kansas City, Kansas**

Dear Ms. Merrigan:

Enclosed are two (2) hard copies and one electronic copy of the Revised Removal Site Evaluation (RSE) Report for the above-referenced property. A third copy has been provided to the Kansas Department of Health and Environment.

Should you have any questions or comments regarding this Report, please feel free to contact the undersigned.

Respectfully submitted,
KLEINFELDER

A handwritten signature in cursive script that reads "Lisa G. Messinger".

Lisa G. Messinger
Project Manager

LGM:smo

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REVISED REMOVAL SITE EVALUATION (RSE) REPORT

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603 Sunshine Road
Kansas City, Kansas**

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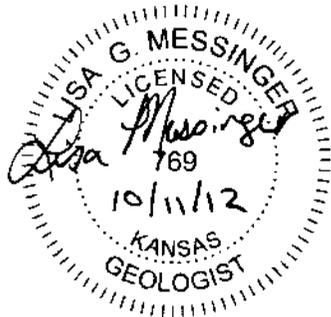
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A Report Prepared for:

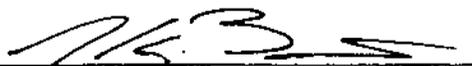
Kansas Department of Health and Environment
1000 SW Jackson St
Suite 410
Topeka, Kansas 66612

**Revised Removal Site Evaluation (RSE) Report
Kansas Oxide Site
603 Sunshine Road
Kansas City, Kansas**

Project No. 112417
October 11, 2012



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**REVISED REMOVAL SITE EVALUATION (RSE) REPORT
KANSAS OXIDE SITE
603 SUNSHINE ROAD
KANSAS CITY, KANSAS**

1 INTRODUCTION

This Revised Removal Site Evaluation (RSE) Report has been developed for the Kansas Oxide Site located at **603 Sunshine Road, Kansas City, Kansas** (See Figure 1, Site Location Map). This Revised RSE Report summarizes the scope of work completed for investigating lead concentrations in soil and groundwater at the Kansas Oxide Site, in addition to an evaluation of removal action alternatives. This Revised RSE Report was prepared to meet the requirements of the Kansas Department of Health and Environment (KDHE) Consent Agreement (CO) and Final Order, KDHE case numbers 10-E-0038 BER and 10-E-0082 BER, and KDHE Scope of Work for Removal Site Evaluations (BER-RS-031). Generally, the required tasks pursuant to CO Case No. 10-E-0082 include only the RSE provisions of the RSE/Removal Action Design (RAD)/Removal Action (RA) Scope of Work, and the required tasks pursuant to CO Case No. 101-E-0038 include the full Scope of Work provisions for the RSE/RAD/RA. The approach summarized in this report was conducted in order to implement and satisfy the Scope of Work requirements for an RSE relative to both COs and the site, in both on-site and off-site areas as required.

Per KDHE request, soil samples were submitted for analysis of both lead and arsenic; however, only lead is the potential chemical of concern (PCOC) and only lead will be characterized and evaluated as part of this Revised RSE Report. Both lead and arsenic detections in soil and groundwater samples collected during the RSE field activities are summarized in the Appendices of this report.

1.1 PURPOSE AND OBJECTIVES

Metals and Additives Corporation, Inc. has retained Kleinfelder to manage and perform technical requirements for the RSE project. The purpose is to conduct a RSE that is consistent with the KDHE Scope of Work for Removal Site Evaluations (BER-RS-031), using National Contingency Plan (NCP) guidance (40 CFR 300) as a foundation. The NCP lists several factors to be considered in determining the appropriateness of a removal action pursuant to 40 CFR 300.415 (also outlined in BER-RS-0031). Those

factors that may be specifically relevant for consideration with respect to the Kansas Oxide Site include:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;
- Actual or potential contamination of drinking water supplies or sensitive ecosystems;
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate; and
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

The scope of work for the RSE was developed considering the NCP-listed factors and designed to satisfy the associated set of primary objectives:

- Delineate and characterize the nature and extent of lead contamination in soil;
- Determine if lead has migrated vertically to impact groundwater;
- Characterize the physicochemical properties of lead, including mobility and persistence in the environment, and important fate and transport mechanisms relating to the Site physical characteristics;
- Identify human and environmental targets and exposure pathways that may be threatened or affected by the Site;
- Collect information and data as necessary to support the development of potential corrective action alternatives;
- Evaluate the feasibility, effectiveness, and cost of two viable removal actions in comparison with the “no action” alternative; and
- Recommend an appropriate removal action justified on the evaluation of alternatives.

Specific field investigation activities were conducted to accomplish the characterization objectives of the RSE. These field activities are discussed in subsequent sections. In general, investigative activities conducted for the RSE included direct-push technology for soil and groundwater sampling.

1.2 SIGNIFICANT ASSUMPTIONS AND LIMITATIONS

This Report reflects and has been based in part on observations from our review of available KDHE records provided by our Client, including historical information from



investigations conducted by KDHE and by other parties that has not been verified. It is possible that certain conditions have changed with the passage of time, or latent conditions may exist, and new information may require further study at the Site. While efforts have been made to substantiate third-party information, Kleinfelder cannot guarantee its completeness or accuracy. No warranty, express or implied, is therefore intended or made.

The preparation of the Revised RSE Report was primarily based on the information provided by the KDHE to Lathrop and Gage, LLP on behalf of Metals and Additives Corporation, Inc. In developing this Revised RSE Report, Kleinfelder relied on information presented in previous reports prepared by others.

Kleinfelder prepared this Revised RSE Report in accordance with the generally accepted standard of care that exists in Kansas City, Kansas at this time. Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients and projects. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present. Although risk can never be eliminated, more-detailed and extensive investigations yield more information, which may help understand and manage the level of risk. Since detailed investigation and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface investigations or field tests, may be performed to reduce uncertainties.

Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. Metals and Additives, Inc. will be solely responsible for notifying all governmental agencies and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services.

2 BACKGROUND INFORMATION

This section summarizes the Site history, Site description, and land use of the Site. The Site location is shown on Figure 1 (Site Location Map).

2.1 PROPERTY LOCATION, LEGAL DESCRIPTION AND CURRENT USE

The information presented below provides the physical location and legal description of the Site. This information was obtained from review of various maps (such as topographic maps), aerial photographs, warrantee titles, and/or information provided by the Client.

Site Information:

Site Name:	Kansas Oxide Site
Address:	<p>Former Kansas Oxide Site: 603 Sunshine Road Kansas City, Kansas</p> <p>Central Solutions Site: 3130 Brinkerhoff Road Kansas City, Kansas</p>
Legal Description:	Southwest Quarter of the Southwest Quarter of Section 27, Township 10 South, Range 25 East of the Sixth Principal Meridian, in Wyandotte County, Kansas.
Ownership:	<p>603 Sunshine Road: 603 Sunshine LLC, 13900 Northwest Timber Ridge Road, Kansas City, Missouri 64152</p> <p>3130 Brinkerhoff Road: Central Solutions, Inc., 401 Funston Road, Kansas City, Kansas</p>
Site Acreage:	<p>603 Sunshine Road: 1.02 acres</p> <p>3130 Brinkerhoff Road: 0.62 acres</p>
History:	<p>603 Sunshine Road: As of 1947, the brick structure located at 603 Sunshine Road was owned by Fuller Brush Company and used as a brush warehouse. The brick structure that was owned by Fuller Brush Company appears to be the same structure as currently located on the Site. An addition to the original brick structure was constructed between 1970 and 1990, and a third addition (second story) appears to have been added between 1996 and 2002. According to the KDHE Integrated Assessment Report, in 1979, Oxide and Chemical Corporation purchased the Site from Chloride Incorporated and started producing powdered lead oxide in 1980. In 1990, Oxide and Chemical Corporation was acquired American Oxide, which operated under its subsidiary, Kansas Oxide Corporation. In 1996, Kansas Oxide Corporation merged into Omni Oxide, LLC, which is owned by Metals and Additive Corporation, Inc. Active lead oxide production ceased at the Site in 2003. In 2004, Metals and Additives Corporation sold the property to 603 Sunshine LLC.</p>

	<p>3130 Brinkerhoff Road: Based on a 1947 Sanborn map, 3130 Brinkerhoff Road was vacant at that time. According to the KDHE Identified Sites List Website, activities at 3130 Brinkerhoff Road began in 1958 as a packaging center for janitorial and sanitation supplies. This continued until 2004 when the property was leased to a printing company and then to a graphic service in 2005.</p>
Zoning:	M-3, Heavy Industrial (Fairfax District)

2.2 PHYSICAL SETTING

Kleinfelder referenced multiple sources as part of developing this Revised RSE Report to establish an understanding of the physical setting for the Site and surrounding area. This information was obtained from published data and maps, interviews with public agencies, and/or from previous reports provided to Kleinfelder.

Physical Setting:

Topography:	Elevation across the Site is at approximately 745 feet above mean seal level. Topography slopes gently to the northeast towards the Missouri River. (Source 1)
Land Use:	The Site is located at the southwest corner of the intersection of Sunshine and Brinkerhoff Roads in Kansas City, Wyandotte County, Kansas. The Site is within the "Fairfax District". Adjacent land use in all directions is heavy industrial or commercial. A rail spur is present to the west of the Site, Sunshine Road to the north, Brinkerhoff Road to the east, and the Central Solutions property is to the south of the Site.
Climate:	According to the wind rose (1991-2006) diagram provided by the Kansas City International Airport, the prevailing wind direction within the vicinity of the Site is generally from the south to southwest. (Source 2)
Soils:	Predominant Soil Type: The Onawa series consists of very deep, somewhat poorly drained soils on low flood plains of the Missouri River. These soils formed in calcareous, clayey, silty, and loamy alluvium. Permeability is slow in the upper part of the profile and moderate in the lower part. Slopes range from 0 to 2 percent. The soil depth typically is greater than 80 inches with a seasonal perched water table at 24 to 36 inches in the higher clay content of the subsoil. Although this is the dominant soil type, the Fairfax District is heavily industrialized and much of the area has been extensively developed, disturbing the native soil. (Source 3)
Site Geology:	Soils in the Fairfax District are underlain by alluvial deposits of Pleistocene and Recent ages associated with the Missouri River. Based on the Kansas Geological Survey WWC-5 water well database, wells logged within the vicinity of the Site indicated alluvial deposits consisting of silt to approximately 15 feet underlain by sand to approximately 45-60 feet, gravel and sand to approximately 100 feet, and gravel with some boulders to bedrock. The gravel is underlain by carbonaceous sandstone of Pennsylvanian—Missourian age. (Source 4 and 5)
	During this investigation, alluvial sand deposits were confirmed to be at an approximate depth of 18.5 feet bgs on the 603 Sunshine property.

<p>Groundwater gradient and depth:</p>	<p>According to the Kansas Geological Survey WWC-5 water well database, measured static water level elevations recorded for wells within the same section as the Site indicate that groundwater is at approximately 15-25 feet below ground surface (bgs). (Source 5) Depth to groundwater at the Unison/Union Carbide KDHE Cooperative Program Site (3126 Brinkerhoff Road) ranges from 15-25 feet, with groundwater flow generally to the east. (Source 6) Groundwater sampling during this investigation confirms groundwater encountered at a range of approximately 12 feet bgs to 20 feet bgs.</p> <p>In the surrounding area of the Site, groundwater occurs in alluvial deposits and flows to the east-northeast during times of low to normal stream flow in the Missouri River, and flow direction may change to the south-southeast during periods of high stream flow when subject to gradient reversals from high river stage in the Missouri River.</p>
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Sources:

- (1) USGS 7.5' Series Topographic Quadrangle, North Kansas City, Missouri: 1964, Photo revised: 1970 and 1975.
- (2) University of Missouri, <http://agebb.missouri.edu/weather/windroses/mciwr.pdf>, 2007.
- (3) United States Department of Agriculture, Natural Resources Conservation Service, internet soil surveys, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
- (4) Kansas Geological Survey, WWC-5 Water Well Database, <http://www.kgs.ku.edu/Magellan/WaterWell/index.html>
- (5) Kansas Geological Survey, Bulletin 71, Ground-Water Resources of the Kansas City, Kansas, Area, 1948.
- (6) KDHE File Review, Unison/Union Carbide KDHE Cooperative Program Site, C4-105-70168, 3126 Brinkerhoff Road.

(1) METHODOLOGY

A limited Conceptual Site Model (CSM) was developed for this Revised RSE Report. The CSM describes the pathways by which humans or animals may be exposed to lead that may be found at the Site. An exposure pathway describes the course a chemical will take from a source to an exposure point where a receptor can come into contact with the chemical. The basic components of the CSM include:

- Source of contamination, contaminated media, and PCOCs;
- Potential fate and transport pathways; and
- Potential exposed populations and pathways.

2.3 SOURCE OF CONTAMINATION

Since the early 1990's, issues have been raised regarding the potential environmental impact from lead at the Site. In 1993, an Environmental Assessment was conducted by Allied Environmental Services (Allied) at 3130 Brinkerhoff Road. The Allied investigation indicated lead concentrations at 590,000 mg/kg from a particulate sample

collected from the roof of the structure located at 3130 Brinkerhoff Road, immediately adjacent to the exhaust fans from the bag house where the lead oxide dust is collected at 630 Sunshine Road.

In May 2004, Baker Environmental, Inc. (Baker) conducted additional roof sampling, surface soil sampling, and soil removal (outside of KDHE oversight). During the Baker Environmental, Inc. assessment, a maximum lead concentration was identified in a wipe sample collected from the 3130 Brinkerhoff Road roof at approximately 66,000 micrograms per square foot. A maximum lead concentration of 20,870 mg/kg was identified in surface soil, with a Toxicity Characteristic Leaching Procedure result of 23.01 mg/l.

The KDHE completed an Integrated Assessment Report (IAR) in 2009, which identified lead concentrations in soil at 300,000 mg/kg with TCLP concentration of 860 mg/l. Concern was raised by KDHE regarding lead oxide accumulating in soil and potential run-off from roof gutters and leaching to groundwater.

Lead was detected in several soil samples above 2009 USEPA regional screening levels (RSLs) for residential (400 mg/kg) and industrial (800 mg/kg) RSLs and KDHE Tier 2 RSKs for residential (400 mg/kg) and non-residential (1000 mg/kg). In addition, lead concentrations in multiple soil samples from the 2009 KDHE Integrated Assessment Report (IAR) exceeded the Toxicity Characteristics Leachate Procedure (TCLP) regulatory limit of 5 mg/L, defining the lead concentrations as hazardous by characteristic (D008). Historic soil sampling locations and results are depicted in Figure 2. In addition to the lead, arsenic has been identified at some of the locations of lead impact. In summary, the initial source for lead contamination at the site appears to be related to lead dust emissions from the lead oxide production process, historically discharged to building roofs and possibly to the ground surface, and/or carried to the ground surface via guttering and downspout systems. The current source to be considered for lead is the residual surface soil in areas not covered by building or pavement in the immediate vicinity of the 603 Sunshine building.

2.4 POTENTIAL FATE AND TRANSPORT PATHWAYS

Considering lead oxide production has been discontinued, the current source for potential contaminant transport is the residual surface soil as described in Section 3.1.

Also, understanding the PCOC for the Kansas Oxide Site is lead, which does not produce vapors nor is it readily soluble under ambient conditions, contaminant migration and transport mechanisms from a surficial soil source could include fugitive dust emissions, transport of particulates via surface/storm water runoff, leaching to subsurface soil, and leaching to groundwater with subsequent groundwater transport.

According to the ATSDR 2007 toxicological profile for lead, lead in soil is relatively immobile and persistent. Clays, silts, and soil organic matter can bind lead electrostatically (cation exchange) and chemically (specific adsorption). Lead is strongly sorbed to organic matter in soil, and although not typically subject to leaching (except under acidic soil conditions), it may enter waters as a result of erosion of lead-containing soil particulates. Therefore, considering there is limited exposed surficial soil in the site area, we would expect the potential for surface transport pathway for dust or particulates to be relatively low.

2.5 POTENTIAL EXPOSURE POPULATIONS AND PATHWAYS

Based on the available data concerning the site, and data compiled during this investigation, lead contamination above non-residential RSK values is mainly limited to the upper one foot of soil located onsite within the vicinity of the documented source area. Soil sampling identified lead contamination above the residential RSK criteria, but below the non-residential RSK criteria, in the upper two feet located on the eastern boundary of the 603 Sunshine property (B-7). Soil samples collected south, east, and north of B-7 indicate no lead impacts in soil above residential or non-residential RSKs.

Based on a review of the groundwater analytical results and that lead concentrations above RSK criteria are limited to the upper 1-2 feet in soil indicate that leaching of lead to groundwater has either not occurred or is insignificant. Total lead detected in groundwater samples collected upgradient and at the site are consistent and appear to be indicative of regional groundwater conditions. Thus, the potential exposure pathways relate only to exposure to impacted surficial soil.

Lead concentrations above RSK criteria in soil appear to be limited to a narrow, grassy swath on the southern boundary of the 603 Sunshine property (adjacent and north of the Central Solutions building) with dimensions of approximately 130 feet by three feet.

As mentioned above, an isolated detection of lead above RSK criteria was identified on the eastern border of the 603 Sunshine property, within the grassy, raised area.

Potential exposure pathways include the inhalation and/or ingestion of fugitive dust by onsite workers, utility workers, and nearby business/facility workers and/or pedestrians. The potential exposure pathway for dermal contact exists for onsite or utility workers that may excavate within the impacted areas. This area is within a highly industrialized area of Kansas City, Kansas known as the Fairfax District.

No public parks, schools, daycares, residential properties or other public use properties are located within the immediate vicinity of the site. Residences are located approximately ½-mile southwest, and upwind of the site. Thus, a potential exposure route is not valid for children or residences. Ingestion of groundwater is also not a valid potential exposure pathway as no wells are located onsite or within the near vicinity, and known concentrations of lead in groundwater is at background concentrations.

2.6 REMOVAL ACTION GOALS AND APPROPRIATE CLEANUP LEVELS

Removal action goals and appropriate cleanup levels for the site will follow standards as stipulated in the Risk-Based Standards for Kansas RSK Manual – 5th Version (October 2010) for residential and non-residential land use scenarios. More specifically, the following table summarizes removal action goals and appropriate cleanup levels for lead in soil and groundwater at the site.

Land Use Scenario	Soil Pathway (Lead: mg/kg)	Soil to Groundwater Pathway (Lead: mg/kg)	Groundwater Pathway (Lead: mg/L)
Residential	400	Not Applicable	0.015*
Non-Residential	1,000	Not Applicable	0.015*

*Federal Maximum Contaminant Level (MCL) for public drinking water.

3 FIELD SAMPLING ACTIVITIES

3.1 RATIONALE AND APPROACH

The primary objective of this investigation was to establish a sampling strategy that would provide reliable, representative, and reproducible data for use in evaluating lead at the Site. Samples were collected, handled, and analyzed in general accordance with the standard protocols for sampling and analyses presented in the quality assurance project plan (QAPP) submitted with the KDHE-approved RSE Revised Work Plan dated January 7, 2011.

3.2 SAMPLING METHODS

The investigation was completed in four phases consisting of soil and groundwater sampling on May 2, 2011 through May 3, 2011, roof runoff and background precipitation sampling on June 17, 2011, additional soil sampling underneath the concrete/asphalt parking lot at 603 Sunshine on March 29, 2012, and sampling for TCLP analysis of the roof aggregate on the Central Solutions building on August 14, 2012. The following sections describe the specific strategy and methodology of implementing the RSE investigation. Sampling locations are shown on Figure 3. Field screening and laboratory analytical results are summarized in tables in Appendix A. Subsurface lithology encountered during this investigation is summarized in boring logs in Appendix B.

3.2.1 Sampling Locations

Soil was sampled from seventeen locations (see Figure 3) for lead and arsenic from the 603 Sunshine (Kansas Oxide), Central Solutions, and adjoining properties. Three of the soil sampling locations were previously sampled by KDHE (B-1 at previous location KO-SS13; B-2 at previous location KO-SS3; and B-6 at previous location BH-1). Additionally, soil samples were collected and held for laboratory analysis pending x-ray fluorescence (XRF) and initial laboratory results at three contingency locations. Additionally, soil was sampled from three locations from underneath the asphalt/concrete parking lot structure in the center of the 603 Sunshine property (see Figure 3) for lead analysis only according to the KDHE-approved RSE Response Letter and Work Plan Addendum dated December 9, 2011.

Sample locations were slightly adjusted in the field based on observations of evidence that impacts may have occurred (e.g., eroded ground, areas with sediment deposited from storm water or roof-gutter runoff) and utilities. Sample locations throughout the survey area were located in areas that have the potential to accumulate lead concentrations, which include low lying areas of ditches, bare ground, and exposed surface soil areas.

3.2.2 Soil Sampling and Analysis

Soil samples at each location were collected to a depth of one foot below ground surface (bgs) by carefully removing the top layer of debris to the desired sample depth with a decontaminated spade, hand auger, or direct push equipment. If grass was covering the soil, a small patch of grass was cleared down to the soil surface, as that would likely be the zone that wind blown lead oxide particles from the Site would have been deposited. Geoprobe Systems® direct push equipment and Geoprobe Systems® Macro-Core® soil sampling system were used to collect the remaining soil samples (i.e., greater than one feet bgs) from each sample location.

Following retrieval from the hand auger, spade, or Macro-Core® acetate liner, soil samples from each one-foot interval were homogenized prior to analyses to provide data representative of that discrete sample interval. Rocks, gravel, and other heterogeneous materials (e.g., gravel greater than ½-inch diameter, sticks, leaves) were removed from the samples prior to analysis to limit matrix interference. Samples were placed in sealed sample collection bags and thoroughly homogenized. Please see the Kleinfelder Sample Control Logs provided in Appendix D.

Quantitative field analysis was performed on soils using an Innov-X Systems, Inc. tube-based XRF analyzer without removal from the sealed sample collection bags. XRF field procedures were generally based on USEPA Method 6200 and Innov-X Systems manufacturer specifications. The XRF-system was used primarily to provide real-time data upon which field decisions for determining sample location and depths were based. As such, a minimum of three samples (one from the top interval, one from a middle interval, and one from the bottom interval) were submitted for laboratory analysis to independently confirm delineation objectives have been achieved. Soil samples were submitted to ESC Laboratories based out of Mt. Juliet, Tennessee, which is a KDHE-

certified laboratory. Laboratory results for lead and arsenic in soil are summarized in Table 1, Soil Analytical Results in Appendix A.

The XRF unit was warmed up prior to standardization and use. Instrument standardization occurred at the beginning and end of each day the XRF instrument was used, following analysis of every 20 samples. Standardization times were recorded in the field log form (See Appendix D). In addition, National Institute of Standards and Technology (NIST), or equivalent, standard and blank samples were analyzed to compare reported concentrations to true and zero values.

XRF analysis consisted of 30-second scanning periods with three separate measurements collected for each sample and averaged. XRF results for lead and arsenic in soil are summarized in Table 4, XRF Results in Appendix A.

Soil samples submitted to the laboratory were containerized in laboratory-supplied glass jars and placed on ice prior to shipment to ESC Laboratories for analysis under chain-of-custody procedures. The soils were submitted for analysis of lead and arsenic (EPA Method 6010B). All soil samples were held at the laboratory for Toxicity Characteristics Leaching Procedure (TCLP) analysis for lead and arsenic. Three soil samples from the 0-1 foot interval were submitted for TCLP analysis from borings B-1, B-2 and B-4. TCLP results for lead and arsenic in soil are summarized in Table 3, TCLP Analytical Results in Appendix A.

3.2.3 Groundwater Sampling and Analysis

Using a Geoprobe Systems® screen point 16 groundwater sampler, one direct push sampling point was pushed through the asphalt parking lot, approximately 10 feet downgradient of the area of highest identified impact of surface lead (B-1; KDHE sample KO-S313, 300,000 mg/kg – see Figure 2). Additionally, two other groundwater sampling locations (as depicted on Figure 5), were sampled for groundwater.

Standing water level in the screen point was measured using an electronic water level indicator. Depth to groundwater was measured to be from approximately 12.6 to 20.6 feet bgs. In order to clear fine sediment prior to sample collection, approximately one liter of water from each sampling location was purged by using a polyethylene disposable tubing and check-valve assembly.

Following purging, a groundwater sample was collected from the polyethylene tubing and transferred to an appropriate sample container for laboratory analysis for total and dissolved metals (lead and arsenic). Total metals samples were placed into laboratory-supplied bottles with nitric acid preservative. Dissolved metals samples were decanted and field-filtered using disposable 0.45 micron filter assemblies and hand vacuum pump, and placed into a laboratory-supplied bottle with nitric acid preservative. Laboratory samples were immediately placed on ice and shipped to ESC Laboratories under chain-of-custody procedures for analysis of lead and arsenic (EPA Method 6010B).

3.2.4 Precipitation Runoff Sampling

To evaluate whether potential lead releases to the roof of the Central Solutions building may still constitute a source area, water runoff from the roof was sampled during a precipitation event on June 17, 2011 to evaluate for lead concentrations. Runoff water samples were collected from three drainage spouts located on the north side of the Central Solutions, Inc. building. Total metals (lead and arsenic) samples were placed into laboratory-supplied bottles with nitric acid preservative. Laboratory samples were immediately placed on ice and shipped to ESC Laboratories under chain-of-custody procedures for analysis of total lead and arsenic (EPA Method 6010B).

Additionally, one water sample was collected to evaluate lead and arsenic concentrations in background precipitation. Prior to the start of the rain event on June 17, 2011, a new, decontaminated and triple-rinsed with deionized water, funnel and rain gauge was installed upwind of the Site at BPR-1 (see Figure 5). Once a sufficient amount of precipitation was collected, the rain water was transferred into the appropriate laboratory-supplied bottles with nitric acid preservations. The samples were immediately placed on ice and shipped to ESC Laboratories under chain-of-custody procedures for analysis of total lead and arsenic (EPA Method 6010 B).

3.2.5 Roof Aggregate TCLP Sampling

To aid in evaluating whether potential lead releases to the roof of the Central Solutions building may still constitute a source area, pea-sized gravel or roof aggregate material was collected from the Central Solutions building roof for laboratory analysis of lead by Toxicity Characteristic Leachate Procedure (TCLP) analysis (EPA Method 6010B).

Samples were collected from four locations on the roof include one location adjacent to the former lead oxide emissions vent located on the southwest corner of the 603 Sunshine building. Three additional roof samples were collected adjacent to the previously sampled down spouts and the north-central portion of the building roof. Laboratory samples were immediately placed on ice and shipped to ESC Laboratories under chain-of-custody procedures for analysis.

3.3 SURVEY

Soil sampling locations were surveyed using a hand held Trimble GPS unit and latitude, longitude coordinates were recorded. Locations were also measured with a calibrated measuring wheel based off of permanent onsite and offsite markers such as building foundation corners.

3.4 OTHER FIELD ACTIVITIES

3.4.1 Field Documentation

Daily field activities were recorded on the field daily report forms (Appendix D). The forms provide a daily record of sample locations, notable events, observations, and measurements taken during field investigations. Site photographs were taken, and a description of each may be found in Appendix E.

3.4.2 Equipment Decontamination

Non-dedicated equipment was decontaminated prior to collection of each sample by washing in a non-phosphate detergent (e.g., Alconox) and potable water wash, using a brush to dislodge encrusted materials, and then double rinsing in distilled water. Sampling heads and other fittings that came into contact with the samples were decontaminated by thoroughly washing with a non-phosphate soap and water solution, and rinsing.

3.4.3 Borehole Abandonment

Upon completion of sampling, each boring was abandoned by backfilling with hydrated bentonite. If the boring was drilled in an asphalt-surfaced area, the ground surface was patched with an asphalt/concrete patch material to resemble the surrounding surface.

3.4.4 Investigation-Derived Waste Handling

Investigation-derived waste (IDW) generated during sampling activities (including decontamination water from equipment rinsing activities and purge water) was containerized and staged on the 603 Sunshine property. The IDW was placed in 55-gallon Department of Transportation (DOT)-approved drums pending receipt of analytical results for disposal.

4 SAMPLING RESULTS

4.1 SOIL

Laboratory analytical results for soil samples collected during the RSE investigation confirmed elevated lead concentrations within the top one-foot of soil nearest to the documented source area at the southern and eastern boundaries of the 603 Sunshine Road property. Lead concentrations in three soil samples collected from the 0-1 foot sampling interval were above Kansas Tier 2 Risk-Based (RSK) residential criteria including 20,000 mg/kg at B-1, 11,000 mg/kg at B-2, and 3,300 mg/kg at B-4. A soil sample collected from the 1-2 foot sampling interval from B-7 exhibited lead concentrations above Tier 2 RSK residential criteria at a concentration of 640 mg/kg. Lead detected from the 0-1 and 2-3 foot sampling intervals from B-7 were below Tier 2 RSK residential and non-residential criteria. All remaining soil samples collected exhibited lead concentrations either below Tier 2 RSK criteria or below laboratory detection limits. Laboratory analytical results for soil are summarized in Appendix A, Table 1. Soil sample results are also summarized in Figure 4 and Figure 6.

Three soil samples were submitted for laboratory analysis of TCLP for lead including samples collected from the 0-1 foot sampling interval at B-1, B-2 and B-4. TCLP lead was detected at a concentration of 43 mg/l at B-1, 22 mg/l at B-2 and 9.9 mg/l at B-4, all of which were above the TCLP regulatory criteria of 5.0 mg/L. Based on results of TCLP extraction for these three samples, soil from all three sampling locations in the 0-1 foot interval would be considered characteristic hazardous waste if removed. TCLP laboratory analytical results for lead in soil are summarized in Appendix A, Table 3. Analytical laboratory reports are included in Appendix C.

4.2 GROUNDWATER

Laboratory analytical results for total (unfiltered) groundwater samples collected during the RSE investigation detected total lead concentrations in groundwater at concentrations of 0.33 mg/L, 0.44 mg/L, and 0.47 mg/L at GW-1, GW-2 and GW-3, respectively. Dissolved (filtered) lead was not detected above the laboratory detection limit of 0.0050 mg/l in any of the filtered groundwater samples collected from the three sampling locations.

Total metals detected in an unfiltered groundwater sample collected from the upgradient sampling location (GW-3) exhibited the highest concentrations of lead, and were comparable in concentrations to total metals in groundwater samples collected from the sampling locations on the subject property (GW-1 and GW-2). Laboratory analytical results for groundwater are summarized in Appendix A, Table 2 and Figure 5. Analytical laboratory reports are included in Appendix C.

4.3 ROOF RUNOFF/PRECIPITATION

Three water samples were collected from the roof down spouts located on the north side of the Central Solutions building near the southern boundary of the 603 Sunshine property. As observed during field activities, three pairs of down spouts were located on the northern side of the Central Solutions building, including a funnel and pipe drainage spout located at the upper edge of the roof and a pipe jutting from approximately two feet below the upper funnel drainage. Both of which emptied onto soil surface on the southern boundary of the 603 Sunshine property.

During the rain event on June 17, 2011, only the lower drainage spouts were discharging, thus only water from this set of three drainage spouts was sampled. Total lead was detected in unfiltered water samples collected from PR-1, PR-2 and PR-3 at concentrations of 0.034 mg/l, 0.014 mg/l and 0.009 mg/l, respectively. One background precipitation sample (BPR-1) was collected approximately 400 feet upwind, and southwest of the subject site. Total lead was detected in water collected from this location at a concentration of 0.018 mg/l. Laboratory analytical results for roof runoff and background precipitation water are summarized in Appendix A, Table 5 and Figure 5. Analytical laboratory reports are included in Appendix C.

Airborne lead is likely a result of particulates emitted from natural processes such as soil erosion, volcanic eruptions, sea spray and brush fires, or from man-made processes such as the combustion of fossil fuels and leaded gasoline/diesel, paints, smelter, production of lead fishing sinkers and other manufacturing that may cause the emission of lead particles. Natural concentrations of lead in air are less than 0.1 micrograms per cubic meter. (EPA, <http://www.epa.gov/air/airtrends/lead.html>) Lead concentrations in precipitation can be highly variable depending on the land use setting where sampled.

4.4 ROOF AGGREGATE TCLP SAMPLING

Four samples of pea-sized gravel/aggregate were collected from the roof of the Central Solutions building at locations previously reported to have collected lead oxide dust emissions from an exterior vent located on the southwest corner of the 603 Sunshine building roof area. Samples R-1 through R-3 were located along the northern roof boundary adjacent to the 603 Sunshine vent as well as adjacent to the down spouts sampled for rain water. Sample R-4 was located further south on the central portion of the Central Solutions roof in accordance with the KDHE-approved RSE Work Plan Addendum Response Letter dated January 18, 2012.

Results indicated lead TCLP concentrations of 0.054 mg/L, 0.058 mg/L, 0.20 mg/L, and 3.3 mg/L from samples collected at R-1, R-2, R-3 and R-4, respectively. All concentrations detected are below the KDHE toxicity characteristic constituents regulatory limit of 5.0 mg/L. Based on these results, roof runoff and background precipitation lead concentrations, the roof does not appear to be an ongoing source of lead impacts to soil on the 603 Sunshine property, specifically near B-1 through B-4. Laboratory analytical results for roof runoff and background precipitation water are summarized in Appendix A, Table 6 and Figure 5. Analytical laboratory reports are included in Appendix C.

4.5 QUALITY ASSURANCE AND DATA VALIDATION

Based on a review of the laboratory analytical results, ten soil samples were qualified as having lead detected within the associated laboratory method blank and the sample. One soil sample had a lead detection too high to evaluate accurate spike recoveries as well as an associated batch Quality Control (QC) outside of the established QC range for precision. One soil sample had a matrix interference that impaired the ability to make an accurate analytical determination. The detection limit was elevated in order to reflect the necessary dilution. Arsenic detections in three of the groundwater samples were estimated below the lowest calibration point. Confidence of the reported detections correlates with the concentration. All laboratory detection limits for lead and arsenic were below applicable Tier 2 RSK criteria. These qualifiers do not appear to affect the overall ability to use the laboratory analytical results for comparison and evaluation of the data.

Three duplicate soil samples were collected including DUP-1, DUP-2 and DUP-3 for the soil samples B-3, 0-1 foot sampling interval; B-7, 0-1 foot sampling interval; and, VCP-4, 0-1 foot sampling interval, respectively. The quality control evaluation for these duplicate samples is summarized below:

Sample Location and Interval	Lead Concentration (mg/kg)	Duplicate ID	Lead Concentration (mg/kg)	Relative % Difference	Average of Concentrations (mg/kg)
B-3; 0-1	320	DUP-1	1,400	126%	860
B-7; 0-1	300	DUP-2	500	50%	400
VCP-4; 0-1	17	DUP-3	15	13%	16

Soils are inherently heterogeneous in nature and variations in metals within each sample are to be expected. The relative percentage differences (RPDs) between the soil sample and their associated duplicates for B-3 and B-7 are outside of the target RPD of 20%. The RPD between the soil sample and its associated duplicate for VCP-4 is within the target RPD of 20%. The average of the two samples per sampling location and interval are either at or above Tier 2 residential RSK values for B-3 and B-7. The averages between the initial lead concentration and duplicate lead concentration are all below Tier 2 non-residential RSK values. The RPD between the concentrations of lead in the soil samples and their duplicates do not appear to affect the overall ability to use the data, as both locations with RPDs greater than the target RPD will be included in any removal option planned.

Two duplicate groundwater samples were collected including GW-DUP1 and GW-DUP2 for the groundwater samples collected at GW-1F, and GW-1U, respectively.

Sample Location	Lead Concentration (mg/kg)	Duplicate ID	Lead Concentration (mg/kg)	Relative % Difference	Average of Concentrations (mg/kg)
GW-1F	<0.0050	GW-DUP1	<0.0050	0%	<0.0050
GW-1U	0.33	GW-DUP2	0.28	16%	0.305

The RPDs between the groundwater samples and their associated duplicate for both samples are within the target RPD of 20%. The RPDs between the concentrations of



lead in groundwater samples and their duplicates do not appear to affect the overall ability to use the data.

Two equipment rinsate blanks (RINSE BLANK 1 and RINSE BLANK 2) were collected and submitted to the laboratory for the analysis of lead. Lead was not detected above laboratory detection limits from the two samples collected.

5 SCREENING OF POTENTIAL REMOVAL ACTIONS

5.1 SCREENING OF REMOVAL ACTIONS

The NCP lists examples of removal actions in 300.415 (e) that may be appropriate for the Site. The purpose of the RSE investigation was to obtain enough information to assess the appropriateness of the following actions that may be relevant to the Site.

- Capping of contaminated soils—where needed to reduce migration of hazardous substances or pollutants or contaminants into soil, ground or surface water, or air;
- Drainage controls, for example, run-off or run-on diversion—where needed to reduce migration of hazardous substances or pollutants or contaminants off-site or to prevent precipitation or run-off from other sources, for example, flooding, from entering the release area from other areas;
- Fences, warning signs, or other security or control precautions—where humans or animals have access to the release;
- Excavation, consolidation, or removal of highly contaminated soils from drainage or other areas—where such actions will reduce the spread of, or direct contact with, the contamination; and
- Using chemicals and other materials to retard the spread of the release or to mitigate its effects—where the use of such chemicals will reduce the spread of the release.

5.2 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

As defined in 40 CFR 300.5, Applicable Requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.

Relevant and appropriate requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not “applicable” to a hazardous substance, pollutant, contaminant, remedial action,

location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

There are three general categories of Applicable or Relevant and Appropriate Requirements (ARARs): chemical-specific; location-specific; and action-specific. Location-specific ARARs are those that control activities based on the location such as flood plains, wetlands, historic sites, or sensitive ecosystems. Action-specific ARARs are those that govern discrete actions that may include the use of certain technologies for remedial actions or use of certain types of equipment. At its discretion, KDHE may also identify policies or guidelines that are to be considered (TBC) standards for a site.

5.3 ENVIRONMENTAL USE CONTROLS

EUCs may be used in conjunction with selected non-residential cleanup goals, in accordance with K.S.A. 65-1, 221 to 1,235. However, it is understood that application of EUCs alone, in lieu of remediation, is not necessarily accepted as an appropriate remedial alternative. The decision to select residential or non-residential cleanup goals, and application of EUCs, will depend on the evaluation of standard criteria, and other variables such as the feasibility of cleanup and approval as discussed in Section 6.5 below.

5.4 ANALYSIS OF POTENTIAL REMOVAL ACTIONS

In accordance with KDHE policy BER-RS-031, identification of removal action alternatives is provided within this Revised RSE Report. The KDHE policy, and the NCP, further requires that the No Action Alternative, Alternative 1, must be evaluated as a baseline in comparison to two plausible removal actions.

Based on potential exposure pathways and KDHE policy, two plausible removal actions include:

- **Alternative #2**, removal of impacted soil to below residential RSK soil pathway values for lead (400 mg/kg) with in-situ stabilization of lead and appropriate disposal at a Subtitle D landfill. Approximately 10 cubic yards (15.5 tons) of soil is estimated to be removed within the vicinity of B-1 through B-4. Soil would be

removed to an approximate depth of one foot below ground surface with an approximate horizontal dimension of 130 feet long (east – west) and 2 feet wide. Approximately 22 cubic yards (35.5 tons) of soil is estimated to be removed within the vicinity of B-7. Soil would be removed to an approximate depth of two feet below ground surface with an approximate horizontal dimension of 15 feet wide (east-west) and 20 feet long (north-south). Please see Figure 7 for a depiction of proposed excavation locations and dimensions. Stabilization of the lead prior to removal of the soil may eliminate the need to dispose of the soil as hazardous waste in the event that initial TCLP analysis of lead indicates that the removed soil would be considered hazardous waste. In-situ soil stabilization would be conducted within the excavation pit and confirmation sampling would be conducted until lead concentrations are below a concentration that would not trigger TCLP analysis by using the “Rule of 20”.

- **Alternative #3**, removal of impacted soil to below non-residential RSK soil pathway values for lead (1,000 mg/kg), in-situ stabilization of lead and appropriate disposal at a Subtitle D landfill, capping areas with 6-inch concrete where lead concentrations are above residential RSK criteria (400 mg/kg), but below non-residential RSK criteria (1,000 mg/kg), and application of EUCs to restrict exposure to contaminated soil and ensure compliance with restrictions into the future.

The evaluation of alternatives outlined below includes a detailed assessment of:

- Overall protection of human health and the environment;
- Compliance with federal, state, and/or local laws, regulations, and rules (ARARs);
- Long-term and short-term effectiveness;
- Implementability;
- Cost; and
- Community acceptance.

Guidance on conducting non-time critical removal (NTPCR) actions (EPA/540/f-94/009 recommends that the identification and analysis of removal action alternative be reviewed against effectiveness, implementability, and cost.

5.4.1 Overall Protection of Human Health and Environment:

Alternative #1, No Action, does not provide any more protection of human health or the environment since leaving excessive lead-impacted soil in place at the Site does not

reduce the risk to the future industrial worker and does not provide overall protection to human health or the environment.

Alternative #2, Removal and Offsite Disposal, meets the overall need for protection of human health and environment. Removal of the lead-impacted soil and reducing soil concentrations of lead to less than the Alternative #2 residential goal (RSK of 400 mg/kg) is protective to future residential targets and requires no EUCs at the site.

Alternative #3, Limited Removal, Offsite Disposal, Capping, and EUCs, meets the overall need for protection of human health and environment. Removal of the lead-impacted soil and reducing soil concentrations of lead to less than the Alternative #3 non-residential goal (RSK of 1000 mg/kg) and off-site disposal of the lead soil along with capping and implementation of environmental use controls at the Site, protect the future industrial worker from unacceptable exposure and prevents the spread of contamination to other areas.

5.4.2 Compliance with ARARs

Alternative #1, No Action, does not comply with ARARs since leaving excessive lead-impacted soil in place at the Site does not reduce lead concentrations below State and/or Federal regulatory criteria and no protective measures are being instituted.

Alternative #2 and #3, comply with ARARs since lead-contaminated soil will be removed and/or protective measures (capping and EUCs) will be emplaced to protect the population from coming into contact with lead-impacted soil below non-residential RSK criteria. No wetlands, historic site or sensitive ecosystems will be affected by remedial techniques included in these alternatives.

ARAR	Alternative #1 No Action	Alternative #2 Excavation to Residential RSK	Alternative #3 Excavation to Non- Residential RSKs, Capping and EUCs
Chemical-Specific ARARs			
CERCLA of 1980	Potentially Applicable	Potentially Applicable	Potentially Applicable
SDWA of 1974	Relevant and Appropriate	Relevant and Appropriate	Relevant and Appropriate
K. A. R. 28-71-1 to 28-71- 12 (VCPRP)	Does not comply	Relevant and Appropriate	Relevant and Appropriate

ARAR	Alternative #1 No Action	Alternative #2 Excavation to Residential RSK	Alternative #3 Excavation to Non- Residential RSKs, Capping and EUCs
Location-Specific ARARs			
Kansas Board of Technical Professionals K. A. R. 66-6-1 through 66-14-12	Potentially Applicable	Potentially Applicable	Potentially Applicable
Archaeological and Historic Preservation Act of 1974	Not Applicable	Potentially Applicable	Potentially Applicable
Endangered Species Act of 1973	Not Applicable	Potentially Applicable	Potentially Applicable
Flood Control Act of 1944	Not Applicable	Potentially Applicable	Potentially Applicable
National Historic Preservation Act of 1966	Not Applicable	Potentially Applicable	Potentially Applicable
Kansas Historic Preservation Act	Not Applicable	Potentially Applicable	Potentially Applicable
Non-Game, Threatened or Endangered Species	Not Applicable	Potentially Applicable	Potentially Applicable
Action-Specific ARARS			
Clean Water Act (CWA) of 1997	Applicable	Applicable	Applicable
Federal Hazardous Materials Transportation Law	Not Applicable	Potentially Applicable	Potentially Applicable
OSHA of 1970	Applicable	Applicable	Applicable
RCRA of 1976	Applicable	Applicable	Applicable
K.S.A. 65-1,221 to 68- 1,235 (EUCs)	Applicable		Applicable
K.A.R. 28-31-1 to 28-45- 11 (Haz. Waste Management)	Applicable	Potentially Applicable	Potentially Applicable
Solid Waste Management K. A. R. 28-29-1 to 28-29- 121 and K. A. R. 28-29- 2101 to 28-29-2113	Not Applicable	Potentially Applicable	Potentially Applicable
TBCs			
RSK Manual	TBC	TBC	TBC
BER-RS-005; Evaluating Future Land Use	TBC	TBC	TBC
BER-RS-033; Consideration of Remedial Standards	TBC	TBC	TBC
EPA600-R-96-055, August 2000; Guidance for the Data Quality Objectives Process	TBC	TBC	TBC
EPAA540-R-95-059, June 1995; Remedial Design/Remedial Action Handbook	TBC	TBC	TBC

ARAR	Alternative #1 No Action	Alternative #2 Excavation to Residential RSK	Alternative #3 Excavation to Non- Residential RSKs, Capping and EUCs
EPA530-R-97-007, May 1997; BMPs for Soils Treatment Technologies	TBC	TBC	TBC
EPA832-R-92-005, October 1992; Storm Water Management for Construction Activities	TBC	TBC	TBC
EPA530-F-98-026, October 1998; Management of Remediation Waste under RCRA	TBC	TBC	TBC

TBC = To Be Considered

5.4.3 Effectiveness

Alternative #1, No Action, does not meet the effectiveness criteria. The short-term and long-term effectiveness are not applicable since no action is proposed. This alternative does not contribute to a reduction of toxicity, mobility, or volume through removal or stabilization.

Alternative #2 and #3 meet the effectiveness criteria and are effective in the short and long term.

5.4.4 Implementability

Implementability of each alternative was assessed against the following criteria:

- KDHE acceptance of the preferred alternative;
- Technical feasibility and demonstrated methods for accomplishing the proposed alternative; and
- Site owner(s) and community acceptance of the preferred alternative.

Alternative #1, No Action, is the current Site condition and would not require any additional resources to implement. The lead-impacted soil exceeds KDHE Tier 2 RSK levels; therefore the No Action Alternative would not be acceptable to KDHE.

Alternative #2, Removal and Offsite Disposal, could be implemented without major technical issue. Technologies for removal and disposal are well defined. The majority of the lead-impacted soil can be identified with the aid of an XRF screening tool for further characterization and to aid in selecting final confirmation sample locations. Some uncontaminated waste material could also be generated, but XRF screening methods should minimize the volume of this material. A tree and utilities are located within the near vicinity B-7, which may involve the removal of tree roots as well as careful consideration of utility locations. The sampling location B-7, however, was located within a filled and raised area and elevated lead was detected to a maximum of two feet bgs within this raised area. It is likely that any excavation efforts at this location will be able to remove all elevated lead in the soil without disrupting utilities. A permit from the Kansas City, Kansas Public Works Department would be necessary to excavate within the right-of-way of Brinkerhoff Road.

Alternative #3, Limited Removal and Offsite Disposal, Capping, and EUCs, could be implemented without major technical issue. Technologies for removal, disposal and capping are well defined. The majority of the lead-impacted soil can be identified with the aid of an XRF screening tool for further characterization and to aid in selecting final confirmation sample locations. Some uncontaminated waste material could also be generated, but XRF screening methods should minimize the volume of this material. The remaining residual lead-impacted soil would be capped providing both a mechanism to prevent leaching of lead into the groundwater system, as well as, in combination with EUCs, providing protection from contact with residual lead-impacted soil. In order to provide protection from residual lead-impacted soil, a concrete cap would need to be placed within the raised area on the eastern boundary of 603 Sunshine. Appropriate access from the owner and permits from the Kansas City, Kansas Public Works and Building Departments would need to be acquired prior to cap construction. Additionally, permission would need to be granted by the current owner to place a EUC on the property deed.

5.4.5 Cost

Alternative #1, No Action, is the current Site condition and would not require any cost to implement.

Alternative #2 and #3, Removal and Offsite Disposal, costs have been summarized below:

Alternative	Soil Removal, Stabilization and Disposal	Cap	EUC and Monitoring	Total Cost
#2	Yes: \$19,500	No	No	\$19,500
#3	Yes – \$17,500	Yes : \$1,000	Yes: \$10,000-\$15,000*	\$28,500-\$33,500

Note: Costs are estimated only. Actual costs may vary depending on negotiated contractor rates at the time of field activities; soil amounts considered hazardous waste based on soil disposal characterization, and time frames necessary to complete the activities.

*ESTIMATE ONLY: Includes costs for EUC Application, recording, KDHE Inspection, Cap Operations and Maintenance (crack patching). Actual cost may vary based on KDHE-approved rates.

5.4.6 Community Acceptance

Alternative #1, No Action, as no action to remove or prevent exposure to lead-contaminated soil would be conducted; community acceptance is expected to be low, specifically, in regard to current owners and nearby workers.

Alternative #2, Removal and Offsite Disposal, as all lead-contamination above residential RSK criteria would be removed; community acceptance is expected to be high. This property is located in a highly industrialized area. No public areas or residences are located adjacent or within the immediate vicinity of the subject site.

Alternative #3, Removal and Offsite Disposal, Capping, and EUCs, as the highest concentrations of lead-contamination would be removed, and at a minimum, contact with residual lead contamination in soil would be prevented, community acceptance is expected to be high. This property is located in a highly industrialized area. No public areas or residences are located adjacent or within the immediate vicinity of the subject site.

6 SELECTION OF CLEANUP CRITERIA AND PREFERRED REMOVAL ACTION

In general, the No Action Alternative #1 will not be acceptable based on the known concentrations of lead in surficial soil exceeding non-residential RSK limits. The two plausible removal actions described could be considered appropriate and acceptable, as each may address short-term and long-term potential exposure to contaminants, result in a reduction of toxicity (via stabilization and disposal in a controlled landfill), be technically feasible, implementable, and acceptable to the public and the regulatory community.

Based on the alternative analysis described above, total lead-contaminated soil removal to Tier 2 residential RSKs and confirmation sampling (Alternative #2) is the selected cleanup criteria for the subject site. Based on the soil data, lead exceeding residential RSK criteria is limited to the upper one-foot of soil adjacent and north of the Central Solutions building on the southern portion of the 603 Sunshine property, and to the upper two feet of soil at the grassy, raised location on the eastern boundary of the 603 Sunshine property. By removing this soil, lead detected above both Tier 2 residential and non-residential RSKs would be removed and disposed of offsite. The preferred removal action meets all of the criteria listed in Section 6.5 and appears to be the least expensive viable alternative.

The preferred removal action would require in-situ soil sampling to confirm that the proposed excavation does not leave residual contamination in place greater than Tier 2 residential RSKs.

7 REFERENCES

KDHE BER Policy # BER-RS-031 (Revised), November 2008, Removal Site Evaluation (RSE)/Removal Action Design (RAD)/ Removal Action (RA).

KDHE Field Sampling Outline, December 2009, Kansas Oxide Site, Kansas City, Kansas, C4-015-72343.

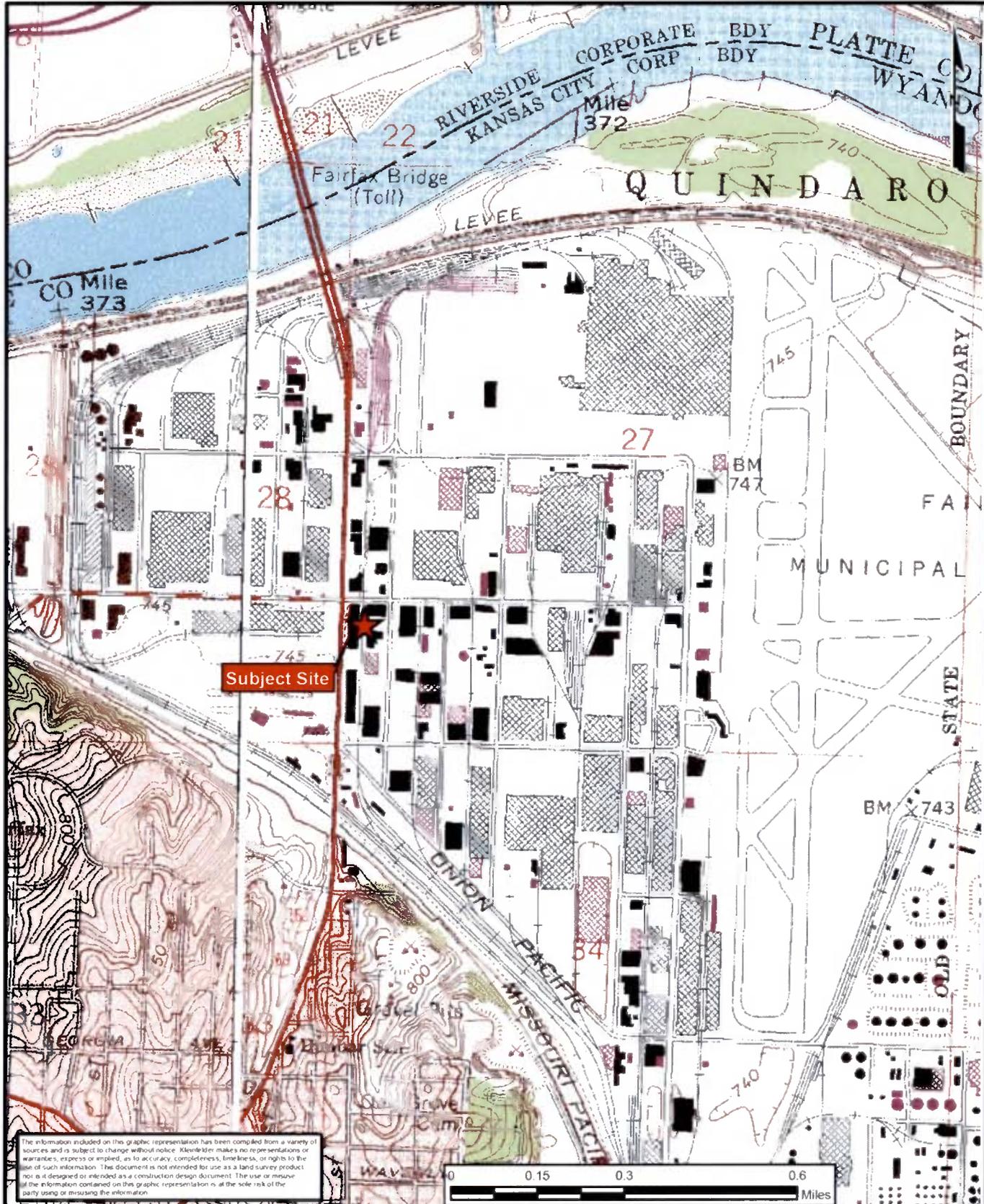
KDHE Integrated Assessment Report, July 2009, Kansas Oxide Site, Kansas City, Kansas, C4-015-72343.

Kingston Environmental Services, January 15, 2010, Lead Dust Sampling Report, Commercial Building, 603 Sunshine Road, Kansas City, Kansas.

Kleinfelder, Removal Site Evaluation Work Plan, 603 Sunshine Road, Kansas City, Kansas, January 7, 2011.

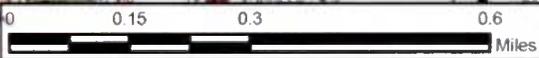
USGS Topographic Map 7.5' Series Quadrangle, North Kansas City, Missouri, 1964, Photo revised: 1970 and 1975.

FIGURES



Subject Site

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PROJECT NO.	112417
DRAWN:	July 2011
DRAWN BY:	LGM
CHECKED BY:	SKB
FILE NAME:	Figure1.pdf

Site Location
USGS 7.5' Topographic Map

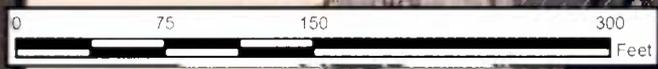
Kansas Oxide
 603 Sunshine Road
 Kansas City, KS, Wyandotte County

FIGURE
1

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■ Historical Soil Sampling Location
 Property Boundary



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FILE NAME:	Figure 2.pdf

**Historical Sampling Locations
 and Property Boundaries
 (March 2008 Aerial Photo)**

 Kansas Oxide
 603 Sunshine Road
 Kansas City, KS, Wyandotte County

FIGURE

2

-  Roof Aggregate TCLP Sample
-  Groundwater Sample Location
-  RSE Soil Resampling Location
-  RSE Soil Sampling Location
-  VCP Sampling
-  Background Precipitation Location
-  Roof Runoff Location



Source of Lead Emissions (Exterior Vent)




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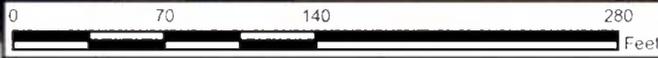
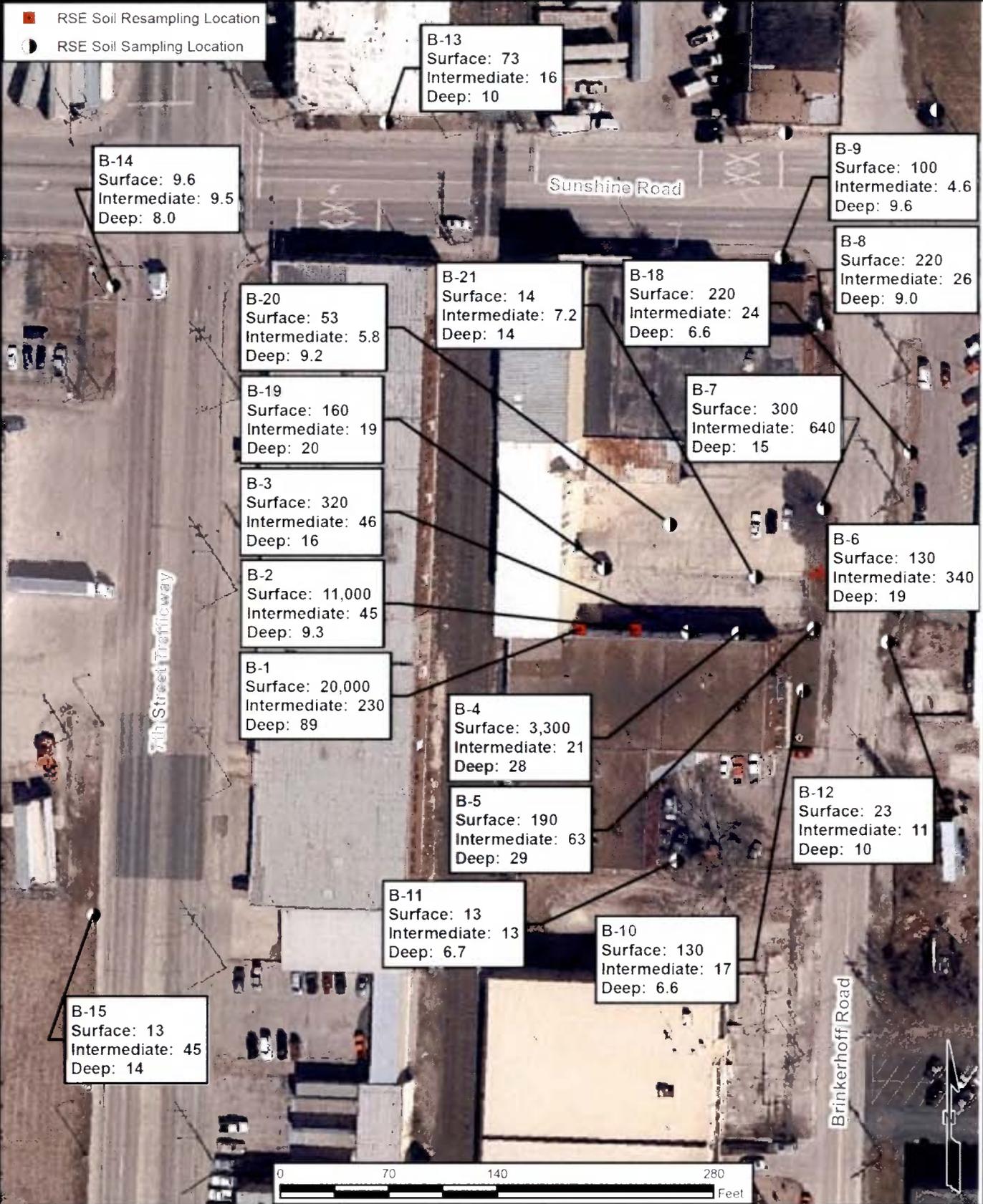
PROJECT NO.	112417
DRAWN:	September 2012
DRAWN BY:	LGM
CHECKED BY:	SKB
FILE NAME:	Figure 3.pdf

**RSE Sampling Locations
(March 2008 Aerial Photo)**

Kansas Oxide
603 Sunshine Road
Kansas City, KS, Wyandotte County

FIGURE
3

- RSE Soil Resampling Location
- RSE Soil Sampling Location



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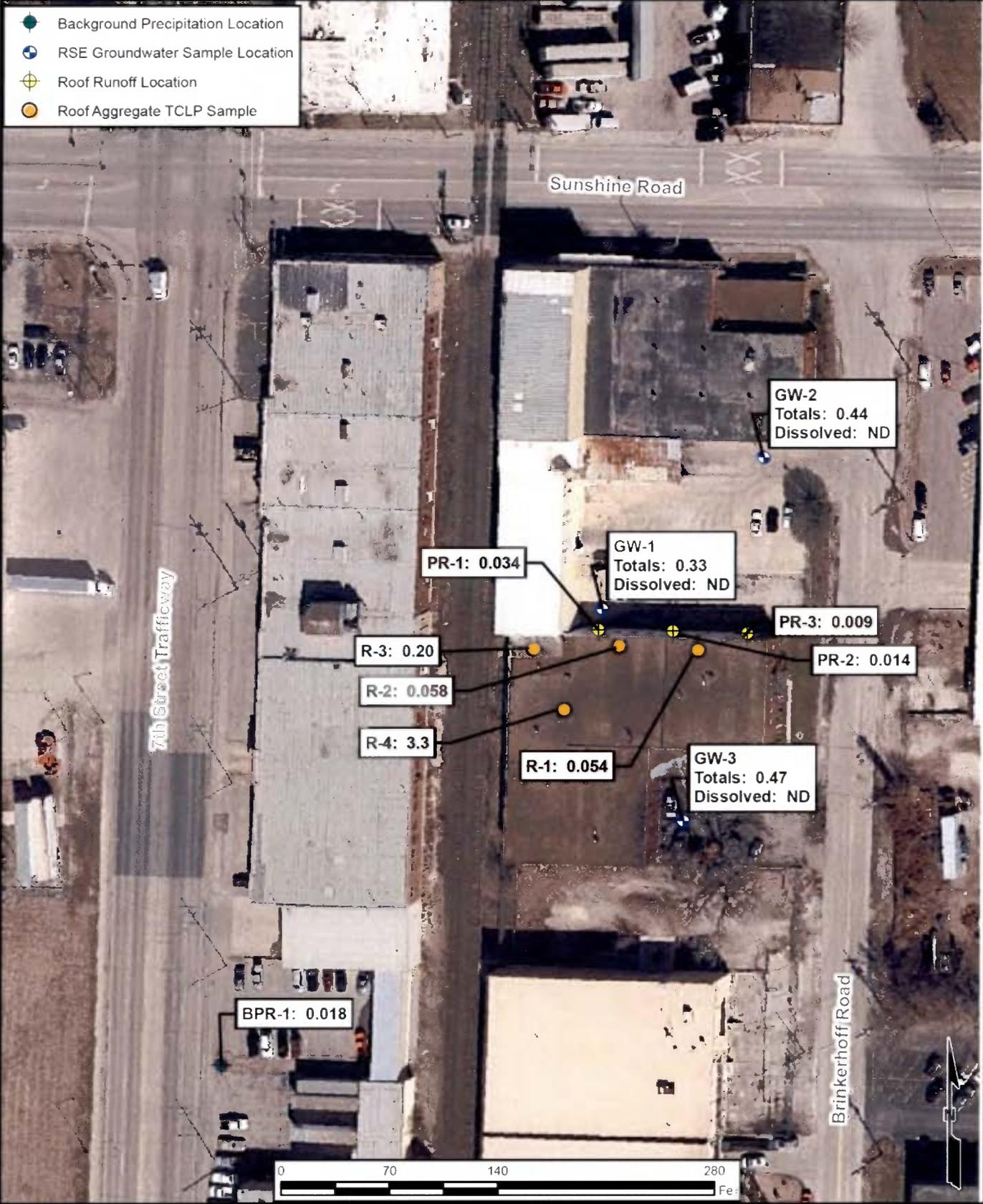
PROJECT NO.	112417
DRAWN:	September 2012
DRAWN BY:	LGM
CHECKED BY:	SKB
FILE NAME:	Figure 4.pdf

RSE Soil Sampling Results
Lead (ppm)
(March 2008 Aerial Photo)

Kansas Oxide
603 Sunshine Road
Kansas City, KS, Wyandotte County

FIGURE
4

- Background Precipitation Location
- RSE Groundwater Sample Location
- ⊕ Roof Runoff Location
- Roof Aggregate TCLP Sample



BPR-1: 0.018

R-3: 0.20

R-2: 0.058

R-4: 3.3

R-1: 0.054

PR-1: 0.034

GW-1
Totals: 0.33
Dissolved: ND

PR-3: 0.009

PR-2: 0.014

GW-2
Totals: 0.44
Dissolved: ND

GW-3
Totals: 0.47
Dissolved: ND



PROJECT NO. 112417
 DRAWN: September 2012
 DRAWN BY: LGM
 CHECKED BY: SKB
 FILE NAME: Figure 5.pdf

RSE Water Sampling Results
Lead (ppm)
(March 2008 Aerial Photo)

Kansas Oxide
 603 Sunshine Road
 Kansas City, KS, Wyandotte County

FIGURE
5



▲ VCP Sampling

Sunshine Road

7th Street Trafficway

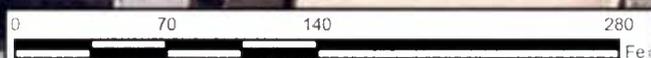
VCP-3
Surface: 110 / 10

VCP-1
Surface: 69 / 96

VCP-4
Surface: 17 / 9.4

VCP-2
Surface: 74 / 140

Brinkerhoff Road



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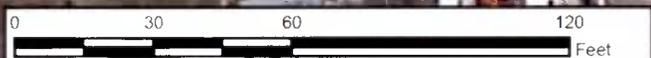
PROJECT NO.	112417
DRAWN:	June 2011
DRAWN BY:	LGM
CHECKED BY:	SKB
FILE NAME:	Figure 6.pdf

VCP Soil Sampling Results
Lead (ppm)/Arsenic (ppm)
(March 2008 Aerial Photo)

Kansas Oxide
603 Sunshine Road
Kansas City, KS, Wyandotte County

FIGURE
6

- Legend**
- ⊕ Proposed Groundwater Sample Location
 - RSE Soil Resampling Location
 - RSE Soil Sampling Location
 - ▲ VCP Sampling
 - ▨ Proposed Excavation Boundaries



PROJECT NO.	112417
DRAWN:	September 2012
DRAWN BY:	LGM
CHECKED BY:	SKB
FILE NAME:	Figure 7.pdf

Proposed Excavation Boundaries and Depths (March 2008 Aerial Photo)

Kansas Oxide
603 Sunshine Road
Kansas City, KS, Wyandotte County

FIGURE
7

APPENDIX A

Tables

Table 1
Soil Analytical Results

Method		6010B	6010B	
Residential Tier 2 RSK - Soil Pathway		11.3	400	
Non-Residential Tier 2 RSK - Soil Pathway		38	1,000	
Sample Location	Depth (feet below ground surface)	Date Collected	Arsenic	Lead
B-1	0-1	5/2/2011	<5.0	20,000
	1-2	5/2/2011	8.2	230
	2-3	5/2/2011	8.0	89
B-2	0-1	5/2/2011	4.4	11,000
	1-2	5/2/2011	6.4	45
	2-3	5/2/2011	5.1	9.3
B-3	0-1	5/2/2011	5.5	320
	1-2	5/2/2011	5.9	46
	2-3	5/2/2011	7.4	16
B-4	0-1	5/2/2011	6.4	3,300
	1-2	5/2/2011	6.4	21
	2-3	5/2/2011	6.6	28
B-5	0-1	5/2/2011	4.8	190
	1-2	5/2/2011	4.2	63
	2-3	5/2/2011	8.6	29
B-6	0-1	5/2/2011	4.5	130
	1-2	5/2/2011	7.4	340
	2-3	5/2/2011	7.9	19
B-7	0-1	5/2/2011	4.5	300
	1-2	5/2/2011	<5.0	640
	2-3	5/2/2011	7.0	15
B-8	0-1	5/2/2011	11	220
	1-2	5/2/2011	8.8	26
	2-3	5/2/2011	5.7	9.0
B-9	0-1	5/2/2011	90	100
	1-2	5/2/2011	2.9	4.6
	2-3	5/2/2011	18	9.6
B-10	0-1	5/2/2011	160	130
	2-3	5/2/2011	51	17
	4-5	5/2/2011	5.3	6.6
B-11	0-1	5/2/2011	6.0	13
	1-2	5/2/2011	5.3	13
	2-3	5/2/2011	5.1	6.7

Table 1
Soil Analytical Results

Method		6010B	6010B	
Residential Tier 2 RSK - Soil Pathway		11.3	400	
Non-Residential Tier 2 RSK - Soil Pathway		38	1,000	
Sample Location	Depth (feet below ground surface)	Date Collected	Arsenic	Lead
B-12	0-1	5/3/2011	12	23
	1-2	5/3/2011	7.6	11
	2-3	5/3/2011	6.0	10
B-13	0-1	5/3/2011	5.5	73
	1-2	5/3/2011	5.4	16
	2-3	5/3/2011	5.4	10
B-14	0-1	5/3/2011	6.8	9.6
	1-2	5/3/2011	5.9	9.5
	2-3	5/3/2011	6.3	8.0
B-15	0-1	5/3/2011	5.5	13
	1-2	5/3/2011	7.2	45
	2-3	5/3/2011	7.8	14
B-18	0-1	5/3/2011	34	220
	1-2	5/3/2011	14	24
	2-3	5/3/2011	5.0	6.6
B-19	0-1	3/29/2012	NA	160
	2-3	3/29/2012	NA	19
	4-5	3/29/2012	NA	20
B-20	0-1	3/29/2012	NA	53
	2-3	3/29/2012	NA	5.8
	4-5	3/29/2012	NA	9.2
B-21	0-1	3/29/2012	NA	14
	2-3	3/29/2012	NA	7.2
	4-5	3/29/2012	NA	14
VCP-1	0-1	5/2/2011	96	69
	2-3	5/2/2011	82	37
	4-5	5/2/2011	8.3	7.6
VCP-2	0-1	5/2/2011	140	74
	2-3	5/2/2011	110	14
	3-4	5/2/2011	6.0	10
VCP-3	0-1	5/3/2011	10	110
VCP-4	0-1	5/3/2011	9.4	17
DUP-1 (B-3)	0-1	5/2/2011	2.8	1,400
DUP-2 (B-7)	0-1	5/2/2011	5.0	500
DUP-3 (VCP-4)	0-1	5/3/2011	6.4	15

Table 1				
Soil Analytical Results				
Method		6010B	6010B	
Residential Tier 2 RSK - Soil Pathway		11.3	400	
Non-Residential Tier 2 RSK - Soil Pathway		38	1,000	
Sample Location	Depth (feet below ground surface)	Date Collected	Arsenic	Lead
DUP-1 (B-20)	2-3	3/29/2012	NA	1.3

Notes:

RSK: Kansas Risk-Based Standards

NA: Not Analyzed

All concentrations are provided in parts per million (ppm or mg/kg)

Bold indicates a detection above laboratory method detection levels

Shaded indicates a detection above residential RSKs

Non-Detects shown as less than the laboratory detection limit

Table 2
Groundwater Analytical Results

Method		6010B	6010B	
Residential/Non-Residential				
Tier 2 RSK - Groundwater Pathway		0.01	0.015	
Sample Location	Totals/Dissolved	Date Collected	Arsenic	Lead
GW-1F	Dissolved	5/2/2011	0.0089	<0.0050
GW-1U	Totals	5/2/2011	0.15	0.33
GW-2F	Dissolved	5/2/2011	0.023	<0.0050
GW-2U	Totals	5/2/2011	0.17	0.44
GW-3F	Dissolved	5/2/2011	0.012	<0.0050
GW-3U	Totals	5/2/2011	0.31	0.47
GW-DUP1 (GW-1F)	Totals	5/2/2011	0.0099	<0.0050
GW-DUP2 (GW-1U)	Dissolved	5/2/2011	0.12	0.28
RINSE BLANK 1		5/2/2011	<0.0065	<0.0050
RINSE BLANK 2		5/3/2011	<0.0065	<0.0050

Notes:

RSK: Kansas Risk-Based Standards

NA: RSK Not Available

All concentrations are provided in parts per million (ppm or mg/l)

Bold indicates a detection above laboratory method detection levels

Shaded indicates a detection above applicable RSKs

Non-Detects shown as less than the laboratory detection limit

Table 3			
TCLP Analytical Results			
Method			6010B
TCLP Regulatory Level			5.0
Sample Location	Depth (feet below ground surface)	Date Collected	TCLP Extraction Lead
B-1	0-1	5/2/2011	43
B-2	0-1	5/2/2011	22
B-4	0-1	5/2/2011	9.9

Notes:

RSK: Kansas Risk-Based Standards

NA: RSK Not Available

TCLP: Toxicity Characteristics Leaching Procedure

All concentrations are provided in parts per million (ppm or mg/l)

Bold indicates a detection above laboratory method detection levels

Shaded indicates a detection above applicable regulatory levels

Table 4
XRF Results*

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
Standard		5/2/2011	PASS				
NIST 2781		5/2/2011		173	10	<LOD	35
NSIT 2702		5/2/2011		123	10	51	13
NIST SiO2		5/2/2011		<LOD	10	<LOD	10
B-1	0-1	5/2/2011		20908	393	<LOD	428
		5/2/2011		23461	440	<LOD	452
		5/2/2011		19968	364	<LOD	402
B-1	1-2	5/2/2011		775	20	<LOD	61
		5/2/2011		368	13	<LOD	42
		5/2/2011		927	23	<LOD	69
B-1	2-3	5/2/2011		131	8	<LOD	29
		5/2/2011		113	8	<LOD	26
		5/2/2011		106	7	<LOD	25
B-2	0-1	5/2/2011		1960	44	151	39
		5/2/2011		4372	82	<LOD	169
		5/2/2011	PASS				
B-2	0-1	5/2/2011		2251	48	<LOD	119
B-2	1-2	5/2/2011		17	4	<LOD	15
		5/2/2011		72	6	<LOD	21
		5/2/2011		308	12	<LOD	39
		5/2/2011		33	5	<LOD	17
B-2	2-3	5/2/2011		22	5	<LOD	16
B-2 DUP		5/2/2011		31	5	<LOD	17
B-2		5/2/2011		20	4	<LOD	16
B-2 DUP		5/2/2011		24	5	<LOD	16
B-2		5/2/2011		21	4	<LOD	15
B-2 DUP		5/2/2011		15	4	<LOD	14
B-3	0-1	5/2/2011		329	13	46	15
		5/2/2011		355	13	<LOD	45
		5/2/2011		1326	30	<LOD	86
B-3	1-2	5/2/2011		37	5	<LOD	18
		5/2/2011		86	7	<LOD	24
		5/2/2011		66	6	<LOD	23
B-3	2-3	5/2/2011		18	4	19	5
B-3 DUP	2-3	5/2/2011		18	4	<LOD	16
B-3		5/2/2011		20	4	<LOD	15
B-3 DUP		5/2/2011		23	4	<LOD	16
B-3		5/2/2011		78	7	<LOD	26
B-3 DUP		5/2/2011		87	7	<LOD	26

Table 4**XRF Results***

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
B-4	0-1	5/2/2011		1944	40	<LOD	107
		5/2/2011		1072	26	<LOD	78
		5/2/2011		6064	119	<LOD	219
B-4	1-2	5/2/2011		22	6	<LOD	21
		5/2/2011		40	5	<LOD	17
		5/2/2011		35	5	<LOD	19
B-4	2-3	5/2/2011		917	22	<LOD	64
		5/2/2011		28	5	<LOD	17
		5/2/2011		30	5	<LOD	17
		5/2/2011		44	5	<LOD	17
B-18	0-1	5/3/2011					
	1-2	5/3/2011					
	2-3	5/3/2011					
B-4	3-4	5/2/2011		24	4	<LOD	15
		5/2/2011		<LOD	12	<LOD	14
		5/2/2011		15	4	<LOD	13
Standard		5/2/2011	PASS				
Standard		5/2/2011	PASS				
B-4	3-4	5/2/2011		18	4	<LOD	16
B-5	0-1	5/2/2011		63	6	<LOD	22
		5/2/2011		430	16	<LOD	52
		5/2/2011		158	9	<LOD	32
B-5	1-2	5/2/2011		180	10	<LOD	34
		5/2/2011		47	6	<LOD	24
		5/2/2011		131	9	<LOD	34
B-5	2-3	5/2/2011		49	7	<LOD	24
		5/2/2011		50	7	<LOD	23
		5/2/2011		50	7	<LOD	23
B-6	0-1	5/2/2011		95	8	<LOD	28
		5/2/2011		494	16	<LOD	52
		5/2/2011		84	8	<LOD	28
B-6	1-2	5/2/2011		403	15	<LOD	51
		5/2/2011		329	13	<LOD	46
		5/2/2011		970	27	<LOD	82
B-6	2-3	5/2/2011		24	6	<LOD	21
		5/2/2011		25	6	<LOD	21
		5/2/2011		45	7	<LOD	24
B-6	3-4	5/2/2011		21	5	<LOD	18
Standard		5/2/2011	PASS				

Table 4**XRF Results***

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
B-7	0-1	5/2/2011		352	13	<LOD	44
B-7 DUP		5/2/2011		326	12	<LOD	42
B-7		5/2/2011		257	11	<LOD	40
B-7 DUP		5/2/2011		262	11	<LOD	39
B-7		5/2/2011		500	16	<LOD	52
B-7 DUP		5/2/2011		502	16	<LOD	53
B-7	1-2	5/2/2011		99	8	<LOD	30
		5/2/2011		199	11	<LOD	39
		5/2/2011		631	20	<LOD	64
B-7	2-3	5/2/2011		<LOD	15	<LOD	17
		5/2/2011		26	5	<LOD	16
		5/2/2011		24	5	<LOD	17
B-7	3-4	5/2/2011		<LOD	12	<LOD	14
		5/2/2011		16	5	<LOD	17
		5/2/2011		<LOD	12	18	5
VCP-1	3-4	5/2/2011		<LOD	12	19	5
		5/2/2011		14	4	<LOD	15
		5/2/2011		15	4	24	6
VCP-1	0-1	5/2/2011		39	5	190	11
		5/2/2011		85	8	165	13
		5/2/2011		20	5	122	9
VCP-1	1-2	5/2/2011		<LOD	12	344	13
		5/2/2011		22	5	384	14
		5/2/2011		19	4	345	13
VCP-1	2-3	5/2/2011		13	4	50	7
		5/2/2011		19	4	50	7
		5/2/2011		27	5	182	10
B-10	0-1	5/2/2011		155	9	256	15
		5/2/2011		176	9	318	15
		5/2/2011		342	13	204	17
B-10	1-2	5/2/2011		28	5	233	11
		5/2/2011		<LOD	17	127	11
		5/2/2011		22	5	242	12
B-10	2-3	5/2/2011		<LOD	11	85	7
		5/2/2011		34	5	51	8
		5/2/2011		31	5	55	8
Standard		5/2/2011	PASS				

Table 4
XRF Results*

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
B-10	3-4	5/2/2011		18	5	<LOD	16
B-10		5/2/2011		15	5	19	6
B-10 DUP		5/2/2011		17	5	21	6
B-10		5/2/2011		24	5	<LOD	18
B-10 DUP		5/2/2011		20	5	<LOD	19
B-10	4-5	5/2/2011		16	4	<LOD	15
		5/2/2011		13	4	<LOD	14
		5/2/2011		<LOD	12	<LOD	14
VCP-1	4-5	5/2/2011		18	4	<LOD	15
		5/2/2011		18	4	<LOD	16
		5/2/2011		16	4	<LOD	15
VCP-2	0-1	5/2/2011		264	12	202	17
		5/2/2011		124	8	232	14
		5/2/2011		107	7	215	12
VCP-2	1-2	5/2/2011		<LOD	13	251	11
		5/2/2011		16	5	247	12
		5/2/2011		<LOD	14	240	12
VCP-2	2-3	5/2/2011		29	5	135	9
		5/2/2011		<LOD	13	158	9
		5/2/2011		17	4	168	10
VCP-2	3-4	5/2/2011		<LOD	15	19	6
VCP-2 DUP		5/2/2011		<LOD	14	20	6
VCP-2		5/2/2011		14	4	<LOD	15
VCP-2 DUP		5/2/2011		20	4	<LOD	16
VCP-2		5/2/2011		<LOD	13	<LOD	15
VCP-2 DUP		5/2/2011		<LOD	13	19	6
VCP-2	4-5	5/2/2011		15	4	<LOD	15
		5/2/2011		21	4	<LOD	15
		5/2/2011		21	4	19	6
Standard		5/2/2011	PASS				
VCP-2	5-6	5/2/2011		18	4	<LOD	16
		5/2/2011		<LOD	12	<LOD	14
		5/2/2011		29	8	<LOD	26
B-11	0-1	5/2/2011		23	5	<LOD	17
		5/2/2011		36	6	<LOD	21
		5/2/2011		25	5	<LOD	18
B-11	1-2	5/2/2011		<LOD	12	17	5
		5/2/2011		15	4	17	5
		5/2/2011		20	4	<LOD	16

Table 4
XRF Results*

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
B-11	2-3	5/2/2011		12	4	<LOD	14
		5/2/2011		<LOD	12	<LOD	14
		5/2/2011		14	4	<LOD	15
B-11	3-4	5/2/2011		14	4	<LOD	14
		5/2/2011		12	4	<LOD	14
		5/2/2011		<LOD	11	<LOD	13
B-8	3-4	5/2/2011		<LOD	12	<LOD	14
		5/2/2011		15	4	<LOD	15
		5/2/2011		<LOD	12	<LOD	14
B-8	0-1	5/2/2011		138	9	<LOD	32
		5/2/2011		251	12	<LOD	41
		5/2/2011		313	12	<LOD	41
B-8	1-2	5/2/2011		52	6	<LOD	21
		5/2/2011		38	5	<LOD	19
		5/2/2011		35	5	<LOD	18
B-8	2-3	5/2/2011		16	4	<LOD	15
B-8		5/2/2011		25	5	<LOD	17
B-8 DUP		5/2/2011		14	4	<LOD	14
B-8		5/2/2011		16	4	<LOD	15
Standard		5/2/2011	PASS				
B-9	3-4	5/2/2011		<LOD	11	17	4
		5/2/2011		12	4	<LOD	14
		5/2/2011		14	4	<LOD	14
B-9	0-1	5/2/2011		255	11	139	15
		5/2/2011		55	6	134	11
		5/2/2011		153	9	149	13
B-9	1-2	5/2/2011		22	4	37	6
		5/2/2011		14	4	36	6
		5/2/2011		18	4	21	6
B-9	2-3	5/2/2011		13	4	<LOD	14
		5/2/2011		12	4	<LOD	13
		5/2/2011		<LOD	12	<LOD	14
Standard		5/2/2011	PASS				
NIST 2702		5/2/2011		115	10	41	12
NIST 2781		5/2/2011		190	10	<LOD	35
NIST SiO2		5/2/2011		<LOD	10	<LOD	11
Standard		5/3/2011	PASS				
NIST 2703		5/3/2011		137	11	<LOD	39
NIST 2781		5/3/2011		183	10	<LOD	34
NIST SiO2		5/3/2011		<LOD	10	<LOD	11

Table 4**XRF Results***

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
B-12	0-1	5/3/2011		45	6	<LOD	22
		5/3/2011		67	8	<LOD	29
		5/3/2011		27	5	39	7
B-12	1-2	5/3/2011		<LOD	13	17	5
		5/3/2011		<LOD	12	<LOD	15
		5/3/2011		13	4	<LOD	15
B-12	2-3	5/3/2011		18	4	<LOD	16
		5/3/2011		16	4	<LOD	15
		5/3/2011		17	4	<LOD	16
B-18	0-1	5/3/2011		209	14	55	17
		5/3/2011		239	12	49	15
		5/3/2011		355	15	<LOD	51
B-18	1-2	5/3/2011		<LOD	14	<LOD	16
		5/3/2011		<LOD	14	<LOD	17
		5/3/2011		14	4	<LOD	14
B-18	2-3	5/3/2011		<LOD	12	<LOD	14
		5/3/2011		<LOD	12	<LOD	14
		5/3/2011		14	4	<LOD	15
B-17	0-1	5/3/2011		83	7	<LOD	24
		5/3/2011		59	7	<LOD	24
		5/3/2011		85	7	<LOD	25
B-17	1-2	5/3/2011		<LOD	11	20	5
		5/3/2011		21	5	<LOD	17
		5/3/2011		22	5	<LOD	18
B-17	2-3	5/3/2011		<LOD	15	<LOD	19
B-17 DUP		5/3/2011		25	6	<LOD	20
B-17		5/3/2011		<LOD	13	21	6
B-17 DUP		5/3/2011		<LOD	13	<LOD	15
B-17		5/3/2011		36	8	<LOD	25
B-17 DUP		5/3/2011		13	4	<LOD	15
Standard			5/3/2011	FAIL			
Standard		5/3/2011	PASS				
B-16	0-1	5/3/2011		67	7	<LOD	26
		5/3/2011		77	7	<LOD	24
B-16	1-2	5/3/2011		18	5	<LOD	18
		5/3/2011		34	5	<LOD	18
		5/3/2011		27	5	<LOD	18
		5/3/2011		28	6	<LOD	19
B-16	2-3	5/3/2011		15	4	<LOD	16
		5/3/2011		<LOD	12	<LOD	14
		5/3/2011		13	4	<LOD	15

Table 4
XRF Results*

Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
B-13	0-1	5/3/2011		63	7	<LOD	23
		5/3/2011		95	7	<LOD	26
		5/3/2011		104	8	<LOD	28
B-13	1-2	5/3/2011		26	5	<LOD	17
B-13 DUP		5/3/2011		28	5	<LOD	18
B-13		5/3/2011		29	5	<LOD	19
B-13 DUP		5/3/2011		23	5	<LOD	17
B-13		5/3/2011		24	5	<LOD	18
B-13 DUP		5/3/2011		27	5	<LOD	18
B-13		2-3	5/3/2011		19	5	<LOD
	5/3/2011			20	5	<LOD	16
	5/3/2011			21	5	<LOD	17
B-15	0-1	5/3/2011		<LOD	13	<LOD	16
		5/3/2011		24	5	<LOD	17
		5/3/2011		34	5	<LOD	17
B-15	1-2	5/3/2011		38	5	<LOD	19
		5/3/2011		63	6	<LOD	23
		5/3/2011		52	6	<LOD	22
B-15	2-3	5/3/2011		19	4	<LOD	16
		5/3/2011		18	5	<LOD	17
		5/3/2011		26	5	<LOD	17
B-14	0-1	5/3/2011		33	5	<LOD	18
		5/3/2011		33	5	<LOD	19
		5/3/2011		36	6	<LOD	20
B-14	1-2	5/3/2011		18	5	<LOD	16
		5/3/2011		20	5	<LOD	16
		5/3/2011		23	5	<LOD	16
B-14	2-3	5/3/2011		<LOD	12	<LOD	15
		5/3/2011		<LOD	13	<LOD	15
		5/3/2011		<LOD	12	<LOD	14
Standard		5/3/2011	PASS				
VCP-3	0-1	5/3/2011		98	7	<LOD	26
		5/3/2011		89	7	<LOD	25
		5/3/2011		101	7	<LOD	26
VCP-4	0-1	5/3/2011		22	5	<LOD	16
VCP-4		5/3/2011		19	4	22	6
VCP-4 DUP		5/3/2011		29	5	32	7
VCP-4		5/3/2011		16	4	<LOD	16
VCP-4 DUP		5/3/2011		26	5	<LOD	17
Standard		5/3/2011	PASS				
NIST 2702		5/3/2011		123	10	<LOD	38

<p style="text-align: center;">Table 4 XRF Results*</p>							
Sample Location	Depth	Date Collected	Standard Pass/Fail?	Lead	+/-	Arsenic	+/-
NIST 2781		5/3/2011		197	10	<LOD	37
NIST SiO2		5/3/2011		<LOD	9	<LOD	9

Notes:

XRF: X-Ray Fluorescence Detector

DUP: Duplicate sample

NIST: National Institute of Standards and Technology

LOD: XRF Limit of Detection (identified in the +/- column)

All concentrations are provided in parts per million (ppm or mg/kg)

*All samples are listed in order of when they were collected and analyzed.

Table 5			
Precipitation/Roof Runoff Analytical Results			
Method		6010B	6010B
Sample Location	Date Collected	Arsenic	Lead
PR-1*	6/17/2011	<0.020	0.034
PR-2	6/17/2011	<0.020	0.014
PR-3	6/17/2011	<0.020	0.009
BPR-1	6/17/2011	<0.020	0.018

Notes:

RSK: Kansas Risk-Based Standards

All concentrations are provided in parts per million (ppm or mg/l)

Bold indicates a detection above laboratory method detection levels

Non-Detects shown as less than the laboratory detection limit

*Higher flow observed at this drainage spout during the June 17, 2011 rain event

Table 6		
Roof Aggregate TCLP Analytical Results		
Method		TCLP6010
Sample Location	Date Collected	Lead
R-1	8/14/2012	0.054
R-2	8/14/2012	0.058
R-3	8/14/2012	0.2
R-4	8/14/2012	3.3

Notes:

RSK: Kansas Risk-Based Standards

All concentrations are provided in parts per million (ppm or mg/l)

Bold indicates a detection above laboratory method detection levels

Non-Detects shown as less than the laboratory detection limit

*Higher flow observed at this drainage spout during the June 17, 2011 rain event

APPENDIX B

Boring Logs

Boring Number: B-1	Location: SWC of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 20.0 ft	Coordinates (X/Y, Lat/Long): 39.14581° / -94.62101°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 8.0 ft / 08:55 am	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.									
Description																	
			B-1 0-1		9.5			SILTY CLAY, trace sand and gravel									
			B-1 1-2		9.5			SILTY CLAY, light brown, moist									
			B-1 2-3		9.5			SILTY CLAY, trace sand, light brown, very moist, soft to firm									
	5-741.0				36			SILTY CLAY, gray brown, moist, firm									
	10-736.0				44			SILTY CLAY, light brown, wet									
	15-731.0				38			SILTY CLAY, light brown-gray brown, wet									
								SILTY CLAY, trace sand, gray brown, wet									
	20-726.0							SAND, well sorted, fine-medium grained, light brown, moist									
								***wet Completed at a depth of 20.0 ft below existing site grade.									

SOIL BORING LOG - KA CORPORATE STD.G0T - KLEINFELDER GINT STD.LIBRARY.R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-1

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

1 of 1

Boring Number: B-2	Location: Southern Boundary of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.14581° / -94.62088°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 4.0 ft / 09:28 am	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (ft)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction	
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)
			B-2 0-1		9			SILTY CLAY, trace sand and gravel, brown with light brown, dry										
			B-2 1-2		9			SILTY CLAY, light brown, moist										
			B-2 2-3		9			SILTY CLAY WITH SAND, light brown, very moist ***wet										
	5-741.0							SILTY CLAY, gray brown, moist										
								SILTY CLAY, trace sand, light brown, very moist										
								Completed at a depth of 8.0 ft below existing site grade.										
	10-736.0																	
	15-731.0																	
	20-726.0																	

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KC BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-2
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: B-3	Location: Southern Boundary of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.14581° / -94.62076°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification			Laboratory					Other Tests and Field Notes	Well Construction		
								Description		Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)			Passing #4 Sieve (%)	Passing #200 Sieve (%)
		Hand	B-3 0-1		9			SILTY CLAY, trace sand, light brown, moist											
		Hand	B-3 1-2		9														
		Hand	B-3 2-3		9														
					9														
5	741.0																		
					38			SILTY CLAY, light brown, moist											
								***very moist											
								Completed at a depth of 8.0 ft below existing site grade.											
10	736.0																		
15	731.0																		
20	726.0																		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD LIBRARY R4/GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-3

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: B-4	Location: SEC of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X,Y, Lat/Long): 39.14581° / -94.62067°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 3.5 ft / 10:03 am	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction	
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)
		Hand	B-4 0-1		9.5			SILTY CLAY, trace sand and gravel, light brown, moist										
		Hand	B-4 1-2		9.5			SILTY CLAY, light brown, moist										
		Hand	B-4 2-3		9.5			SILTY CLAY, trace sand, light brown, very moist-wet										
	5-741.0				42			SILTY CLAY, light brown, moist										
								SILTY CLAY WITH SAND, light brown, very moist										
								Completed at a depth of 8.0 ft below existing site grade.										
	10-736.0																	
	15-731.0																	
	20-726.0																	

SOIL BORING LOG KA CORPORATE STD.G01 KLEINFELDER GINT STD LIBRARY R4.GLB KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-4
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

8.0 ft of bentonite plug

Boring Number: B-6	Location: Eastern Boundary of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.14591° / -94.62052°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction	
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
			B-6 0-1		8.5			SILTY CLAY, trace gravel, brown, moist										
			B-6 1-2		8.5			FINE GRAVEL AND SAND WITH CLAY, (fill?), light brown, dry										
			B-6 2-3		8.5													
	5-746.0							Completed at a depth of 4.0 ft below existing site grade.										4.0 ft of bentonite plug
	10-735.0																	
	15-730.0																	
	20-725.0																	

SOIL BORING LOG - KA CORPORATE STD.GDT. KLEINFELDER GINT STD.LIBRARY.R4.GLB - KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-6

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
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Boring Number: B-7	Location: Eastern Boundary of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.146° / -94.62052°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification		Laboratory						Other Tests and Field Notes	Well Construction	
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
			B-7 0-1					SILTY CLAY, trace sand, dry										
			B-7 1-2					FINE GRAVEL WITH SAND, some clay, (fill?), light brown, dry										
			B-7 2-3					SILTY CLAY, gray brown, moist										
								SILTY CLAY, trace sand, light brown, moist										
	5-740.0							Completed at a depth of 4.0 ft below existing site grade.										
	10-735.0																	
	15-730.0																	
	20-725.0																	

SOIL BORING LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4 GLB KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-7

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: B-8	Location: NEC of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (XY, Lat/Long): 39.14636° / -94.62052°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 744.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methans (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification		Laboratory						Other Tests and Field Notes	Well Construction	
								Description	The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)			Passing #4 Sieve (%)
		Hand	B-8 0-1		9.5			SILTY CLAY, trace sand, brown, moist										
		Hand	B-8 1-2		9.5													
		Hand	B-8 2-3		9.5													
					9.5			SILTY CLAY, some sand, light brown, moist										
5-739.0								Completed at a depth of 4.0 ft below existing site grade.										4.0 ft of bentonite plug
10-734.0																		
15-729.0																		
20-724.0																		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY.R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-8
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: B-9	Location: NEC of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.14646° / -94.62061°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methans (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification		Laboratory						Other Tests and Field Notes	Well Construction	
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)			Passing #200 Sieve (%)
		Hand	B-9 0-1					SILTY CLAY, light brown, moist, firm										
		Hand	B-9 1-2					SILTY CLAY, trace sand, light brown, moist										
		Hand	B-9 2-3					***becoming very moist										
5-740.0								Completed at a depth of 4.0 ft below existing site grade.										4.0 ft of bentonite plug
10-735.0																		
15-730.0																		
20-725.0																		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD LIBRARY R4.CLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-9

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: B-10	Location: Eastern Boundary of Central Solutions	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.1457° / -94.06205°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 5.0 ft / 01:10 pm	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction		
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)	Dry Unit Weight (pcf)
			B-10 0-1		9.5			SILTY CLAY, light brown, moist											
			B-10 2-3		9.5			***concrete rubble fill											
			B-10 4-5		9.5			SILTY CLAY, grayish brown, moist											
	740.0				11			SILTY CLAY, trace sand, light brown, moist-wet											
					33			SILTY CLAY, trace sand, light brown, moist-wet											
								Completed at a depth of 8.0 ft below existing site grade.											
	735.0																		
	730.0																		
	725.0																		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD LIBRARY RA.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-10
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: B-11	Location: Southern Boundary of Central Solutions	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.1454° / -94.6208°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass/gravel	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 3.0 ft / 02:10 pm	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		
			B-11 0-1		9.5			SILTY CLAY, some gravel fill, light brown, moist									
			B-11 1-2		9.5			SILTY CLAY, light brown, moist									
			B-11 2-3		9.5			SILTY CLAY, trace sand, light brown, moist									
					9.5			***becoming wet									
					42			SILTY CLAY, grayish brown									8.0 ft of bentonite plug
								Completed at a depth of 8.0 ft below existing site grade.									

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-11

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
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Boring Number: B-12	Location: East Brinkerhoff Road ROW	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.14577° / -94.62037°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 744.0 ft	Bit Size/Type:
Surface Conditions: gravel	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		
			B-12 0-1		11			SILTY CLAY WITH GRAVEL, brown, moist									
			B-12 1-2		11			SILTY CLAY, trace sand, light brown, moist									
			B-12 2-3		11												
5	739.0				11												
					38			SILTY CLAY, light brown, moist, firm									
								SILTY CLAY, trace sand, light brown, very moist									
								Completed at a depth of 8.0 ft below existing site grade.									
10	734.0																
15	729.0																
20	724.0																

8.0 ft of bentonite plug

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY.P4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-12

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

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Boring Number: B-13	Location: North Sunshine Rd. ROW	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.1467° / -94.62154°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft) Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (ft)	Graphic Log	ASTM Symbol	Field Soil Description & Classification					Laboratory			Other Tests and Field Notes	Well Construction				
							Description					Consistency / Apparent Density	Plasticity	Plasticity Index			Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)
5-741.0		B-13 0-1		7.5			SILTY CLAY, trace gravel, brown, moist													
		B-13 1-2		7.5			SILTY CLAY, trace sand, light brown, moist													
		B-13 2-3		7.5																
				7.5			Completed at a depth of 4.0 ft below existing site grade.													

SOIL BORING LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4.GLB KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-13
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

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Boring Number: B-14	Location: SWC of Sunshine Rd. and 7th St.	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.14635° / -94.62216°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction		
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)	Dry Unit Weight (pcf)
			B-14 G-1		9.5			SILTY CLAY WITH GRAVEL AND SAND, (flF?), brown, moist											
			B-14 1-2		9.5			SILTY CLAY, trace sand, light brown, moist											
			B-14 2-3		9.5			SILTY CLAY, brown and gray brown, moist											
	5-741.0							Completed at a depth of 4.0 ft below existing site grade.											
	10-736.0																		
	15-731.0																		
	20-726.0																		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD LIBRARY R4.GLB - KC BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-14

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
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Boring Number: B-15	Location: West 7th St. ROW	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.14527° / -94.62217°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification		Laboratory					Other Tests and Field Notes	Well Construction		
								Description	The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)			Dry Unit Weight (pcf)	Passing #4 Sieve (%)
		Hand	B-15 0-1		9.5													
		Hand	B-15 1-2		9.5			SILTY CLAY, trace gravel, brown, moist										
		Hand	B-15 2-3		9.5			SILTY CLAY, trace sand, light brown, moist										
								SILTY CLAY, grayish brown, moist										
								Completed at a depth of 4.0 ft below existing site grade.										
5-740.0																		
10-735.0																		
15-730.0																		
20-725.0																		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12

	Project Number: 112417	B-15	Log Page
	Date: 10-08-12		
	Entry By: LM	Kansas Oxide 603 Sunshine Kansas City, Kansas	1 of 1
	Checked By: S. Beadleston		
	File Name:		

Boring Number: B-16	Location: North Sunshine Rd. ROW	Drilling Method: Geoprobe
Boring Total Depth: 3.0 ft	Coordinates (X/Y, Lat/Long): 39.14669° / -94.62059°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 744.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction		
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)	Dry Unit Weight (pcf)
			Hold					SILTY CLAY, trace sand, brown, moist											
			Hold					SILTY CLAY, trace sand, light brown, moist											
			Hold					Completed at a depth of 3.0 ft below existing site grade.											
5-739.0																			
10-734.0																			
15-729.0																			
20-724.0																			

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12

	Project Number: 112417	B-16	Log Page
	Date: 10-08-12		
	Entry By: LM	Kansas Oxide 603 Sunshine Kansas City, Kansas	1 of 1
	Checked By: S. Beadleston		
	File Name:		

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12

Boring Number: B-17	Location: NEC of the Intersection of Sunshine Rd. and Brinkerhoff Rd.	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (XY, Lat/Long): 39.14673° / -94.62027°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 744.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction		
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)	Dry Unit Weight (pcf)
		Hand	Hold		9.5			SILTY CLAY, brown, moist											
		Hand	Hold		9.5			SILTY CLAY, trace sand, light brown, very moist											
		Hand	Hold		9.5			Completed at a depth of 4.0 ft below existing site grade.											4.0 ft of bentonite plug
5-739.0																			
10-734.0																			
15-729.0																			
20-724.0																			

	Project Number: 112417	B-17	Log Page
	Date: 10-08-12		
	Entry By: LM	Kansas Oxide 603 Sunshine Kansas City, Kansas	1 of 1
	Checked By: S. Beadleston		
	File Name:		

Boring Number: B-18	Location: East Brinkerhoff Road ROW	Drilling Method: Geoprobe
Boring Total Depth: 4.0 ft	Coordinates (X/Y, Lat/Long): 39.14616° / -94.62032°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 744.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		
			B-18 0-1		9.5			SILTY CLAY, trace gravel, brown, moist									
			B-18 1-2		9.5			SILTY CLAY, trace sand, light brown, very moist									
			B-18 2-3		9.5			Completed at a depth of 4.0 ft below existing site grade.									
					9.5												
5-739.0																	
10-734.0																	
15-729.0																	
20-724.0																	

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-18

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

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Boring Number: B-19	Location: Central Portion of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 5.0 ft	Coordinates (X/Y, Lat/Long): ft / ft	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 03-29-12 / 03-29-12	Top of Boring Elevation:	Bit Size/Type:
Surface Conditions: asphalt	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 4.0 ft	Hammer Drop/Weight:
Logged By: BM	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification		Laboratory						Other Tests and Field Notes	
							Description		Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)		Passing #4 Sieve (%)
							6 inches of ASPHALT									
		B-19 0-1		12			SILTY CLAY, with some fine sand, dark brown, moist									
		B-19 2-3		12			SAND, fine with some silt, light brown, moist									
		B-19 4-5		12			CLAY, light brown with some red brown mottling, wet									
							Completed at a depth of 5.0 ft below existing site grade.									

SOIL BORING LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4.GLB KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-19

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 603 Sunshine
 Kansas City, Kansas

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Boring Number: B-20	Location: Central Portion of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 5.0 ft	Coordinates (X/Y, Lat/Long): ft / ft	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 03-29-12 / 03-29-12	Top of Boring Elevation:	Bit Size/Type:
Surface Conditions: concrete	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 4.0 ft	Hammer Drop/Weight:
Logged By: BM	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	
							Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		Passing #200 Sieve (%)
0-1	B-20			12			4 inches of CONCRETE									
1-2				12			CLAY, with some silt, dark brown, moist									
2-3	B-20			12			SAND, fine with some clay and silt, light brown, moist									
3-4				12												
4-5	B-20			12			CLAY, with some silt and fine sand, light brown, slightly wet									
5.0							Completed at a depth of 5.0 ft below existing site grade.									

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-20

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

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Boring Number: B-21	Location: Central Portion of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 5.0 ft	Coordinates (XY, Lat/Long): ft / ft	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 03-29-12 / 03-29-12	Top of Boring Elevation:	Bit Size/Type:
Surface Conditions: asphalt	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: BM	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification		Laboratory						Other Tests and Field Notes	
							Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		Passing #200 Sieve (%)
		B-21 0-1		12			4 inches of ASPHALT									
		B-21 1-2		12			CLAY, brown, dry to moist									
		B-21 2-3		12			SAND, with some clay, light brown, moist									
		B-21 3-4		12			CLAY, with some silt, light brown, moist									
5		B-21 4-5		12												
							Completed at a depth of 5.0 ft below existing site grade.									

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

B-21

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

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Boring Number: GW-1	Location: SWC of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 26.5 ft	Coordinates (X/Y, Lat/Long): 39.14584° / -94.62097°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: asphalt	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 20.6 ft / 10:30 am	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit		
Description																	
5-741.0																	
10-736.0																	
15-731.0																	
20-726.0																	
																	22.5 ft of geoprobe rod

SOIL BORING LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD.LIBRARY R4.GLB KO BORING LOGS.GPJ 10/8/12

	Project Number: 112417	GW-1	Log Page
	Date: 10-08-12		
	Entry By: LM	Kansas Oxide 603 Sunshine Kansas City, Kansas	1 of 2
	Checked By: S. Beadleston		
File Name:			

Boring Number: GW-2	Location: NEC of 603 Sunshine	Drilling Method: Geoprobe
Boring Total Depth: 28.0 ft	Coordinates (X/Y, Lat/Long): 39.14614° / -94.62061°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: concrete	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 12.6 ft / 11:00 am	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft) Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
							Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		
5-740.0																
10-735.0																
15-730.0																
20-725.0																

24.0 ft of
geoprobe rod

SOIL BORING LOG KA CORPORATE STD.GDT KLEINFELDER QINT STD LIBRARY RA:GLB KO BORING LOGS:GPI 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

GW-2
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

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Boring Number: GW-3	Location: Central Portion of Central Solutions	Drilling Method: Geoprobe
Boring Total Depth: 28.0 ft	Coordinates (X/Y, Lat/Long): 39.14547° / -94.6208°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: asphalt	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 17.7 ft / 01:52 pm	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		
5-740.0																	
10-735.0																	
15-730.0																	
20-725.0																	

24.0 ft of
geoprobe rod

SOIL BORING LOG KA CORPORATE STD.GDT KLEINFELDER GINT STD LIBRARY R4.GLB KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

GW-3
 Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

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Boring Number: VCP-1	Location: Eastern Boundary of Central Solutions	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.14575° / -94.62055°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 4.5 ft / 01:17 pm	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction
								Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)		
		VCP-1 0-1						SILTY CLAY, light brown, moist, firm									
		VCP-1 2-3															
	5-740.0	VCP-1 4-5						***becoming wet									8.0 ft of bentonite plug
								SILTY CLAY, trace sand, light brown, very moist to wet									
								Completed at a depth of 8.0 ft below existing site grade.									
	10-735.0																
	15-730.0																
	20-725.0																

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER QINT STD LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

VCP-1

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: VCP-2	Location: Eastern Boundary of Central Solutions	Drilling Method: Geoprobe
Boring Total Depth: 8.0 ft	Coordinates (X/Y, Lat/Long): 39.14565° / -94.62055°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-02-11 / 05-02-11	Top of Boring Elevation: 745.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time: 4.0 ft / 01:34 pm	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction	
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)
			VCP-2 0-1					SILTY CLAY, light brown, moist, firm										
			VCP-2 2-3					SILTY CLAY, trace sand, light brown, moist										
			VCP-2 4-5					***becoming very moist-wet										
								SILTY CLAY, grayish brown, moist										
								Completed at a depth of 8.0 ft below existing site grade.										

SOIL BORING LOG - KA-CORPORATE-STD.GDT - KLEINFELDER GINT STD LIBRARY RA.GLB - KC BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

VCP-2

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

1 of 1

Boring Number: VCP-3	Location: Eastern Boundary of Central Solutions in Plant Area	Drilling Method: Geoprobe
Boring Total Depth: 1.0 ft	Coordinates (X/Y, Lat/Long): 39.14576° / -94.62059°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction	
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)
			VCP-3 0-1		12			SILTY CLAY, brown, moist										1.0 ft of bentonite plug
	5-741.0							Completed at a depth of 1.0 ft below existing site grade.										
	10-736.0																	
	15-731.0																	
	20-726.0																	

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD.LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

VCP-3

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page
 1 of 1

Boring Number: VCP-4	Location: Eastern Boundarof Central Solutions in Plant Area	Drilling Method: Geoprobe
Boring Total Depth: 1.0 ft	Coordinates (X/Y, Lat/Long): 39.14565° / -94.62058°	Drilling Equipment:
Depth to Rock: No Rock was Encountered	Datum/Coordinate System:	Drilling Company: PSA
Date Begin/End: 05-03-11 / 05-03-11	Top of Boring Elevation: 746.0 ft	Bit Size/Type:
Surface Conditions: grass	Coordinate Data Source:	Hammer Type/Method:
WL Measurement Point: Ground Surface	Depth to Groundwater Initial/Time:	Hammer Drop/Weight:
Logged By: VD	Depth to Groundwater Final/Time:	Angle From Horizontal/Bearing: -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Methane (%LEL)	Recovery (in)	Graphic Log	ASTM Symbol	Field Soil Description & Classification				Laboratory				Other Tests and Field Notes	Well Construction	
								Description				Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit			Water Content (%)
			VCP-4 C-1		12			SILTY CLAY, brown, moist										1.0 ft of bentonite plug
	5-741.0							Completed at a depth of 1.0 ft below existing site grade.										
	10-736.0																	
	15-731.0																	
	20-726.0																	

SOIL BORING LOG - KA CORPORATE STD.GDT - KLEINFELDER GINT STD LIBRARY R4.GLB - KO BORING LOGS.GPJ - 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

VCP-4

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

1 of 1

LOG SYMBOLS

	BULK / BAG SAMPLE		SOLID PIPE BACKFILLED WITH CEMENT GROUT
	MODIFIED CALIFORNIA SAMPLER (2-1/2 inch outside diameter)		SOLID PIPE BACKFILLED WITH BENTONITE MATERIAL
	CALIFORNIA SAMPLER (3 inch outside diameter)		SOLID PIPE BACKFILLED WITH SAND
	STANDARD PENETRATION SPLIT SPOON SAMPLER (2 inch outside diameter)		SLOTTED PIPE BACKFILLED WITH SAND
	GEOPROBE		NO PIPE BACKFILLED WITH BENTONITE MATERIAL
N/R	NO SAMPLE RECOVERY		NO PIPE BACKFILLED WITH SAND
	WATER LEVEL (level where first encountered)		NO PIPE BACKFILLED WITH NATIVE SOIL
	WATER LEVEL (level after completion)		FID FLAME IONIZATION DETECTOR
	SOIL CONTACT NOTED WITHIN SAMPLE INTERVAL		PID PHOTO IONIZATION DETECTOR
	SOIL CONTACT INFERRED BETWEEN SAMPLE INTERVALS		

GENERAL NOTES

Boring log data represents a data snapshot.

This data represents subsurface characteristics only to the extent encountered at the location of the boring.

The data inherently cannot accurately predict the entire subsurface conditions to be encountered at the project site relative to construction or other subsurface activities.

Lines between soil layers and/or rock units are approximate and may be gradual transitions.

The information provided should be used only for the purposes intended as described in the accompanying documents.

In general, Unified Soil Classification System designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.



Project Number: 112417

Date: 10-08-12

Entry By: LM

Checked By: S. Beadleston

File Name:

LOG KEY

Kansas Oxide
603 Sunshine
Kansas City, Kansas

Log Page

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM 2487)

	MAJOR DIVISIONS	GRAPHIC LOG		TYPICAL DESCRIPTIONS	
COARSE GRAINED SOILS <small>(More than half of material is larger than the #200 sieve)</small>	GRAVELS <small>(More than half of coarse fraction is larger than the #4 sieve)</small>	CLEAN GRAVELS WITH <5% FINES	$Cu \geq 4$ and $1 \leq Cc \leq 3$	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			$Cu < 4$ and/or $1 < Cc > 3$	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5 to 12% FINES	$Cu \geq 4$ and $1 \leq Cc \leq 3$	GW-GM	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
			$Cu \geq 4$ and $1 \leq Cc \leq 3$	GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			$Cu < 4$ and/or $1 < Cc > 3$	GP-GM	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
			$Cu < 4$ and/or $1 < Cc > 3$	GP-GC	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
	GRAVELS WITH >12% FINES		GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES	
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	
			GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES	
	SANDS <small>(More than half of coarse fraction is smaller than the #4 sieve)</small>	CLEAN SANDS WITH <5% FINES	$Cu \geq 6$ and $1 \leq Cc \leq 3$	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			$Cu < 6$ and/or $1 < Cc > 3$	SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5 to 12% FINES	$Cu \geq 6$ and $1 \leq Cc \leq 3$	SW-SM	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
			$Cu \geq 6$ and $1 \leq Cc \leq 3$	SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
$Cu < 6$ and/or $1 < Cc > 3$			SP-SM	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES	
$Cu < 6$ and/or $1 < Cc > 3$			SP-SC	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES	
SANDS WITH >12% FINES			SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES	
			SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES	
			SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES	
FINE GRAINED SOILS <small>(More than half of material is smaller than the #200 sieve)</small>	SILTS AND CLAYS <small>(Liquid limit less than 50)</small>		ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY,	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	SILTS AND CLAYS <small>(Liquid limit greater than 50)</small>		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY	
			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY			

USCS (D2487) KA CORPORATE STD.GCT KLEINFELDER GINT STD.LIBRARY.R4.GLB KO BORING LOGS.GPJ 10/8/12



Project Number: 112417
 Date: 10-08-12
 Entry By: LM
 Checked By: S. Beadleston
 File Name:

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)

Kansas Oxide
 603 Sunshine
 Kansas City, Kansas

Log Page

APPENDIX C

Laboratory Analytical Results



17065 Lebanon Rd.
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1-800-767-5854
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Est. 1970

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Report Summary

Friday October 28, 2011

Report Number: L514484

Samples Received: 05/05/11

Client Project: 112417

Description: Kansas Oxide

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jeff Carr, ESC Representative

Laboratory Certification Numbers

AZLA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90910, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-1 0-1FT
Collected By : L. Messinger
Collection Date : 05/02/11 08:45

ESC Sample # : 1514484-01
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	5.0	mg/kg	6010B	05/06/11	5
Lead	20000	2.5	mg/kg	6010B	05/06/11	10

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-1 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 08:46

ESC Sample # : 1514464-02
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.2	1.0	mg/kg	6010B	05/06/11	1
Lead	2.30	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
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 Lenexa, KS 66214

October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-1 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 08:47

ESC Sample # : L514484-03
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.0	1.0	mg/kg	6010B	05/06/11	1
Lead	89.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-2 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 09:21

ESC Sample # : L514484-04
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.4	1.0	mg/kg	6010B	05/06/11	1
Lead	11600	1.2	mg/kg	6010B	05/06/11	5

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-2 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 09:22

ESC Sample # : L514484-05
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.4	1.0	mg/kg	6010B	05/06/11	1
Lead	45.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

October 29, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-2 2-3FT
Collected By : L. Messinger
Collection Date : 05/02/11 09:23

ESC Sample # : L514484-06

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.1	1.0	mg/kg	6010B	05/06/11	1
Lead	9.3	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-3 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 09:43

ESC Sample # : L514484-07
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.5	1.0	mg/kg	6010B	05/06/11	1
Lead	320	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-3 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 09:44

ESC Sample # : L514484-08

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.9	1.0	mg/kg	6010B	05/06/11	1
Lead	46.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-3 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 09:45

ESC Sample # : L514484-09
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.4	1.0	mg/kg	6010B	05/06/11	1
Lead	16.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-4 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 10:02

ESC Sample # : L514484-10

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.6	1.0	mg/kg	6010B	05/06/11	1
Lead	28.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-4 1-2FT
Collected By : L. Messinger
Collection Date : 05/02/11 10:01

ESC Sample # : L514484-11

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.4	1.0	mg/kg	6010B	05/09/11	1
Lead	21.	0.25	mg/kg	6010B	05/09/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-4 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 10:00

ESC Sample # : 1514484-12
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.4	1.0	mg/kg	6010B	05/08/11	1
Lead	3300	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : GW-1F
Collected By : L. Messinger
Collection Date : 05/02/11 10:30

ESC Sample # : L514484-13

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.0089	0.0065	mg/l	6010B	05/06/11	1
Lead	BDL	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : GW-DUP1
 Collected By : L. Messinger
 Collection Date : 05/02/11 00:00

ESC Sample # : L514484-14
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.0099	0.0065	mg/l	6010B	05/06/11	1
Lead	BDL	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : GW-10
 Collected By : L. Messinger
 Collection Date : 05/02/11 10:30

ESC Sample # : L514484-15

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.15	0.020	mg/l	6010B	05/06/11	1
Lead	0.33	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : GW-DUP2
Collected By : L. Messinger
Collection Date : 05/02/11 00:00

ESC Sample # : L514484-16
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.12	0.020	mg/l	6010B	05/06/11	1
Lead	0.28	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
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Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
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October 28, 2011

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : BPP-1
Collected By : L. Messinger
Collection Date : 05/02/11 09:00

ESC Sample # : L514484-17
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.8	1.0	mg/kg	6010B	05/08/11	1
Lead	1400	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

Lisa Messinger
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : GW-2F
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:00

ESC Sample # : L514484-18
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.023	0.020	mg/l	6010B	05/06/11	1
Lead	BDL	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide

Sample ID : GW-20

Collected By : L. Messinger
Collection Date : 05/02/11 11:00

ESC Sample # : L514484-19

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.17	0.020	mg/l	6010B	05/06/11	1
Lead	0.44	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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ESC Sample # : L514484-20

Date Received : May 05, 2011
Description : Kansas Oxide

Site ID :

Sample ID : GW-3F

Project # : 112417

Collected By : L. Messinger
Collection Date : 05/02/11 13:55

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.012	0.0065	mg/l	6010B	05/06/11	1
Lead	BDL	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : GW-3U
Collected By : L. Messinger
Collection Date : 05/02/11 13:55

ESC Sample # : L514484-21

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	0.31	0.020	mg/l	6010B	05/06/11	1
Lead	0.47	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-9 0-1ft
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:47

ESC Sample # : L514484-22
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	90.	1.0	mg/kg	6010B	05/08/11	1
Lead	100	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : E-9 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:48

ESC Sample # : L514484-23
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.9	1.0	mg/kg	6010B	05/08/11	1
Lead	4.6	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

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 11529 W. 79th Street, Building 21
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-9 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:49

ESC Sample # : L514484-24
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	18.	1.0	mg/kg	6010B	05/08/11	1
Lead	9.6	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : R-8 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:33

ESC Sample # : L514484-25

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	05/08/11	1
Lead	220	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-8 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:34

ESC Sample # : L514484-26

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.8	1.0	mg/kg	6010B	05/08/11	1
Lead	26.	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Lisa Messinger
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-8 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:35

ESC Sample # : L514484-27
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.7	1.0	mg/kg	6010B	05/08/11	1
Lead	9.0	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-7 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:37

ESC Sample # : L514484-28

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.5	1.0	mg/kg	6010B	05/08/11	1
Lead	300	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-7 1-2FT
Collected By : L. Messinger
Collection Date : 05/02/11 11:38

ESC Sample # : L514484-29
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	5.0	mg/kg	6010B	05/08/11	5
Lead	640	1.2	mg/kg	6010B	05/08/11	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

Lisa Messinger
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ESC Sample # : L514464-30

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-7 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:39

Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.0	1.0	mg/kg	6010B	05/08/11	1
Lead	15.	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : DUP-2
 Collected By : L. Messinger
 Collection Date : 05/02/11 00:00

ESC Sample # : L514484-31
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.0	1.0	mg/kg	6010B	05/06/11	1
Lead	500	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (POL)
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Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : RINSE BLANK 1
Collected By : L. Messinger
Collection Date : 05/02/11 13:45

ESC Sample # : L514484-32

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	0.0065	mg/l	6010B	05/06/11	1
Lead	BDL	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-5 0-1FT
Collected By : L. Messinger
Collection Date : 05/02/11 11:18

ESC Sample # : L514484-33
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.8	1.0	mg/kg	6010B	05/08/11	1
Lead	190	0.25	mg/kg	6010B	05/08/11	1

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-5 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:19

ESC Sample # : L514484-34
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.2	1.0	mq/kg	6010B	05/08/11	1
Lead	63.	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-5 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:20

ESC Sample # : L514484-35
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.6	1.0	mg/kg	6010B	05/07/11	1
Lead	29.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
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October 28, 2011

Lisa Messinger
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11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-6 0-1FT
Collected By : L. Messinger
Collection Date : 05/02/11 11:25

ESC Sample # : L514484-36

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.5	1.0	mg/kg	6010B	05/07/11	1
Lead	130	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-6 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:26

ESC Sample # : L514484-37
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.4	1.0	mg/kg	6010B	05/07/11	1
Lead	340	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

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 11529 W. 79th Street, Building 21
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-6 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 11:27

ESC Sample # : L514484-38

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.9	1.0	mg/kg	6010B	05/07/11	1
Lead	19.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

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11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : VCP-1 0-1FT
Collected By : L. Messinger
Collection Date : 05/02/11 12:42

ESC Sample # : L514484-39

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	96.	1.0	mg/kg	6010B	05/07/11	1
Lead	69.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : VCP-1 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 12:44

ESC Sample # : L514484-40
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	82.	1.0	mg/kg	6010B	05/07/11	1
Lead	37.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : VCP-1 4-5FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 13:17

ESC Sample # : L514484-41

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.3	1.0	mg/kg	6010B	05/07/11	1
Lead	7.6	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-10 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 13:03

ESC Sample # : L514484-42
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	160	1.0	mg/kg	6010B	05/07/11	1
Lead	130	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-10 2-3FT
Collected By : L. Messinger
Collection Date : 05/02/11 13:05

ESC Sample # : L514484-43

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	51.	1.0	mg/kg	6010B	05/07/11	1
Lead	17.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-10 4-5FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 13:09

ESC Sample # : L514484-44

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Djl.
Arsenic	5.3	1.0	mg/kg	6010B	05/07/11	1
Lead	6.6	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
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Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : VCP-2 0-1FT
Collected By : L. Messinger
Collection Date : 05/02/11 13:28

ESC Sample # : 1514484-45

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	140	1.0	mg/kg	6010B	05/07/11	1
Lead	74.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : VCP-2 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 13:30

ESC Sample # : L514484-46
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	110	1.0	mg/kg	6010B	05/07/11	1
Lead	14.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : VCP-2 3-4FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 13:31

ESC Sample # : 1514484-47

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.0	1.0	mg/kg	6010B	05/07/11	1
Lead	10.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-11 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:07

ESC Sample # : 1514484-48
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.0	1.0	mg/kg	6010B	05/07/11	1
Lead	13.	0.25	mg/kg	6010B	05/07/11	1

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 Det. Limit - Practical Quantitation Limit(PQL)
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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-11 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 14:08

ESC Sample # : 1514464-49
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.3	1.0	mg/kg	6010B	05/07/11	1
Lead	13.	0.25	mg/kg	6010B	05/07/11	1

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October 28, 2011

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Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-11 2-3FT
Collected By : L. Messinger
Collection Date : 05/02/11 14:09

ESC Sample # : L514484-50

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.1	1.0	mg/kg	6010B	05/07/11	1
Lead	6.7	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-12 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 08:20

ESC Sample # : L514484-51
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	12.	1.0	mg/kg	6010B	05/07/11	1
Lead	23.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-12 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 08:21

ESC Sample # : 1514484-52
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.6	1.0	mg/kg	6010B	05/08/11	1
Lead	11.	0.25	mg/kg	6010B	05/08/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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ESC Sample # : L514484-53

Date Received : May 05, 2011
Description : Kansas Oxide

Site ID :

Sample ID : B-12 2-3FT

Project # : 112417

Collected By : L. Messinger
Collection Date : 05/03/11 08:22

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.0	1.0	mg/kg	6010B	05/07/11	1
Lead	10.	0.25	mg/kg	6010B	05/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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October 28, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-13 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 09:35

ESC Sample # : 1514484-54
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.5	1.0	mg/kg	6010B	05/06/11	1
Lead	73.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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ESC Sample # : L514484-55

Date Received : May 05, 2011
 Description : Kansas Oxide

Site ID :

Sample ID : B-13 1-2FT

Project # : 112417

Collected By : L. Messinger
 Collection Date : 05/03/11 09:36

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.4	1.0	mg/kg	6010B	05/06/11	1
Lead	16.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-13 7-3FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 09:37

ESC Sample # : L514484-56
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.4	1.0	mg/kg	6010B	05/06/11	1
Lead	10.	0.25	mg/kg	6010B	05/06/11	1

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-15 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 09:58

ESC Sample # : L514484-57
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.5	1.0	mg/Kg	6010B	05/06/11	1
Lead	13.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

October 28, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

ESC Sample # : L514484-58

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-15 1-2FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 09:59

Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.2	1.0	mg/kg	6010B	05/06/11	1
Lead	45.	0.25	ug/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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October 28, 2011

Lisa Messinger
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 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-15 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 10:00

ESC Sample # : L514464-59

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.8	1.0	mg/kg	6010B	05/06/11	1
Lead	14.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

October 28, 2011

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 Lenexa, KS 66214

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-14 0-IFT
 Collected By : L. Messinger
 Collection Date : 05/03/11 10:12

ESC Sample # : L514484-60

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.8	1.0	mg/kg	6010B	05/06/11	1
Lead	9.6	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : R-14 I-2FT
Collected By : L. Messinger
Collection Date : 05/03/11 10:13

ESC Sample # : 1514484-61

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.9	1.0	mg/kg	6010B	05/06/11	1
Lead	9.5	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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October 28, 2011

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Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-14 2-3FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 10:14

ESC Sample # : L514484-62

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.3	1.0	mg/kg	6010B	05/06/11	1
Lead	8.0	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
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REPORT OF ANALYSIS

October 28, 2011

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Lenexa, KS 66214

ESC Sample # : 1514484-63

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : VCP-3 0-1FT
Collected By : L. Messinger
Collection Date : 05/03/11 10:35

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	10.	1.0	mg/kg	6010B	05/06/11	1
Lead	110	6.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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October 28, 2011

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ESC Sample # : L514484-64

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : VCP-4 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/03/11 10:45

Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.4	1.0	mg/kg	6010B	05/06/11	1
Lead	17.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
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Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : DUP-3
Collected By : L. Messinger
Collection Date : 05/03/11 09:00

ESC Sample # : L514484-65
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.4	1.0	mg/kg	6010B	05/06/11	1
Lead	15.	0.25	mg/kg	6010B	05/06/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
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REPORT OF ANALYSIS

October 28, 2011

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ESC Sample # : L5i4484-66

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : RINSE BLANK 2
 Collected By : L. Messinger
 Collection Date : 05/03/11 10:55

Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	0.0065	mg/l	6010B	05/06/11	1
Lead	BDL	0.0050	mg/l	6010B	05/06/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
 Note:
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L514484-01	WG534334	SAMP	Arsenic	R1678250	O
	WG534334	SAMP	Lead	R1678250	B
L514484-02	WG534334	SAMP	Lead	R1678250	B
L514484-03	WG534334	SAMP	Lead	R1678250	B
L514484-04	WG534334	SAMP	Lead	R1678250	B
L514484-05	WG534334	SAMP	Lead	R1678250	B
L514484-06	WG534334	SAMP	Lead	R1678250	B
L514484-07	WG534334	SAMP	Lead	R1678250	B
L514484-08	WG534334	SAMP	Lead	R1678250	B
L514484-09	WG534334	SAMP	Lead	R1678250	B
L514484-10	WG534334	SAMP	Lead	R1678250	B
L514484-13	WG534400	SAMP	Arsenic	R1678050	J
L514484-14	WG534400	SAMP	Arsenic	R1678050	J
L514484-20	WG534400	SAMP	Arsenic	R1678050	J
L514484-31	WG534407	SAMP	Lead	R1678869	VJ3
L514484-32	WG534400	SAMP	Arsenic	R1678050	U
L514484-53	WG534468	SAMP	Arsenic	R1678029	J6
L514484-54	WG534471	SAMP	Lead	R1678030	J6
L514484-66	WG534400	SAMP	Arsenic	R1678050	U

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
U	BDL (EPA) - Below Detectable Limits: Indicates that the compound was analyzed but not detected.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAP. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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Quality Assurance Report
 Level II

L514484

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Analyte	Result	Laboratory Blank Units	% Rec	Limit	Batch	Date Analyzed
Arsenic	< 1	mg/kg			WG534468	05/07/11 00:03
Lead	< .25	mg/kg			WG534468	05/07/11 00:03
Arsenic	< 1	mg/kg			WG534471	05/06/11 21:36
Lead	< .25	mg/kg			WG534471	05/06/11 21:36
Arsenic	< .02	mg/l			WG534400	05/06/11 14:43
Lead	< .005	mg/l			WG534400	05/06/11 14:43
Arsenic	< 1	mg/kg			WG534334	05/06/11 10:27
Lead	0.558	mg/kg			WG534334	05/06/11 17:54
Arsenic	< 1	mg/kg			WG534467	05/08/11 14:36
Lead	< .25	mg/kg			WG534467	05/08/11 14:36

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
Arsenic	mg/kg	5.00	6.00	17.6	20	L514484-53	WG534468
Lead	mg/kg	9.60	10.0	3.98	20	L514484-53	WG534468
Arsenic	mg/kg	5.50	5.50	0.363	20	L514484-54	WG534471
Lead	mg/kg	68.0	73.0	7.83	20	L514484-54	WG534471
Arsenic	mg/l	0	0.0120	NA	20	L514467-07	WG534400
Lead	mg/l	0	0	0	20	L514467-07	WG534400
Arsenic	mg/kg	5.10	5.10	0.196	20	L514484-06	WG534334
Lead	mg/kg	9.50	9.30	2.02	20	L514484-06	WG534334
Arsenic	mg/kg	5.70	5.00	13.4	20	L514484-31	WG534467
Lead	mg/kg	500.	500.	6.200	20	L514484-31	WG534467

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
Arsenic	mg/kg	192	167.	87.0	78.6-120.8	WG534471
Lead	mg/kg	113	102.	90.3	77.3-122.1	WG534471
Arsenic	mg/kg	192	156.	81.3	78.6-120.8	WG534468
Lead	mg/kg	113	99.0	87.6	77.3-122.1	WG534468
Arsenic	mg/l	1.13	1.06	93.8	85-115	WG534400
Lead	mg/l	1.13	1.12	99.1	85-115	WG534400
Arsenic	mg/kg	192	161.	83.9	78.6-120.8	WG534334
Lead	mg/kg	113	98.4	87.1	77.3-122.1	WG534334

* Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
Arsenic	mg/kg	192	174.	90.6	78.6-120.8	WG534467
Lead	mg/kg	113	106.	93.8	77.3-122.1	WG534467

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Arsenic	mg/kg	45.0	6.00	50	78.0	75-125	L514484-53	WG534468
Lead	mg/kg	49.9	10.0	50	79.8	75-125	L514484-53	WG534468
Arsenic	mg/kg	46.2	5.50	50	81.4	75-125	L514484-54	WG534471
Lead	mg/kg	108.	73.0	50	70.0*	75-125	L514484-54	WG534471
Arsenic	mg/l	1.15	0.0120	1.13	101.	75-125	L514467-07	WG534400
Lead	mg/l	1.15	0	1.13	102.	75-125	L514467-07	WG534400
Arsenic	mg/kg	46.2	5.10	50	82.2	75-125	L514484-06	WG534334
Lead	mg/kg	52.1	9.30	50	85.6	75-125	L514484-06	WG534334
Arsenic	mg/kg	46.3	5.00	50	82.6	75-125	L514484-31	WG534467
Lead	mg/kg	436.	500.	50	0*	75-125	L514484-31	WG534467

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Arsenic	mg/kg	45.3	46.2	79.6	75-125	1.97	20	L514484-54	WG534471
Lead	mg/kg	126.	108.	106.	75-125	15.4	20	L514484-54	WG534471
Arsenic	mg/kg	42.9	45.0	73.8*	75-125	4.78	20	L514484-53	WG534468
Lead	mg/kg	48.4	49.9	76.8	75-125	3.05	20	L514484-53	WG534468
Arsenic	mg/l	1.13	1.15	98.9	75-125	1.75	20	L514467-07	WG534400
Lead	mg/l	1.12	1.15	99.1	75-125	2.64	20	L514467-07	WG534400
Arsenic	mg/kg	47.5	46.2	84.8	75-125	2.77	20	L514484-06	WG534334
Lead	mg/kg	54.9	52.1	91.2	75-125	5.23	20	L514484-06	WG534334
Arsenic	mg/kg	51.0	46.3	92.0	75-125	9.66	20	L514484-31	WG534467
Lead	mg/kg	603.	436.	206.*	75-125	32.1*	20	L514484-31	WG534467

Batch number / Run number / Sample number cross reference

WG534468: R1678029: L514484-35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53
 WG534471: R1678030: L514484-54 55 56 57 58 59 60 61 62 63 64 65
 WG534400: R1678050: L514484-13 14 15 16 18 19 20 21 32 66
 WG534334: R1678250: L514484-01 02 03 04 05 06 07 08 09 10 11
 WG534467: R1678869: L514484-12 17 22 23 24 25 26 27 28 29 30 31 33 34

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Quality Assurance Report
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214			Alternate Billing			Analysis/Container/Preservative						Chain of Custody Page <u>1</u> of <u>9</u>		
Project Description: Kansas Oxide			Report to: Scott Beadleston			6010 Arsonic + Lead						Prepared by: D096		
PHONE: 913-962-0909 FAX: 913-962-0924			E-mail to: sbeadleston@kleinfelder.com									ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859		
Client Project No. 112417			Site/Facility ID#			Date Results Needed			No			CoCode (lab use only)		
Collected by: C. Messinger			P.O.#			Email? No <input checked="" type="checkbox"/> Yes			of			GEOSYSLKS		
Collected by (signature): [Signature]			Rush? (Lab MUST be Notified)			FAX? No Yes			Cntrs			Template/PrelogIn		
Packed on Ice N <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/>			Same Day.....200%									Shipped Via: Kansas City Service Center		
Next Day.....100%			Two Day.....50%									Remarks/contaminant		
Sample ID		Comp/Grab	Matrix	Depth	Date	Time	Cntrs					Sample # (lab only)		
B-1 0-1		G	SS	0-1	5/2/11	8:45	2	X					high PB-XRF	L514484-01
B-1 1-2		G	SS	1-2		8:46	2	X						-02
B-1 2-3		G	SS	2-3		8:47	2	X						-03
B-2 0-1		G	SS	0-1		9:21	2	X						-04
B-2 1-2		G	SS	1-2		9:22	2	X						-05
B-2 2-3		G	SS	2-3		9:23	2	X						-06
B-3 0-1		G	SS	0-1		9:43	2	X						-07
B-3 1-2		G	SS	1-2		9:44	2	X						-08
B-3 2-3		G	SS	2-3		9:45	2	X						-09

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: **Hold all Samples for TCLP pending results** Flow _____ Other _____

Relinquisher by (Signature): [Signature]	Date: 5/4/11	Time: 1445	Received by (Signature): [Signature]	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: OK
Relinquisher by (Signature): [Signature]	Date:	Time:	Received by (Signature): [Signature]	Temp: 31.0	Bottles Replied: 134
Relinquisher by (Signature): [Signature]	Date:	Time:	Received for lab by (Signature): [Signature]	Date: 5/5/11	Time: 0900
				pH Checked:	NCF:

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page 2 of 9	
Project Description: Kansas Oxide		Report to: Scott Beadleston		Arsenic + Lead 6010 <2				Prepared by:	
PHONE: 913-962-0909 FAX: 913-962-0924		E-mail to: Sbeadleston@Kleinfelder.com						 ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Client Project No. 112417	Lab Project #	Site/Facility ID#	P.O.#	CoCode (lab use only)		GEOSYSLKS Template/Prelogin Shipped Via: Kansas City Service Center			
Collected by: J. Messinger	Rush? (Lab MUST be Notified) <input type="checkbox"/> Same Day.....200% <input type="checkbox"/> Next Day.....100% <input type="checkbox"/> Two Day.....50%	Date Results Needed	No	Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		of			
Collected by (signature): <i>J. Messinger</i>		Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes	Packed on ice N <input checked="" type="checkbox"/> Y <input type="checkbox"/> X					
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)	
B-4 2-3	G	SS	2-3	5/2/11	1062	2 X		LS14484-10	
B-4 1-2	G	SS	1-2		1001	2 X		-11	
B-4 0-1	G	SS	0-1		1000	2 X		-12	
GW - 11 (Filtered)	G	GW			1030	2 X		-13	
GW - Dup 1	G	GW				2 X		-14	
GW - 11 (Unfiltered)	G	GW			1030	1 X		-15	
GW - Dup 2	G	GW				1 X		-16	
Dup - 1	G	SS				1 X		-17	
GW - 2F	G	GW			1100	1 X		-18	

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: **Hold for TCLP (soil) pending analysis results** Flow _____ Other _____

Relinquisher by (Signature): <i>J. Messinger</i>	Date: 5/4/11	Time: 1445	Received by (Signature): <i>[Signature]</i>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: <i>OK</i> (lab use only)
Relinquisher by (Signature): <i>[Signature]</i>	Date:	Time:	Received by (Signature): <i>[Signature]</i>	Temp: <i>3.1°C</i>	Bottles Received: <i>134</i>
Relinquisher by (Signature): <i>[Signature]</i>	Date:	Time:	Received for lab by (Signature): <i>[Signature]</i>	Date: 5/5/11	Time: 0900
				pH Checked: <i>ca</i>	NCF:

Company Name/Address
Kleinfelder
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Alternate Billing
 Report to: **Scott Beadleston**
 E-mail to: **Sbeadleston@Kleinfelder.com**

Analysis/Container/Preservative
 Arsenic + Lead
 601052

Chain of Custody
 Page 3 of 9

Prepared by:
ENVIRONMENTAL Science corp
 12065 Lebanon Road
 Mt. Juliet TN 37122
 Phone (615)758-5858
 Phone (800) 767-5859
 FAX (615)758-5859

Project Description: **Kansas Oxide**
 PHONE: 913-962-0909 Client Project No. **112417** Lab Project #
 FAX: 913-962-0924
 Collected by: **C. Messinger** Site/Facility ID# P.O.#
 Collected by (signature): **[Signature]** Rush? (Lab MUST be Notified) Date Results Needed No
 _____ Same Day.....200% _____ of
 _____ Next Day.....100% Email? No Yes
 _____ Two Day.....50% FAX? No Yes
 Packed on Ice N Y

CoCode (lab use only)
GEOSYSLKS
 Template/Prelogin
 Shipped Via: Kansas City Service Center

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)
GW-2U	G	GW		5/2/11	1100	1 X		L514484-19
GW-3F		GW		5/2/11	1355	1 X		-20
GW-3U		GW			1355	1 X		-21
B-9		SS	0-1		1447	2 X		-22
B-9			1-2		1448	2 X		-23
B-9			2-3		1449	2 X		-24
B-8			0-1		1433	2 X		-25
B-8			1-2		1434	2 X		-26
B-8			2-3		1435	2 X		-27

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: **Hold TCLP (soil) pending analysis results** Flow _____ Other _____

Relinquisher by (Signature): [Signature]	Date: 5/4/11	Time: 1445	Received by (Signature): [Signature]	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: OK (lab use only)
Relinquisher by (Signature): [Signature]	Date:	Time:	Received by (Signature): [Signature]	Temp: 31°C	Bottles Received: 134
Relinquisher by (Signature): [Signature]	Date:	Time:	Received for lab by (Signature): [Signature]	Date: 5/5/11	Time: 0900
				pH Checked: 22	NCF: _____

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page <u>4</u> of <u>9</u>			
Project Description: Kansas Oxide		Report to: Scott Beadleston		Chromium + Lead 60102				Prepared by:			
E-mail to: Sbeadleston@kleinfelder.com		E-mail to: Sbeadleston@kleinfelder.com						ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859			
PHONE: 913-962-0909	Client Project No. 112417	Lab Project #						CoCode (lab use only)		GEOISLKS	
FAX: 913-962-0924	Site/Facility ID#	P.O.#						Template/Prelogin		Shipped Via: Kansas City Service Center	
Collected by: L Messinger	Rush? (Lab MUST be Notified)	Date Results Needed						No		of	
Collected by (signature): Risa Messinger	Same Day.....200%	Email? No <input type="checkbox"/> Yes <input checked="" type="checkbox"/>						FAX? No <input type="checkbox"/> Yes <input type="checkbox"/>		Cntrs	
Packed on ice N <input checked="" type="checkbox"/> Y <input type="checkbox"/> X	Next Day.....100%	FAX? No <input type="checkbox"/> Yes <input type="checkbox"/>						Two Day.....50%		Remarks/contaminant	
Sample ID	Comp/Grab	Matrix	Depth					Date	Time	Cntrs	Sample # (lab only)
B-7	G	SS	0-1					5/24/11	1137	2 X	L914484-28
B-7			1-2						1138	2 X	-29
B-7			2-3		1139	2 X	-30				
Dup-2						1 X	-31				
Rinse Blank		GW			1345	1 X	-32				
B-5			0-1		1118	2 X	-33				
B-5			1-2		1119	2 X	-34				
B-5			2-3		1120	2 X	-35				
B-6			0-1		1125	2 X	-36				

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____
 Remarks: **Hold for TCLP (soil) pending analytical** Flow _____ Other _____

Relinquisher by (Signature): Risa Messinger	Date: 5/4/11	Time: 1145	Received by (Signature): [Signature]	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: (lab use only)
Relinquisher by (Signature): [Signature]	Date:	Time:	Received by (Signature): [Signature]	Temp: 3.1°C	Bottles Received: 134
Relinquisher by (Signature): [Signature]	Date:	Time:	Received for lab by (Signature): [Signature]	Date: 5/5/11	Time: 0900
				pH Checked: [Signature]	NCF: [Signature]

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214			Alternate Billing			Analysis/Container/Preservative			Chain of Custody Page <u>5</u> of <u>9</u>		
Project Description: Kansas Oxide			Report to: <u>Scott Beadleston</u>			Lead, Arsenic 6010 4ozClrNoPres TCLP Lead, Arsenic 1L-ClrNoPres			Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859		
PHONE: 913-962-0909 FAX: 913-962-0924			E-mail to: <u>Sbeadleston@Kleinfelder.com</u>						Client Project No. 112417		
Collected by: <u>L. Messinger</u>			Site/Facility ID#			P.O.#			Template/Prelogin		
Collected by (signature): <u>Lisa Messinger</u>			<input type="checkbox"/> Rush? (Lab MUST be Notified)			Date Results Needed			Shipped Via: Kansas City Service Center		
Packed on Ice <u>N</u> <u>Y</u> <u>X</u>			Same Day.....200%			Email? <u>No</u> <u>X</u> Yes			of		
			Next Day.....100%			FAX? <u>No</u> <u>Yes</u>			Cntrs		
			Two Day.....50%						Remarks/contaminant		
Sample ID			Comp/Grab			Matrix			Depth		
Date			Time			Cntrs			Sample # (lab only)		
<u>B-6</u>			<u>G</u>			<u>SS</u>			<u>1-2</u>		
<u>5/2/11</u>			<u>1126</u>			<u>2</u>			<u>X</u>		
<u>B-6</u>									<u>2-3</u>		
<u>1127</u>			<u>2</u>			<u>X</u>			<u>-38</u>		
<u>VCP-1</u>									<u>0-1</u>		
<u>1242</u>			<u>2</u>			<u>X</u>			<u>-39</u>		
<u>VCP-1</u>									<u>2-3</u>		
<u>1244</u>			<u>2</u>			<u>X</u>			<u>-40</u>		
<u>VCP-1</u>									<u>4-5</u>		
<u>1317</u>			<u>2</u>			<u>X</u>			<u>-41</u>		
<u>B-10</u>									<u>0-1</u>		
<u>1303</u>			<u>2</u>			<u>X</u>			<u>-42</u>		
<u>B-10</u>									<u>2-3</u>		
<u>1305</u>			<u>2</u>			<u>X</u>			<u>-43</u>		
<u>B-10</u>									<u>4-5</u>		
<u>1309</u>			<u>2</u>			<u>X</u>			<u>-44</u>		
<u>VCP-2</u>									<u>0-1</u>		
<u>1328</u>			<u>2</u>			<u>X</u>			<u>-45</u>		

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: Hold for TCLP (soil) pending analysis Flow _____ Other _____

Relinquisher by (Signature): <u>Lisa Messinger</u>	Date: <u>5/4/11</u>	Time: <u>1445</u>	Received by (Signature): <u>[Signature]</u>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: <u>OK</u> (lab use only)
Relinquisher by (Signature): <u>[Signature]</u>	Date:	Time:	Received by (Signature): <u>[Signature]</u>	Temp: <u>3.1°C</u>	Bottles Received: <u>134</u>
Relinquisher by (Signature): <u>[Signature]</u>	Date:	Time:	Received for lab by (Signature): <u>[Signature]</u>	Date: <u>5/6/11</u>	Time: <u>0900</u>
				pH Checked:	NCF

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page 6 of 9			
Project Description: Kansas Oxide		Report to: Scott Beadleston		Lead, Arsenic 6010 4ozClrNoPres TCLP Lead, Arsenic 1L-ClrNoPres HOLD for Lead & Arsenic				Prepared by:			
PHONE: 913-962-0909 FAX: 913-962-0924		E-mail to: sbeadleston@kleinfelder.com						ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859		CoCode (lab use only) GEOSYSLKS Template/Prelogin Shipped Via: Kansas City Service Center	
Client Project No. 112417		Lab Project #						CoCode (lab use only) GEOSYSLKS Template/Prelogin Shipped Via: Kansas City Service Center		CoCode (lab use only) GEOSYSLKS Template/Prelogin Shipped Via: Kansas City Service Center	
Collected by: L. Messinger		Site/Facility ID#		P.O.#		Rush? (Lab MUST be Notified)		Date Results Needed			
Collected by (signature): Lina Messinger		<input type="checkbox"/> Same Day.....200% <input type="checkbox"/> Next Day.....100% <input type="checkbox"/> Two Day.....50%		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes			
Packed on Ice N <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/>											
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)			
VCP-2	G	SS	2-3	5/2/11	1330	2 X		L514494-46			
VCP-2			3-4		1331	2 X		-47			
B-11			0-1		1407	2 X		-49			
B-11			1-2		1408	2 X		-49			
B-11			2-3		1409	2 X		-50			
B-12			0-1	5/3/11	820	2 X		-51			
B-12			1-2		821	2 X		-52			
B-12			2-3		822	2 X		-53			
B-18			0-1		840	2 X		-54			

*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: **Hold for TCLP (soil) pending analysis** Flow _____ Other _____

Relinquisher by (Signature): Lina Messinger	Date: 5/4/11	Time: 1445	Received by (Signature): [Signature]	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: OK (lab use only)
Relinquisher by (Signature): [Signature]	Date:	Time:	Received by (Signature): [Signature]	Temp: 31°C	Bottles Received: 134
Relinquisher by (Signature): [Signature]	Date:	Time:	Received for lab by (Signature): [Signature]	Date: 5/5/11	Time: 0900
				pH Checked:	NCF.

Company Name/Address
Kleinfelder
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Alternate Billing
 Report to: Scott Beadleston
 E-mail to: sbbeadleston@kleinfelder.com

Analysis/Container/Preservative
Arsenic & Lead 6010

Chain of Custody
 Page 8 of 9

Prepared by:
 **ENVIRONMENTAL Science corp**
 12065 Lebanon Road
 Mt. Juliet TN 37122
 Phone (615)758-5858
 Phone (800) 767-5859
 FAX (615)758-5859

Project Description: Kansas Oxicle
 PHONE: 913-962-0909 Client Project No. 112417 Lab Project #
 FAX: 913-962-0924
 Collected by: L. Messinger Site/Facility ID# P.O.#
 Collected by (signature): Lisa Messinger
 Rush? (Lab MUST be Notified)
 ___ Same Day.....200%
 ___ Next Day.....100%
 ___ Two Day.....50%
 Date Results Needed
 Email? ___ No Yes
 FAX? ___ No ___ Yes
 Packed on Ice N ___ Y

CoCode (lab use only)
GEOSYSLKS
 Template/Prelogin
 Shipped Via: Kansas City Service Center

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)
B-13	G	SS	1-2	5/3/11	936	2 X		L514484-55
B-13			2-3		937	2 X		-56
B-15			0-1		958	2 X		-57
B-15			1-2		959	2 X		-58
B-15			2-3		1000	2 X		-59
B-14			0-1		1012	2 X		-60
B-14			1-2		1013	2 X		-61
B-14			2-3		1014	2 X		-62
VCP-3			0-1		1035	2 X		-63

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____
 Remarks: Hold for TCLP (soils) pending analytical results Flow _____ Other _____

Reinquirer by (Signature): <u>Lisa Messinger</u>	Date: <u>5/4/11</u>	Time: <u>1445</u>	Received by (Signature): <u>[Signature]</u>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: <u>OK</u> (lab use only)
Reinquirer by (Signature): <u>[Signature]</u>	Date:	Time:	Received by (Signature): <u>[Signature]</u>	Temp: <u>31.2</u>	Bottles Received: <u>134</u>
Reinquirer by (Signature): <u>[Signature]</u>	Date:	Time:	Received for lab by (Signature): <u>[Signature]</u>	Date: <u>5/5/11</u>	Time: <u>0900</u>

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page <u>9</u> of <u>9</u>			
Project Description: <u>Kansas Oxide</u>		Report to: <u>Scott Braderton</u>		Arsenic + Lead 6010 <3				Prepared by:			
PHONE: 913-962-0909		E-mail to: <u>sbbraderton@kleinfelder.com</u>						ENVIRONMENTAL Science corp		12065 Lebanon Road	
FAX: 913-962-0924		Client Project No. <u>112417</u>						Lab Project #		Mt. Juliet TN 37122	
Collected by: <u>L. Messinger</u>		Site/Facility ID#						P.O.#		Phone (615)758-5858	
Collected by (signature): <u>[Signature]</u>		Rush? (Lab MUST be Notified)						Date Results Needed		Phone (800) 767-5859	
Packed on Ice N <u>Y</u>		Same Day.....200%						Email? <u>No</u> <u>X</u> Yes		FAX (615)758-5859	
		Next Day.....100%						FAX? <u>No</u> <u>Yes</u>		CoCode (lab use only)	
		Two Day.....50%								GEOSSLKS	
										Template/Prelogin	
										Shipped Via: Kansas City Service Center	
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)			
<u>VCP-4</u>	<u>G</u>	<u>SS</u>	<u>0-1</u>	<u>5/3/11</u>	<u>1045</u>	<u>2</u>		<u>LS14494-64</u>			
<u>Dwp-3</u>						<u>1</u>		<u>-65</u>			
<u>Rinse Blank 2</u>		<u>GW</u>			<u>1055</u>	<u>1</u>		<u>-66</u>			

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____
 Remarks: Hold for TCLP (soil) pending analytical results Flow _____ Other _____

Relinquisher by (Signature): <u>[Signature]</u>	Date: <u>5/4/11</u>	Time: <u>1445</u>	Received by (Signature): <u>[Signature]</u>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: <u>OIC</u> (lab use only)
Relinquisher by (Signature): <u>[Signature]</u>	Date:	Time:	Received by (Signature): <u>[Signature]</u>	Temp: <u>31.0</u>	Bottles Received: <u>134</u>
Relinquisher by (Signature): <u>[Signature]</u>	Date:	Time:	Received for lab by (Signature): <u>[Signature]</u>	Date: <u>5/5/11</u>	Time: <u>0900</u>
				pH Checked: <u>22</u>	NCF:



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Report Summary

Tuesday July 05, 2011

Report Number: L522733

Samples Received: 05/05/11

Client Project: 112417

Description: Kansas Oxide

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jeff Carr, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Mt. Juliet, TN 37122
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1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-18 0-1FT
Collected By : L. Messinger
Collection Date : 05/03/11 08:40

ESC Sample # : L522733-01
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	34.	1.0	mg/kg	6010B	06/25/11	1
Lead	220	0.25	mg/kg	6010B	06/25/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
The reported analytical results relate only to the sample submitted.
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Reported: 06/27/11 10:41 Revised: 07/05/11 13:49



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
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Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-18 1-2FT
Collected By : L. Messinger
Collection Date : 05/03/11 08:41

ESC Sample # : 1522733-02
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	14.	1.0	mg/kg	6010B	06/25/11	1
Lead	24.	0.25	mg/kg	6010B	06/25/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
Reported: 06/27/11 10:41 Revised: 07/05/11 13:49



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5859
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : May 05, 2011
Description : Kansas Oxide
Sample ID : B-18 2-3FT
Collected By : L. Messinger
Collection Date : 05/03/11 08:42

ESC Sample # : 1522733-03
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.0	1.0	mg/kg	6010B	06/25/11	1
Lead	6.6	0.25	mg/kg	6010B	06/25/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
The reported analytical results relate only to the sample submitted.
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Reported: 06/27/11 10:41 Revised: 07/05/11 13:49



YOUR LAB OF CHOICE

Kleinfelder - Lenexa, KS
 Lisa Messinger
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Quality Assurance Report
 Level II

L522733

12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289
 Est. 1970

July 06, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Arsenic	< 1	mg/kg			WG542530	06/25/11 20:52
Lead	< .25	mg/kg			WG542530	06/25/11 20:52

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate	RPD				
Arsenic	mg/kg	3.30	3.50	5.58	20	L522727-01	WG542530	
Lead	mg/kg	11.0	11.0	1.80	20	L522727-01	WG542530	

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Arsenic	mg/kg	192	173.	90.1	78.6-120.8	WG542530
Lead	mg/kg	113	103.	91.2	77.3-122.1	WG542530

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Arsenic	mg/kg	48.4	3.50	50	89.8	75-125	L522727-01	WG542530
Lead	mg/kg	57.5	11.0	50	93.0	75-125	L522727-01	WG542530

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Arsenic	mg/kg	44.6	48.4	82.2	75-125	8.17	20	L522727-01	WG542530
Lead	mg/kg	54.1	57.5	86.2	75-125	6.09	20	L522727-01	WG542530

Batch number / Run number / Sample number cross reference:

WG542530: R1740593: L522733-01 02 03

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Lisa Messinger
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Quality Assurance Report
Level II

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Est. 1970

July 05, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page 6 of 9	
Project Description: Kansas Oxide		Report to: Scott Beadleston		Lead, Arsenic 6010 4oz Clr/NoPres TCLP Lead, Arsenic 1L-Clr/NoPres HOLD for Lead & Arsenic				Prepared by:	
PHONE: 913-962-0909 FAX: 913-962-0924		E-mail to: Sbeadleston@Kleinfelder.com						ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Client Project No. 112417	Lab Project #	Site/Facility ID#	P.O.#	Date Results Needed		No of TC Cnrs		Remarks/contaminant	Sample # (lab only)
Collected by: T. Messinger				<input type="checkbox"/> Rush? (Lab MUST be Notified) <input type="checkbox"/> Same Day 200% <input type="checkbox"/> Next Day 100% <input type="checkbox"/> Two Day 50%		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes			
Collected by (signature): Tina Messinger									
Packed on Ice N <input checked="" type="checkbox"/>									
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cnrs			
VCP-2	G	SS	2-3	5/2/11	1330	2	X		151499-40
VCP-2			3-4		1331	2	X		
B-11			0-1		1407	2	X		
B-11			1-2		1408	2	X		
B-11			2-3		1409	2	X		
B-12			0-1	5/3/11	820	2	X		
B-12			1-2		821	2	X		
B-12			2-3		822	2	X		
B-18			0-1		840	2	X		

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other
 pH _____ Temp _____
 Remarks: **Hold for TCLP (soil) pending analysis** Flow _____ Other _____

Relinquisher by (Signature): Tina Messinger	Date: 5/4/11	Time: 1445	Received by (Signature): [Signature]	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: OK (lab use only)
Relinquisher by (Signature): [Signature]	Date:	Time:	Received by (Signature): [Signature]	Temp: 31°C	Bottles Recycled: 134
Relinquisher by (Signature): [Signature]	Date:	Time:	Received for lab by (Signature): [Signature]	Date: 5/5/11	Time: 0900
				pH Checked:	NCF:

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page 7 of 9																																																																																					
Project Description: Kansas Oxide		Report to: Scott Beadleston		Arsenic + Lead 6010 Hold for Lead + Arsenic				Prepared by: 04-0093																																																																																					
Client Project No. 112417		Email to: Sbeadleston@Kleinfelder.com						ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859																																																																																					
PHONE: 913-962-0909	Client Project No.	Lab Project #		CoCode (lab use only)		GEOSYSLKS Template/Prelogin Shipped Via: Kansas City Service Center																																																																																							
FAX: 913-962-0924	Site/Facility ID#	P.O.#		Rush? (Lab MUST be Notified) <input type="checkbox"/> Same Day 200% <input type="checkbox"/> Next Day 100% <input type="checkbox"/> Two Day 50%		Date Results Needed Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes FAX? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes																																																																																							
Collected by: G. Messinger	Collected by (signature): <i>G. Messinger</i>	Packed on Ice <input checked="" type="checkbox"/>		of No Yes No Yes		Sample ID Comp/Grab Matrix Depth Date Time Cntrs		Remarks/contaminant Sample # (lab only)																																																																																					
<table border="1"> <thead> <tr> <th>Sample ID</th> <th>Comp/Grab</th> <th>Matrix</th> <th>Depth</th> <th>Date</th> <th>Time</th> <th>Cntrs</th> <th>Remarks/contaminant</th> <th>Sample # (lab only)</th> </tr> </thead> <tbody> <tr> <td>B-18</td> <td>G</td> <td>SS</td> <td>1-2</td> <td>5/3/11</td> <td>841</td> <td>2</td> <td>LS22733-02</td> <td></td> </tr> <tr> <td>B-18</td> <td></td> <td></td> <td>2-3</td> <td></td> <td>842</td> <td>2</td> <td>03</td> <td></td> </tr> <tr> <td>B-17</td> <td></td> <td></td> <td>0-1</td> <td></td> <td>854</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>B-17</td> <td></td> <td></td> <td>0-2</td> <td></td> <td>855</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>B-17</td> <td></td> <td></td> <td>2-3</td> <td></td> <td>856</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>B-16</td> <td></td> <td></td> <td>0-1</td> <td></td> <td>910</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>B-16</td> <td></td> <td></td> <td>1-2</td> <td></td> <td>915</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>B-16</td> <td></td> <td></td> <td>2-3</td> <td></td> <td>920</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>B-13</td> <td></td> <td></td> <td>0-1</td> <td></td> <td>935</td> <td>2</td> <td></td> <td></td> </tr> </tbody> </table>		Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)	B-18	G	SS	1-2	5/3/11	841	2	LS22733-02		B-18			2-3		842	2	03		B-17			0-1		854	2			B-17			0-2		855	2			B-17			2-3		856	2			B-16			0-1		910	2			B-16			1-2		915	2			B-16			2-3		920	2			B-13			0-1		935	2			Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other Remarks: Pending analytical results hold for TCLP (soil)	
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)																																																																																					
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B-16, B-17, 2 B-18 are for hold only, do not analyze

Relinquisher by (Signature): <i>[Signature]</i>	Date: 5/4/11	Time: 1445	Received by (Signature): <i>[Signature]</i>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: OK
Relinquisher by (Signature): <i>[Signature]</i>	Date:	Time:	Received by (Signature): <i>[Signature]</i>	Temp: 31°C	Bottles Received: 134
Relinquisher by (Signature): <i>[Signature]</i>	Date:	Time:	Received for lab by (Signature): <i>[Signature]</i>	Date: 5/5/11	Time: 0900

Jeff Carr

From: Lisa Messinger [LMessinger@kleinfelder.com]

Sent: Thursday, June 23, 2011 10:57 AM

To: Jeff Carr

Subject: Need another sample analyzed

Hi Jeff,

I was running through the data on the Kansas Oxide (L514484) and wanted to see if we could run lead and arsenic 6010 on the samples that were held from B-18 at the 0-1, 1-2, and 2-3 foot depths. Hopefully ESC still has these samples.

Please let me know if this can be done. Thanks!

Please note our address change

Lisa Messinger, PG
Environmental Geologist/GIS Analyst
11529 W. 79th Street, Bldg. 21
Lenexa, KS 66214
o| 913.962.0909
d| 913.647.5041
c| 913.744.9342
f| 913.962.0924
www.kleinfelder.com



Do you really have to print this email?
Think environment!

6/23/2011



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Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Report Summary

Tuesday July 05, 2011

Report Number: L517264

Samples Received: 05/05/11

Client Project: 112417

Description: Kansas Oxide

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jeff Carr, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

ESC Sample # : L517264-01

Date Received : May 05, 2011
Description : Kansas Oxide

Site ID :

Sample ID : B-1 0-1FT

Project : 112417

Collected By : L. Messinger
Collection Date : 05/02/11 08:45

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	05/25/11 0732	MVE	1
Lead	43.	0.050	mg/l	5.0	6010B	05/25/11 1900	JBC	1

BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit (EQL)
Limit - Maximum Contaminant Level as established by the US EPA
Note:

The reported analytical results relate only to the sample submitted.
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Reported: 05/26/11 10:43 Revised: 07/05/11 13:49



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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

July 05, 2011

Date Received : May 05, 2011
 Description : Kansas Oxide
 Sample ID : B-2 0-1FT
 Collected By : L. Messinger
 Collection Date : 05/02/11 09:21

ESC Sample # : L517264-02
 Site ID :
 Project : 112417

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	05/25/11 0732	MVE	1
Lead	22.	0.050	mg/l	5.0	6010B	05/25/11 1903	JBC	1

BDL - Below Detection Limit
 Det. Limit - Estimated Quantitation Limit (EQL)
 Limit - Maximum Contaminant Level as established by the US EPA
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 Reported: 05/26/11 10:43 Revised: 07/05/11 13:49



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REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

ESC Sample # : 1517264-03

Date Received : May 05, 2011
Description : Kansas Oxide

Site ID :

Sample ID : B-4 0-1FT

Project : 112417

Collected By : L. Messinger
Collection Date : 05/02/11 10:00

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	05/25/11 0732	MVE	1
Lead	9.9	0.050	mg/l	5.0	6010B	05/25/11 2103	JBC	1

BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit (EQL)
Limit - Maximum Contaminant Level as established by the US EPA

Note:
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Reported: 05/26/11 10:43 Revised: 07/05/11 13:49



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Kleinfelder - Lenexa, KS
 Lisa Messinger
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Quality Assurance Report
 Level II

L517264

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July 05, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed			
		Units	% Rec						
Lead	< .05	mg/l			WG537321	05/25/11 19:19			
Duplicate									
Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch		
Lead	mg/l	0	0	0	20	L517360-04	WG537321		
Laboratory Control Sample									
Analyte	Units	Known Val	Result	% Rec	Limit	Batch			
Lead	mg/l	1.13	1.08	95.6	85-115	WG537321			
Matrix Spike									
Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch	
Lead	mg/l	1.11	0	1.13	96.2	75-125	L517360-04	WG537321	
Matrix Spike Duplicate									
Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Lead	mg/l	1.13	1.11	100.	75-125	1.79	20	L517360-04	WG537321

Batch number /Run number / Sample number cross reference

WG537129: R1700499: L517264-01 02 03
 WG537321: R1701089 R1701090: L517264-02 01 03

* Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Kleinfelder - Lenexa, KS
Lisa Messinger
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Quality Assurance Report
Level II

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July 05, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address
Kleinfelder
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Alternate Billing
 Report to: Scott Beadleston
 E-mail to: Sbeadleston@kleinfelder.com

Analysis/Container/Preservative
 Arsenic & Lead **6010**

Chain of Custody
 Page 1 of 9
 Prepared by: **D096**
ENVIRONMENTAL Science corp
 12065 Lebanon Road
 Mt. Juliet TN 37122
 Phone (615)758-5858
 Phone (800) 767-5859
 FAX (615)758-5859

Project Description: Kansas Oxide
 PHONE: 913-962-0909
 FAX: 913-962-0924

Client Project No. 112417
 Lab Project #

Collected by: L. Messinger
 Collected by (signature): [Signature]
 Packed on Ice N X

Site/Facility ID#
 P.O.#
 Rush? (Lab MUST be Notified)
 Same Day.....200%
 Next Day.....100%
 Two Day.....50%
 Date Results Needed
 Email? No Yes
 FAX? No Yes

CoCode (lab use only)
GEOSYSLKS
 Template/Prelogin L517204
 Shipped Via: Kansas City Service Center

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)
B-1 0-1	G	SS	0-1	5/2/11	8:45	2 X	-01 high PB-XRF	L517204 <u>02</u>
B-1 1-2	G	SS	1-2		8:46	2 X		<u>02</u>
B-1 2-3	G	SS	2-3		8:47	2 X		<u>03</u>
B-2 0-1	G	SS	0-1		9:21	2 X	-02	<u>04</u>
B-2 1-2	G	SS	1-2		9:22	2 X		<u>05</u>
B-2 2-3	G	SS	2-3		9:23	2 X		<u>06</u>
B-3 0-1	G	SS	0-1		9:43	2 X		<u>07</u>
B-3 1-2	G	SS	1-2		9:44	2 X		<u>08</u>
B-3 2-3	G	SS	2-3		9:45	2 X		<u>09</u>

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: Hold all Samples for TCLP pending results

Flow _____ Other _____

Relinquisher by (Signature): <u>[Signature]</u>	Date: <u>5/4/11</u>	Time: <u>1445</u>	Received by (Signature): <u>[Signature]</u>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: <u>OK</u> (lab use only)
Relinquisher by (Signature):	Date:	Time:	Received by (Signature):	Time: <u>3:10</u>	Bottles Received: <u>134</u>
Relinquisher by (Signature):	Date:	Time:	Received for lab by (Signature):	Date: <u>5/5/11</u>	Time: <u>0900</u>

pH Checked: NCF:

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page 2 of 9	
Project Description: Kansas Oxide		Report to: Scott Readleston		As Arsenic + Lead 6010 <2				Prepared by:	
PHONE: 913-962-0909 FAX: 913-962-0924		E-mail to: Sreadleston@Kleinfelder.com						ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Client Project No. 112417	Lab Project #	Site/Facility ID#	P.O.#	Date Results Needed		No of Cntrs		CoCode (lab use only)	
Collected by: J. Messinger	<input type="checkbox"/> Rush? (Lab MUST be Notified)	Date Results Needed		Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		FAX? <input type="checkbox"/> No <input type="checkbox"/> Yes		GEOSYSLKS	
Collected by (signature): <i>J. Messinger</i>	Same Day.....200%							Template/Prelogin	
Packed on ice <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Next Day.....100%							Shipped Via: Kansas City Service Center	
Two Day.....50%									
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant	Sample # (lab only)	
B-4 2-3	G	SS	2-3	5/2/11	1062	2 X		LSM4421-10	
B-4 1-2	G	SS	1-2		1001	2 X			
B-4 0-1	G	SS	0-1		1000	2 X	-03		
GW - 1 (Filtered)	G	GW			1030	1 X			
GW - Dup 1	G	GW				1 X			
GW - 1 (Unfiltered)	G	GW			1030	1 X			
GW - Dup 2	G	GW				1 X			
Dup - 1	G	SS				1 X			
GW - 2F	G	GW			1100	1 X			

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: **Hold for TCLP (soil) pending analysis results** Flow _____ Other _____

Relinquisher by: (Signature) <i>J. Messinger</i>	Date: 5/4/11	Time: 1445	Received by: (Signature) <i>[Signature]</i>	Samples returned via: FedEx ___ UPS ___ Other ___	Condition: <i>D/C</i> (lab use only)
Relinquisher by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 31.0°C	Bottles Received: 134
Relinquisher by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 5/5/11	Time: 0900
				pH Checked: <i><2</i>	NCF:

Andy Vann

From: Jeff Carr
Sent: Monday, May 23, 2011 9:18 AM
To: Login
Subject: Relog L514484-01, -04, -12 for TCLP Lead.

Per client request, please relog GEOSYLKS samples L514484-01, -04 and -12 for TCLP Lead.

Jeffrey A. Carr
ESC Lab Sciences
Technical Service Representative
(615) 758-5858 | Ext. 9667

www.esclabsciences.com

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Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Report Summary

Tuesday July 05, 2011

Report Number: L522154

Samples Received: 06/21/11

Client Project: 112417

Description: Kansas Oxide

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jeff Carr, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : June 21, 2011
Description : Kansas Oxide
Sample ID : ER-1
Collected By : Vince Domenico
Collection Date : 06/17/11 08:30

ESC Sample # : L522154-01
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	0.020	mg/l	6010B	06/23/11	1
Lead	0.034	0.0050	mg/l	6010B	06/23/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
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REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : June 21, 2011
 Description : Kansas Oxide
 Sample ID : PR-2
 Collected By : Vince Domenico
 Collection Date : 06/17/11 08:35

ESC Sample # : L522154-02
 Site ID :
 Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	0.020	mg/l	6010B	06/23/11	1
Lead	0.014	0.0050	mg/l	6010B	06/23/11	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : June 21, 2011
Description : Kansas Oxide
Sample ID : PR-3
Collected By : Vince Domenico
Collection Date : 06/17/11 08:40

ESC Sample # : 1522154-03
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	0.020	mg/l	6010B	06/23/11	1
Lead	0.0090	0.0050	mg/l	6010B	06/23/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

July 05, 2011

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Date Received : June 21, 2011
Description : Kansas Oxide
Sample ID : BPR-1
Collected By : Vince Domenico
Collection Date : 06/17/11 08:50

ESC Sample # : L522154-04
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	0.020	mg/l	6010B	06/23/11	1
Lead	0.018	0.0050	mg/l	6010B	06/23/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
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 Lisa Messinger
 11529 W. 79th Street, Building 21
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Quality Assurance Report
 Level II
 L522154

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July 05, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Arsenic	< .02	mg/l			WG541837	06/23/11 14:45
Lead	< .005	mg/l			WG541837	06/23/11 14:45

Analyte	Units	Result	Duplicate		Limit	Ref Samp	Batch
			Duplicate	RPD			
Arsenic	mg/l	0	0	0	20	L522080-06	WG541837
Lead	mg/l	0	0	0	20	L522080-06	WG541837

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Arsenic	mg/l	1.13	1.04	92.0	85-115	WG541837
Lead	mg/l	1.13	1.09	96.5	85-115	WG541837

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Arsenic	mg/l	1.06	0	1.13	93.8	75-125	L522080-06	WG541837
Lead	mg/l	1.04	0	1.13	92.0	75-125	L522080-06	WG541837

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Arsenic	mg/l	1.10	1.06	97.3	75-125	3.70	20	L522080-06	WG541837
Lead	mg/l	1.08	1.04	95.6	75-125	3.77	20	L522080-06	WG541837

Batch number /Run number / Sample number cross reference

WG541837: R1735699: L522154-01 02 03 04

* Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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July 05, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Report Summary

Wednesday April 04, 2012

Report Number: L567640

Samples Received: 03/30/12

Client Project: 112417

Description: Kansas Oxide

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jeff Carr, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100785, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIC041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TNC00032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : B19-0-1
Collected By : Bo Moreland
Collection Date : 03/29/12 06:15

ESC Sample # : L567640-01

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	160	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : B19-2-3
Collected By : Bo Moreland
Collection Date : 03/29/12 08:20

ESC Sample # : L567640-02

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	19.	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : B19-4-5
Collected By : Bo Moreland
Collection Date : 03/29/12 08:25

ESC Sample # : L567640-03

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	20.	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

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REPORT OF ANALYSIS

April 04, 2012

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

ESC Sample # : L567640-04

Date Received : March 30, 2012
Description : KS Oxide

Site ID :

Sample ID : B20-0-1

Project # : 112417

Collected By : Bo Moreland
Collection Date : 03/29/12 08:35

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	53.	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Lisa Messinger
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
 Description : KS Oxide
 Sample ID : B20-2-3
 Collected By : Bo Moreland
 Collection Date : 03/29/12 08:40

ESC Sample # : L567640-05

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	5.8	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit (PQL)
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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : B20-4-5
Collected By : Bo Moreland
Collection Date : 03/29/12 08:45

ESC Sample # : J567640-06
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	9.2	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : B21-0-1
Collected By : Bo Moreland
Collection Date : 03/29/12 09:10

ESC Sample # : L567640-07

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	14.	0.25	mg/kg	6010B	04/01/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : B21-2-3
Collected By : Bo Moreland
Collection Date : 03/29/12 09:15

ESC Sample # : L567640-08

Site ID :

Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	7.2	0.25	mg/kg	6010B	04/04/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

April 04, 2012

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

ESC Sample # : L567640-09

Date Received : March 30, 2012
Description : KS Oxide

Site ID :

Sample ID : B21-4-5

Project # : 112417

Collected By : Bo Moreland
Collection Date : 03/29/12 09:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	14.	0.25	mg/kg	6010B	04/04/12	1

BDL - Below Detection Limit

Def. Limit - Practical Quantitation Limit (PQL)

Note:

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REPORT OF ANALYSIS

Lisa Messinger
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

April 04, 2012

Date Received : March 30, 2012
Description : KS Oxide
Sample ID : EBP-1
Collected By : Bo Moreland
Collection Date : 03/29/12 00:00

ESC Sample # : L567640-11
Site ID :
Project # : 112417

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Lead	1.3	0.25	mg/kg	6010B	04/04/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
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Quality Assurance Report
 Level II

L567640

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April 04, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Lead	< .25	mg/kg			WG585769	04/01/12 23:37
Lead	< .25	mg/kg			WG585828	04/04/12 11:28

Analyte	Units	Result	Duplicate		Limit	Ref Samp	Batch
			Duplicate	RPD			
Lead	mg/kg	14.0	20.0	31.9*	20	L567702-31	WG585828

Analyte	Units	Laboratory Control Sample		Limit	Batch
		Known Val	Result		
Lead	mg/kg	92.4	90.9	98.4	83.3-117
Lead	mg/kg	92.4	86.5	93.6	83.3-117

Analyte	Units	MS Res	Matrix Spike			Limit	Ref Samp	Batch
			Ref Res	TV	% Rec			
Lead	mg/kg	65.6	20.0	50	91.2	75-125	L567702-31	WG585828

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Lead	mg/kg	54.3	65.6	68.6*	75-125	18.8	20	L567702-31	WG585828

Batch number /Run number / Sample number cross reference

WG585769: R2098454; L567640-01 02 03 04 05 06 07
 WG585828: R2102594; L567640-08 09 11

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Kleinfelder - Lenexa, KS
Lisa Messinger
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Quality Assurance Report
Level II

L567640

12065 Lebanon Rd.
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1-800-767-5859
Fax (615) 758-5359

Tax I.D. 62-0814289

Est. 1970

April 04, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody J149			
Project Description: <i>KS Guide</i>		Report to:		Total Lead 4ozCinOPres				Prepared by:			
PHONE: 913-962-0909		E-mail to:						ENVIRONMENTAL Science corp		12065 Lebanon Road	
FAX: 913-962-0924								Mt. Juliet TN 37122		Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
Client Project No. <i>112417</i>		Lab Project #		CoCode (lab use only)		GEOSYS/LSKS		Template/Prelog			
Collected by: <i>B. H. H. H.</i>		Site/Facility ID#		P.O.#		Shipped Via: Kansas City Service Center					
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST be Notified) Same Day.....200% Next Day.....100% Two Day.....50%		Date Results Needed		Email? No Yes		of			
Packed on Ice N Y Y		FAX? No Yes									
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	Remarks/contaminant		Sample # (lab only)		
B19-0-1	C	SS	0-1'	3/29/12	0815	1	X	L567640-01			
B19-2-3			2-3		0820	1	X	-02			
B19-4-5			4-5		0825	1	X	-03			
B20-0-1			0-1		0835	1	X	-04			
B20-2-3			2-3		0840	1	X	-05			
B20-4-5			4-5		0845	1	X	-06			
B21-0-1			0-1		0910	1	X	-07			
B21-2-3			2-3		0915	1	X	-08			
B21-4-5			4-5		0920	1	X	-09			

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other _____ pH _____ Temp _____

Remarks: _____ Flow _____ Other _____

Relinquisher by (Signature) <i>[Signature]</i>	Date 3/29/12	Time 1315	Received by (Signature) <i>[Signature]</i>	Samples returned via: FedEx <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Other _____	Condition (lab use only) <i>MS</i>
Relinquisher by (Signature) <i>[Signature]</i>	Date	Time	Received by (Signature) <i>[Signature]</i>	Temp: 3.1	Bottles Received: 10402
Relinquisher by (Signature) <i>[Signature]</i>	Date	Time	Received for lab by (Signature) <i>[Signature]</i>	Date: 3/30/12	Time: 0900
				pH Checked:	NCF



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Joel Partridge
Kleinfelder - Lenexa, KS
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Report Summary

Monday August 20, 2012

Report Number: L590064

Samples Received: 08/15/12

Client Project: 112417

Description: Kansas Oxide

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jeff Carr, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BI0041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELSP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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REPORT OF ANALYSIS

Joel Partridge
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

August 20, 2012

Date Received : August 15, 2012
 Description : Kansas Oxide
 Sample ID : R-1
 Collected By : Joel Partridge
 Collection Date : 08/14/12 09:25

ESC Sample # : 1590064-01

Site ID :

Project : 112417

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	08/16/12 0831	LJN	1
Lead	0.054	0.050	mg/l	5.0	6010B	08/16/12 2256	ST	1

BDL - Below Detection Limit

Det. Limit - Estimated Quantitation Limit (EQL)

Limit - Maximum Contaminant Level as established by the US EPA

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 08/20/12 09:55 Printed: 08/20/12 09:56



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REPORT OF ANALYSIS

Joel Partridge
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

August 20, 2012

Date Received : August 15, 2012
 Description : Kansas Oxide
 Sample ID : R-2
 Collected By : Joel Partridge
 Collection Date : 08/14/12 09:35

ESC Sample # : 1540064-02

Site ID :

Project : 112417

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	08/16/12 0831	LJN	1
Lead	0.058	0.050	mg/l	5.0	6010B	08/16/12 2322	ST	1

BDL - Below Detection Limit
 Det. Limit - Estimated Quantitation Limit(EQL)
 Limit - Maximum Contaminant Level as established by the US EPA

Note:
 The reported analytical results relate only to the sample submitted.
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Reported: 08/20/12 04:55 Printed: 08/20/12 09:56



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REPORT OF ANALYSIS

Joel Partridge
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

August 20, 2012

Date Received : August 15, 2012
 Description : Kansas Oxide
 Sample ID : R-3
 Collected By : Joel Partridge
 Collection Date : 08/14/12 09:39

ESC Sample # : L590064-03

Site ID :

Project : 112417

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	08/16/12 0831	LJN	1
Lead	0.20	0.050	mg/l	5.0	6010B	08/16/12 2325	ST	1

BDL - Below Detection Limit
 Det. Limit - Estimated Quantitation Limit(EQL)
 Limit - Maximum Contaminant Level as established by the US EPA
 Note:

The reported analytical results relate only to the sample submitted.
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Reported: 08/20/12 09:55 Printed: 08/20/12 09:56



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

August 20, 2012

Joel Partridge
 Kleinfelder - Lenexa, KS
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Date Received : August 15, 2012
 Description : Kansas Oxide
 Sample ID : R-4
 Collected By : Joel Partridge
 Collection Date : 08/14/12 09:42

ESC Sample # : L590064-04

Site ID :

Project : 112417

Parameter	Result	Det. Limit	Units	Limit	Method	Date/Time	By	Dil
TCLP Extraction	-				1311	08/16/12 0831	LJN	1
Lead	3.3	0.050	mg/l	5.0	6010B	08/16/12 2327	ST	1

BDL - Below Detection Limit
 Det. Limit - Estimated Quantitation Limit(EQL)
 Limit - Maximum Contaminant Level as established by the US EPA
 Note:

The reported analytical results relate only to the sample submitted.
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Reported: 08/20/12 09:55 Printed: 08/20/12 09:56

Summary of Remarks For Samples Printed
08/20/12 at 09:56:19

TSR Signing Reports: 206
K5 - Desired TAT

Sample: L590064-01 Account: GEOSYLKS Received: 08/15/12 09:00 Due Date: 08/22/12 00:00 RPT Date: 08/20/12 09:55
Sample: L590064-02 Account: GEOSYLKS Received: 08/15/12 09:00 Due Date: 08/22/12 00:00 RPT Date: 08/20/12 09:55
Sample: L590064-03 Account: GEOSYLKS Received: 08/15/12 09:00 Due Date: 08/22/12 00:00 RPT Date: 08/20/12 09:55
Sample: L590064-04 Account: GEOSYLKS Received: 08/15/12 09:00 Due Date: 08/22/12 00:00 RPT Date: 08/20/12 09:55



YOUR LAB OF CHOICE

Kleinfelder - Lenexa, KS
 Joel Partridge
 11529 W. 79th Street, Building 21
 Lenexa, KS 66214

Quality Assurance Report
 Level II

L590064

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August 20, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Lead	< .05	mg/l			WG608084	08/16/12 22:51

Analyte	Units	Duplicate			Limit	Ref Samp	Batch
		Result	Duplicate	RPD			
Lead	mg/l	0.0500	0.0540	6.90	20	L590064-01	WG608084

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/l	1.13	1.10	97.3	85-115	WG608084

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Lead	mg/l	1.11	0.0540	1.13	93.4	75-125	L590064-01	WG608084

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Lead	mg/l	1.18	1.11	99.6	75-125	6.11	20	L590064-01	WG608084

Batch number /Run number / Sample number cross reference

WG607891: R2304756: L590064-01 02 03 04
 WG608084: R2308174: L590064-01 02 03 04

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Kleinfelder - Lenexa, KS
Joel Partridge
11529 W. 79th Street, Building 21
Lenexa, KS 66214

Quality Assurance Report
Level II

L590064

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August 20, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

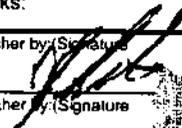
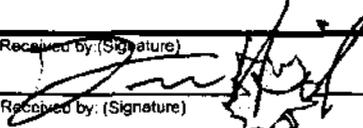
Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Company Name/Address Kleinfelder 11529 W. 79th Street, Building 21 Lenexa, KS 66214		Alternate Billing		Analysis/Container/Preservative				Chain of Custody Page 1 of 1	
Project Description: Kansas Oxide		KANSAS						Prepared by:  ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859	
PHONE: 913-962-0909 FAX: 913-962-0924	Client Project No. 112417	Lab Project #						CoCode (lab use only) GEOSYSLKS Template/PrelogIn Shipped Via: Kansas City Service Center	
Collected by: Joel PARTZIDGE	Site/Facility ID#	P.O.#						Remarks/contaminant	
Collected by (signature):	<input checked="" type="checkbox"/> Rush? (Lab MUST be Notified) Same Day.....200% Next Day.....100% Two Day.....50%	Date Results Needed						Sample # (lab only)	
Packed on Ice N Y	Email? No <input checked="" type="checkbox"/> Yes FAX? No Yes						No of Cntrs		
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	No of Cntrs	TCLP Pb		
R-1	Grab	SS	surface	Aug 12	9:25	1	X	1596664-01	
R-2					9:35	1	X	02	
R-3					9:39	1	X	03	
R-4					9:42	1	X	04	

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT-Other _____ pH _____ Temp _____

Remarks: _____ Flow _____ Other _____

Relinquisher by (Signature) 	Date: 14 Aug 12	Time: 10:03	Received by (Signature) 	Samples returned via: FedEx <input checked="" type="checkbox"/> UPS <input checked="" type="checkbox"/> Other _____ 5274 8794 3217	Condition (lab use only) 
Relinquisher by (Signature)	Date:	Time:	Received by (Signature)	Temp: 3.9	Bottles Received: 4-802
Relinquisher by (Signature)	Date:	Time:	Received for lab by (Signature) K...	Date: 8/15/12	Time: 0900
					pH Checked: NCF

APPENDIX D

Field Documentation



Environmental Field Daily Report

Report #: _____
Page 1 of 2

Project Name : <u>Kansas Oxide</u>		Date : <u>5/2/11</u>	Time Arrived : <u>7:30</u>
Project Manager : <u>Rowley Tedlock</u>		Site Location : <u>Fairfax District</u>	Time Departed :
Project / Task # : <u>112417 / 4</u>		Personnel : <u>Vince Domenico</u> <u>L. Messinger PSA</u>	Mileage :
Weather Conditions : <u>60° Partly Cloudy</u>		Wind from : _____ at _____ mph	Temperature : _____ °F
Subcontractor: (Name/Firm)	<u>PSA</u>	Time Arrived : <u>8:10</u>	Time Departed :
		Time Arrived :	Time Departed :
Site Visitors :		Time Arrived :	Time Departed :
		Time Arrived :	Time Departed :
Equipment:	<u>XRF</u>		
Primary Assignments :			
Field Notes : <u>7:30 V. Domenico, L. Messinger (Kleinfelder) onsite</u>			
<u>8:00 Gas Marker onsite</u>			
<u>8:10 Standardized XRF</u>			
<u>8:15 Tested XRF 2781: AS: 635 PB: 173 ± 10</u>			
<u>8:45 Setup @ B-1 begin Sampling</u>			
<u>9:21 Setup @ B-2 begin Sampling</u>			
<u>9:43 Setup @ B-3 begin Sampling</u>			
<u>10:00 Setup @ B-4 begin Sampling</u>			
<u>10:30 Sample GW-1F + GW-1U (filtered) (unfiltered)</u>			
<u>GW-Dup 1 (filtered)</u>			
<u>GW-Dup 2 (unfiltered)</u>			
Attachments :	Logbook ? <input checked="" type="checkbox"/> N	Book # : <u>XRF sheet</u>	Pages :
Chain of Custody? <input checked="" type="checkbox"/> N	COC#s	Proj. Task Form ? <input type="checkbox"/> N	Site Safety Plan ? <input checked="" type="checkbox"/> N
Field Data Sheets? <input checked="" type="checkbox"/> N	Total FDSs:	Sample Control Log ?	<input type="checkbox"/> N
Utility Clearance	Ticket #:	Marks Observed? <input checked="" type="checkbox"/> N	Comments :
Other attachments:			



Environmental
Field Daily Report (continued)

Project Name: Kansas Oxide Date: 5/2/11 Report #:
Project / Task #: 112417/4 Site Location: FairFax District

Field notes continued:

11:00 Sampled GW-2F + GW-2U
(filtered) (unfiltered)

1118 Setup @ B-5 began sampling

1125 Setup @ B-6 began sampling

1137 Setup @ B-7 began sampling

1242 Setup @ ~~VCP~~ VCP-1 began sampling

1302 Setup @ B-10 began sampling

1328 Setup @ VCP-2 began sampling
Setup @ GW-3 sampling

1355 Sample GW-3F GW-3U
(filtered) (unfiltered)

1407 setup @ B-11 began sampling

1433 Setup @ B-8 began sampling

1447 Setup @ B-9 began sampling

1600 off site (Kleinfelder)

LM

Signature: Lisa Messinger



Environmental
Field Daily Report (continued)

Project Name: 603 Sunshine Date: 5/3/11 Report #:
Project / Task #: 112841714 Site Location: Kansas Oxide

Field notes continued:

7:45 arrived onsite

L. Messinger, V. Domenico

John Cook (KOHF)

PSA

8:00 ~~HA~~ HASP meeting

standardize XRF

8:20 Began B-12 sampled

8:40 Setup @ B-18 began sampling

8:54 Setup @ B-17 began sampling

9:10 ~~8:54~~ Setup @ B-16^(#1) began sampling

9:35 Setup @ B-13 began sampling

9:58 Setup @ B-15 began sampling

10:12 Setup @ B-14 began sampling

10:20 John Cook off-site

10:30 HA VCP-3

10:45 HA VCP-4

10:55 ~~to 11:00~~ collected rinse blank 2
from geoprobe shoe

11:30 PSA left site

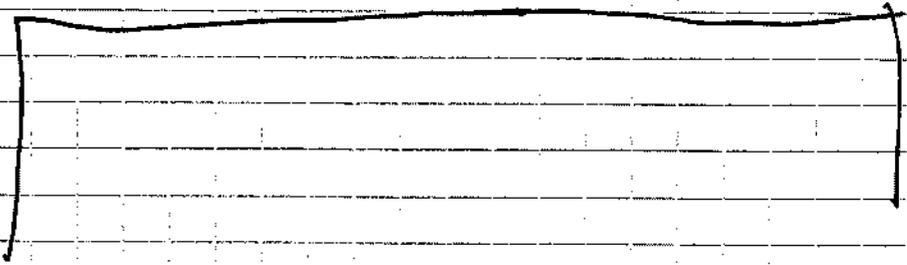
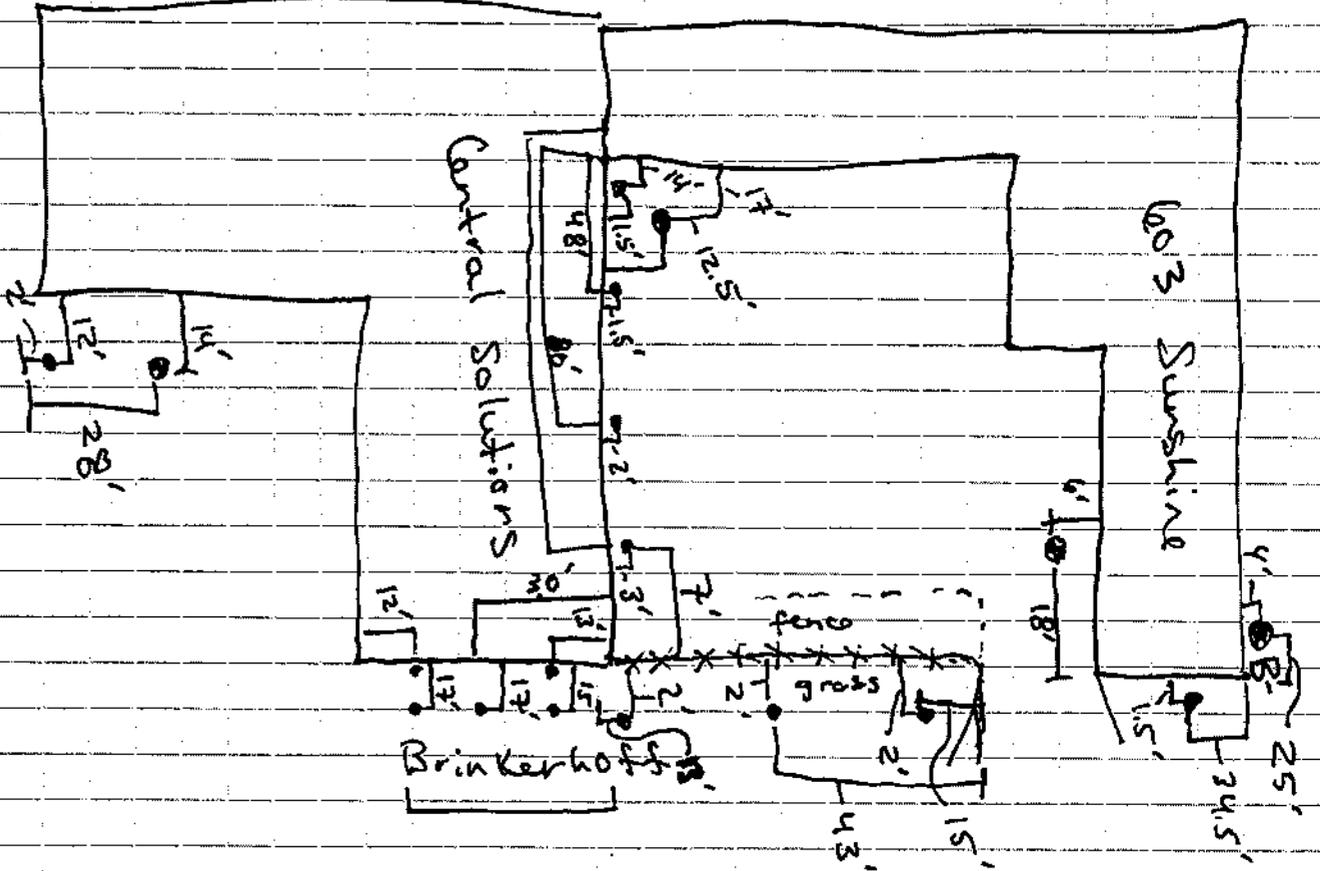
VCP-4 0'-1' → sampled Dup-3

14:45 Kleinfelder offsite

LM

Signature:

railroad





Environmental Field Daily Report

Report #: _____

 Page 1 of 1

Project Name: <u>Kansas Oxide</u>		Date: <u>6/10/11</u>	Time Arrived: <u>7:30</u>
Project Manager: <u>BT</u>	Site Location: <u>603 Sunshine</u>		Time Departed: <u>10:30</u>
Project / Task #: <u>112417 / 4</u>	Personnel: <u>Lisa Messenger, Vince Domenico</u>		Mileage: _____
			Mileage: _____

 Weather Conditions: rain, spotty Wind from: W-SW at _____ mph Temperature: 76 °F

Subcontractor: (Name/Firm)	Time Arrived:	Time Departed:
	Time Arrived:	Time Departed:
Site Visitors:	Time Arrived:	Time Departed:
	Time Arrived:	Time Departed:

Equipment:	<u>Sample jars, rain gauge</u>

 Primary Assignments: collect roof runoff from Central Solutions + background precip.

 Field Notes: LM
 7:00 arrived onsite, set up rain gauges (3)
 7:30 left site new wine w/ distilled H₂O
 8:30 LM arrived onsite, did not observe rain runoff draining from central solutions
 waited until rain event was over
 9:00 rain event over, no drainage
 10:30 left site, rain gauges left
 15:30 VB - checked both gauges, almost dry - no sample collected
 - removed + took gauges
 - checked storm gutters onsite - no runoff.
 16:15 - left site

Attachments:	Logbook? <input type="checkbox"/> Y <input type="checkbox"/> N Book #: _____	Pages: _____	Proj. Task Form? <input type="checkbox"/> Y <input type="checkbox"/> N
Chain of Custody?	<input type="checkbox"/> Y <input type="checkbox"/> N COC#s: _____	Site Safety Plan? <input type="checkbox"/> Y <input type="checkbox"/> N	
Field Data Sheets?	<input type="checkbox"/> Y <input type="checkbox"/> N Total FDSs: _____	Sample Control Log?	<input type="checkbox"/> Y <input type="checkbox"/> N
Utility Clearance	Ticket #: _____	Marks Observed? <input type="checkbox"/> Y <input type="checkbox"/> N	Comments: _____
Other attachments:			



Environmental Field Daily Report

Report #: _____
Page 1 of 1

Project Name: <u>Karstedt Oxide</u>		Date: <u>6/16/11</u>	Time Arrived:
Project Manager: <u>RT</u>	Site Location: <u>603 Sunshine</u>		Time Departed:
Project / Task #: <u>112417/4</u>	Personnel: <u>Vince Donerstein</u>		Mileage:
			Mileage:

Weather Conditions: _____ Wind from: _____ at _____ mph Temperature: _____ °F

Subcontractor: (Name/Firm)	Time Arrived:	Time Departed:
	Time Arrived:	Time Departed:
Site Visitors:	Time Arrived:	Time Departed:
	Time Arrived:	Time Departed:
Equipment:		

Primary Assignments:

Field Notes: 1130 - arrive - heavy rain to the south, light rain on site - set up rain collection container.
1200 - light rain - not enough for sample collection of downspouts?
1300 - only < 1/8" , no sample collected - left site.
6/17/11
- 0815 - arrive. water running from downspouts (3 lower ones only). strong flow from PR-1 (west), light flow from PR-2 (center) + moderate flow from PR-3 (east) - No flow from downspouts that go to the higher points on the roof
PR-1 - collected at 0830, PR-2 @ 0835 & PR-3 @ 0840
- collected BPR-1 @ 0850 - approx 0.5" rain - some trace salinity visible

Attachments:	Logbook? <input type="checkbox"/> Y <input type="checkbox"/> N	Book #:	Pages:	Proj. Task Form? <input type="checkbox"/> Y <input type="checkbox"/> N
Chain of Custody?	<input type="checkbox"/> Y <input type="checkbox"/> N	COC#s:		Site Safety Plan? <input type="checkbox"/> Y <input type="checkbox"/> N
Field Data Sheets?	<input type="checkbox"/> Y <input type="checkbox"/> N	Total FDSs:	Sample Control Log?	<input type="checkbox"/> Y <input type="checkbox"/> N
Utility Clearance	Ticket #:	Marks Observed? <input type="checkbox"/> Y <input type="checkbox"/> N	Comments:	
Other attachments:				

-preserved samples

B-1 0-1

XRF Field Screening Log

Project: Kansas Oxides Date: 5/2/11
 XRF Operator: L. Messinger Project #: 112417
 Site: _____
 Location: 603 Sunshine

Screening levels				400	11	Sample?				
No.	I.D.	Depth	Test Duration	Lead	Arsenic					Notes
1	Test 1 2781		30	PB 173	<35					
2	Test 2 2702		30	123±10	51±13					
3	Test 3 SiO2		30	ND	ND					
4	B-1a	0-1		2090±323	ND<438	Y				B-1a 0-1 } PB 21435
5	B-1b	0-1		23461±446	ND<452	Y				B-1b } ave: AS 214
6	B-1	0-1		19968±364	ND<402	Y				B-1c } BPD 690
7	B-1	1-2		7±25	ND<61	Y				} ave AS 172
8	B-1	1-2		368±13	ND<42	Y				
9	B-1	1-2		927±23	ND<69	Y				} PB: 390
10	B-1	2-3		181±8	ND<29	Y				
11	B-1	2-3		113±8	ND<26	Y				} ave AS: 41
12	B-1	2-3		106±5	ND<25	Y				
13	B-2	0-1		1960±44	ND<129	Y				} PB: 2861
14	B-2	0-1		4372±82	ND<167	Y				
15	B-2	0-1								} ave: AS: 146
16	Standard passed									
17	B-2	0-1		225±4	ND<119	Y				} PB: 138
18	B-2	1-2		72±6	ND<21	Y				
19	B-2	1-2		308±12	ND<29	Y				} ave: AS: 26
20	B-2	1-2		33±5	ND<17	Y				
21	B-2	1-2	Dup							} ave: PB: AS:
22	B-2	1-2	Dup							
23	B-2	1-2	Dup							
24	B-2	2-3		22±5	ND<46	Y				} PB 21
25	B-2	2-3		20±4	ND<46	Y				
26	B-2	2-3		21±4	ND<45	Y				} ave: AS: ND
27	B-2	2-3	Dup	31±5	ND<47	Y				
28	B-2	2-3	Dup	24±5	ND<46	N				} PB: 123
29	B-2	2-3	Dup	15±4	ND<49	Y				
30	B-3	0-1		329±19	ND<46±15	Y				} PB: 670
29	B-3	0-1		355±13	ND<45	Y				
30	B-3	0-1		1326±30	ND<84	Y				} ave AS: ND <u>Dup-1</u>

XRF Field Screening Log

Project: Kansas Oxides Date: 5/2/11
 XRF Operator: L. Messinger Project #: 112417
 Site: 603 Sunshine

Location:

Screening levels			400	Sample						
No.	I.D.	Depth	Test Duration	Lead	Arsenic	Mercury Vapor	Notes			
31	B-3 1-2	-	30	37±5	ND<18	Y	} ave. PB: 63 AS: ND			
32	B-3 1-2	-		86±7	ND<24	Y				
33	B-3 1-2	-		66±6	ND<23	Y				
34	B-3	2-3		18±4	19±5	Y	} ave. PB: 39 AS: ND			
35	B-3	2-3		20±4	ND<15	Y				
36	B-3	2-3		78±7	ND<26	Y				
37	B-3	Dup		18±4	ND<16	Y	} ave. PB: 43 AS: ND			
38	B-3	Dup		23±4	ND<16	N				
39	B-3	Dup		87±7	ND<26	Y				
40	B-4	0-1		194±16	ND<107	Y	} ave. PB: 36±7 AS: ND			
41	B-4	0-1		107±26	ND<78	Y				
42	B-4	0-1		606±19	ND<219	Y				
43	B-4	1-2		22±6	ND<21	Y	} ave. PB: 32 AS: ND			
44	B-4	1-2		40±5	ND<17	Y				
45	B-4	1-2		35±5	ND<19	Y				
46	B-4	2-3		917±22	ND<64	Y	} ave. PB: 255 AS: ND			
47	B-4	2-3		28±5	ND<17	Y				
48	B-4	2-3		30±5	ND<17	Y				
49	B-4	2-3		44±5	ND<17	Y				
50	Standardize Passed									
51	B-5	0-1		63±6	ND<22	Y	} ave. PB: 217 AS: ND			
52	B-5	0-1		420±16	ND<52	Y				
53	B-5	0-1		158±9	ND<32	Y				
54	B-5	3-4		18±4	ND<16	Y	} ave. PB: 20 AS: ND			
55	B-4	3-4		24±4	ND<15	Y				
56	B-4	3-4		ND	ND	N				
57	B-4	3-4		15±4	ND	Y				
58	B-6	3-4		21±5	ND<18	Y	} ave. PB: 119 AS: ND			
59	B-5	1-2		180±10	ND<34	Y				
60	B-5	1-2		97±6	ND<24	Y				

1-3
 1-4
 1-5
 1-6
 1-7
 1-8
 1-9
 1-10
 1-11
 1-12

} S

XRF Field Screening Log

Project: Kansas Oxides Date: 5/2/11
 XRF Operator: L. Messinger Project #: 112417
 Site: 403 Sunshine

Location:

Screening levels				400	Sample?				
No.	I.D.	Depth	Test Duration	Lead	Arsenic	Meq Dry Vapor	Notes		
61	B-5	1-2	30	131±9	ND<34				
62	B-5	2-3		49±7	ND<24	Y	} ave: PB: 50 AS: ND		
63	B-5	2-3		50±7	ND<23	Y			
64	B-5	2-3		50±7	ND<23	Y			
65	B-6	0-1		95±8	ND<28	Y	} ave: PB: 224 AS: ND		
66	B-6	0-1		494±16	ND<52	Y			
67	B-6	0-1		84±8	ND<28	Y			
68	B-6	1-2		403±15	ND<51	Y	} ave PB: 567 AS: ND		
69	B-6	1-2		329±13	ND<46	Y			
70	B-6	1-2		970±27	ND<82	Y			
71	B-6	2-3		24±6	ND<21	Y	} ave PB: 31 AS: ND		
72	B-6	2-3		25±6	ND<21	Y			
73	B-6	2-3		45±7	ND<24	Y			
74	B-7	0-1		352±13	ND<44		} <u>Dup - 2</u> ave		
75	B-7	0-1	25±11	326±12	ND<40	Y			
76	B-7	0-1		500±16	ND<52	Y			PB: 370 AS: ND
77	B-7 Dup	0-1		326±12	ND<?	Y	} ave PB: 363 AS: ND		
78	B-7 Dup	0-1		262±11	ND<39	N			
79	B-7 Dup	0-1		562±16	ND<53	Y			
80	B-7	1-2		99±8	ND<30	Y	} ave PB: 310 AS: ND		
81	B-7	1-2		199±11	ND<39	Y			
82	B-7	1-2		631±20	ND<64	Y			
83	B-7	2-3		ND<15	ND<17	Y	} ave PB: 25 AS: ND		
84	B-7	2-3		26±5	ND<16	Y			
85	B-7	2-3		24±5	ND<17	Y			
86	B-7	3-4		ND<12	ND<14	Y	} ave PB: 16 AS: ND		
87	B-7	3-4		16±5	ND<17	N			
88	B-7	3-4		ND<12	ND<18	Y			
89	VCP-1	0-1 3-4		ND<12	19±5	Y	} ave PB: 14.5 AS: ND		
90	VCP-1	0-1 3-4		14±4	ND<15	N			

XRF Field Screening Log

Project: Kansas Oxides Date: 5/2/11
 XRF Operator: L. Messinger Project #: 112417
 Site: 603 Sunshine

Location:

Screening Level				400					
No.	I.D.	Depth	Test Duration	Lead	Arsenic	Sample	Notes		
91	VCP-1	3-4	30	15±4	24±6	1			
92	VCP-1	0-1		39±5	190±11	1	} ave PB: 48 AS: 159		
93	VCP-1	0-1		95±8	165±13	Y			
94	VCP-1	0-1		20±5	122±9	1			
95	VCP-1	1-2		39±5	190±11	1			
96	VCP-1	1-2		ND < 12	344±13	N	} ave PB: 20.5		
97	VCP-1	1-2		22±5	384±14	→ PB: 1 AS: 1	} 19±4 345±13 AS: 358		
98	VCP-1	2-3		13±4	50±7	1	} ave PB: 20 AS: 282		
99	VCP-1	2-3		19±4	50±7	Y			
100	VCP-1	2-3		18±5	182±10	1			
101	B-10	0-1		155±9	256±15	1	} PB: 224 KNIFE Split		
102	B-10	0-1		176±9	318±15	Y	} ave AS: 259		
103	B-10	0-1		342±13	204±17	1			
104	B-10	1-2		28±5	233±11	1	} ave PB: 25 AS: 201		
105	B-10	1-2		ND < 17	127±11	N			
106	B-10	1-2		22±5	242±12	1			
107	B-10	2-3		ND < 11	85±7	1	} ave PB: 32.5 AS: 64		
108	B-10	2-3		34±5	51±8	Y			
109	B-10	2-3		31±5	55±8	1			
110	Standard: 20			passed					
111	B-10	3-4		18±5	ND < 16	1	} PB: 19		
112	d) B-10	3-4		15±5	19±6	N	} ave AS: 19		
113	d) B-10	3-4		24±5	ND < 18	1			
114	⊗ Dup	2-4		17±5	21±4	1	} PB: 18		
115	⊗ Dup	3-4		20±5	< 19	1	} ave AS: 21		
116	B-10 4-5	3-4		16±4	< 15	1	} ave PB: 19.5 AS: ND		
117	B-10	4-5		13±4	< 14	↓			
118	B-10	4-5		< 12	< 14	↓			
119	VCP-1	4-5		18±4	< 15	↓	} ave PB: 17 AS: ND		
120	VCP-1	4-5		18±4	< 16	↓			

AS: ND

XRF Field Screening Log

Project:	Kansas Oxides	Date: 5/2/11
XRF Operator:	C. Messinger	Project #: 112417
Site:	603 Sunshine	
Location:		

Screening Level				400					
No.	I.D.	Depth	Test Duration	Lead	Arsenic	Sample	Notes		
121	VCP-1	4-5	30	16±4	<15	Y			
122	VCP-2	0-1		264±12	202±17	Y	} ave PB: 16.5 AS: 216		
123	VCP-2	0-1		124±8	232±14	Y			
124	VCP-2	0-1		107±7	215±12	Y			
125	VCP-2	1-2		<13	251±11	Y	} PB: 16 ave AS: 216		
126	VCP-2	1-2		16±5	247±12	N			
127	VCP-2	1-2		<14	240±12	Y			
128	VCP-2	2-3		29±5	135±9	Y	} PB: 23 ave AS: 154		
129	VCP-2	2-3		<13	158±9	Y			
130	VCP-2	2-3		17±4	168±10	Y			
131	VCP-2	3-4		<15	19±6	Y	} PB: 14 ave AS: 19		
132	VCP-2	3-4	14±4	<13	20±6	Y			
133	VCP-2	3-4		<13	<15	Y			
134	Dup	3-4		44	20±6		} ave PB: 20 AS: 19.5		
135	Dup	3-4		20±4	<16				
136	Dup	3-4		<13	19±6				
137	VCP-2	4-5		15±4	<15	Y	} ave PB: 19 AS: 19		
138	VCP-2	4-5		21±4	<15	N			
139	VCP-2	4-5		21±4	19±6	Y			
140	Standardize		passed						
141	VCP-2	5-6		18±4	<16	Y	} ave PB: 23.5 AS: ND		
142	VCP-2	5-6		<12	<14	N			
143	VCP-2	5-6		29±8	<26	Y			
144	B-11	0-1		23±5	<17	Y	} ave PB: 28 AS: ND		
145	B-11	0-1		36±6	<21	Y			
146	B-11	0-1		25±5	<18	Y			
147	B-11	1-2		<12	17±5	Y	} ave PB: 17.5 AS: 17		
148	B-11	1-2		15±4	17±5	Y			
149	B-11	1-2		20±4	<16	Y			
150	B-11	2-3		12±4	<14	Y			

XRF Field Screening Log

Project:	Kansas Oxides	Date: 5/2/11
XRF Operator:	L. Messinger	Project #: 112417
Site:	603 Sunshine	

Location:	Screening Level	400	?	?	?	?	?
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No.	I.D.	Depth	Test Duration	Lead	Arsenic	sample	Notes
151	B-11	2-3	36	<12	<14	Y	ave. PB: 13
152	B-11	2-3		14±4	<15	I	AS: ND
153	B-11	3-4		14±4	<14	I	ave PB: 13 AS: ND
154	B-11	3-4		12±4	<14	N	
155	B-11	3-4		<11	<13	I	
156	B-8	3-4		<12	<14	I	
157	B-8	3-4		15±4	<15	N	ave PB: 15
158	B-8	3-4		<12	<14	I	AS: ND
159	B-8	0-1		138±9	<32	I	PB: 234
160	B-8	0-1		251±12	<41	Y	ave AS: ND
161	B-8	0-1		313±12	<41	I	ave PB: 42 AS: ND
162	B-8	1-2		52±6	<21	I	
163	B-8	1-2		38±5	<19	Y	
164	B-8	1-2		35±5	<18	I	ave PB: 19
165	B-8	2-3		16±4	<15	Y	
166	B-8	2-3		25±5	<17	I	ave AS: ND
167	B-8	2-3		16±4	<15	Y	ave
168	Dup	2-3		14±4	<14	I	
169	Dup	2-3					
170	Dup	2-3					
171	Standard	20	passed				
172	B-9	3-4		<11	17±4	I	PB: 13
173	B-9	3-4		12±4	<14	N	ave AS: 17
174	B-9	3-4		14±4	<14	I	ave. PB: 154 AS: 141
175	B-9	0-1	265±11	<11	139±18	Y	
176	B-9	0-1		55±9	134±11	Y	
177	B-9	0-1		153±9	149±13	I	ave. PB: 18 AS: 31
178	B-9	1-2		22±4	37±6	I	
179	B-9	1-2		14±4	36±6	Y	
180	B-9	1-2		18±4	21±6	I	

XRF Field Screening Log

Project:	Kansas Oxides	Date: 5/2/11
XRF Operator:	L. Messinger	Project #: 112417
Site:	603 Sunshine	
Location:		

Screening Level	400	3					
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No.	I.D.	Depth	Test Duration	Lead	Arsenic	Sample	Notes
181	B-9 2/3	2-3	30	13±4	<14		} ave. PB: 12.5 AS: ND
182	B-9 2/3	2-3		12±4	<13		
183	B-9 2/3	2-3		<12	<14		
184	Standard 20			Passed			
185	NIST 2702			115±10	41±12		
186	NIST 2781			190±10	<35		
187	SiO ₂			<10	<11		
188							
189							
190							
191							
192							
193							
194							
195							
196							
197							
198							
199							
200							
201							
202							
203							
204							
205							
206							
207							
208							
209							
210							

XRF Field Screening Log

Project:	Kansas Oxides	Date: 5/31/11
XRF Operator:	C. Messinger	Project #: 112417
Site:	Kansas Oxide	
Location:		

Screening levels				400	11	?					
No.	I.D.	Depth	Test Duration	Lead	Arsenic	Sample	Notes				
1	Standard		passed								
2	NIST 2702		30	137 ± 11	< 39						
3	NIST 2781			183 ± 10	< 34						
4	SiO ₂			< 10	< 11						
5	B-12	0-1		45 ± 6	< 22	Y	}	PB: 46			
6	B-12	0-1		67 ± 8	< 29	Y		ave AS: 39			
7	B-12	0-1		27 ± 5	39 ± 7	Y					
8	B-12	1-2		< 13	17 ± 5	Y	}	PB: 13 <u>KDHE split</u>			
9	B-12	1-2		< 12	< 15	Y		ave AS: 17			
10	B-12	1-2		13 ± 4	< 15	Y					
11	B-12	2-3		18 ± 4	< 16	Y	}	PB: 17			
12	B-12	2-3		16 ± 4	< 15	Y		ave AS: ND			
13	B-12	2-3		17 ± 4	< 16	Y					
14	B-18	0-1		209 ± 14	55 ± 17	Y	}	PB: 208 <u>KDHE split</u>			
15	B-18	0-1		239 ± 12	49 ± 15	Y		ave AS: 52			
16	B-18	0-1		355 ± 15	< 51	Y					
17	B-18	1-2		< 14	< 16	Y	}	PB: 14			
18	B-18	1-2		< 14	< 17	Y		ave AS: ND			
19	B-18	1-2		14 ± 4	< 14	Y					
20	B-18	2-3		< 12	< 14	Y	}	PB: 14			
21	B-18	2-3		< 12	< 14	Y		ave AS: ND			
22	B-18	2-3		14 ± 4	< 15	Y					
23	B-17	0-1		83 ± 7	< 24	Y	}	PB: 76			
24	B-17	0-1		59 ± 7	< 24	Y		ave AS: ND			
25	B-17	0-1		85 ± 7	< 25	Y					
26	B-17	1-2		< 11	20 ± 5	Y	}	PB: 21.5			
27	B-17	1-2		21 ± 5	< 17	Y		ave AS: 20			
28	B-17	1-2		22 ± 5	< 18	Y					
29	B-17	2-3		< 15	< 19	Y	}	PB: 28.5			
30	B-17	2-3		21 ± 6	< 13	Y		ave AS: ND			

XRF Field Screening Log

Project:	Kansas Oxides	Date: 5/3/11
XRF Operator:	C. Messinger	Project #: 112417
Site:	603 Sunrise	

Screening levels				400	Sample?				
No.	I.D.	Depth	Test Duration	Lead	Arsenic	Mercury Vapor	Notes		
31	B-17	2-3	30	36±8	<25	Y			
32	Dup	2-3		25±6	<20		} PB: 19 ave. AS: ND		
33	Dup	2-3		<13	<15				
34	Dup	2-3		13±4	<15				
35	Standard failed								
36	Standard passed								
37	B-16	0-1		67±7	<26	Y	} PB: 14 72 ave. AS: ND <u>SPLIT</u>		
38	B-16	0-1		77±7	<24	Y			
39	B-16	1-2		18±5	<18	Y	} ave. PB: 24 AS: ND		
40	B-16	1-2		34±5	<18	Y			
41	B-16	1-2		27±5	<18	Y	} AS: ND		
42	B-16	1-2		28±6	<19	Y			
43	B-16	2-3		15±4	<16	Y	} ave. PB: 14 AS: ND		
44	B-16	2-3		<12	<14	Y			
45	B-16	2-3		13±4	<15	Y			
46	B-13	0-1		63±7	<23	Y	} PB: 87 ave. AS: ND		
47	B-13	0-1		95±7	<26	Y			
48	B-13	0-1		104±8	<28	Y	} PB: 26		
49	B-13	1-2		26±5	<17	Y			
50	B-13	1-2		29±5	<19	Y	} ave. AS: ND		
51	B-13	1-2		24±5	<18	Y			
52	Dup	1-2		28±5	<18		} PB: 26 ave. AS: ND		
53	Dup	1-2		23±5	<17				
54	Dup	1-2		27±5	<18		} PB: 20		
55	B-13	2-3		19±5	<16	Y			
56	B-13	2-3		20±5	<16	Y	} ave. AS: ND		
57	B-13	2-3		21±5	<17	Y			
58	B-15	0-1		<13	<16	Y	} PB: 29 ave. AS: ND		
59	B-15	0-1		24±5	<17	Y			
60	B-15	0-1		34±5	<17	Y			



KLEINFELDER SAMPLE CONTROL LOG

PROJECT NAME: Kansas Oxide

PROJECT NUMBER: 112417

DATES of FIELD WORK: May 2, 2011 - May 3, 2011

SAMPLE DESCRIPTION				SAMPLE CONTAINER					NOTES
DATE	TIME	FIELD SAMPLE NUMBER	SAMPLE LOCATION	MATRIX (soil, etc)	Number of CONTAINERS	CONTAINER TYPE	PRESERV.	FILTERED? Y/N	
5/2/11	845	B-1 0-1		Soil	2	G, 4oz	N	N	high XRF Hold all for TCLP
	846	B-1 1-2							
	847	B-1 2-3							
	921	B-2 0-1							
	922	B-2 1-2							
	923	B-2 2-3							
	943	B-3 0-1							dup-1
	944	B-3 1-2							
	945	B-3 2-3							
	1002	B-4 2-3							
	1001	B-4 1-2							
	1000	B-4 0-1							
	1030	GW-1F		GW	1	250ml	Y	Y	
	1030	GW-1U		GW	1		Y	N	
	1100	GW-2F		GW	1		Y	Y	
	1100	GW-2U		GW	1		Y	N	
	1355	GW-3F		GW	1		Y	Y	
	1355	GW-3U		GW	1		Y	N	
	1447	B-9 0-1		Soil		G, 4oz	N	N	
	1448	B-9 1-2							
	1449	B-9 2-3							

Laboratory: ESC
 Sampler: L. Messinger

Chain - of - Custody No.: NA



KLEINFELDER SAMPLE CONTROL LOG

PROJECT NAME: Kansas Oxide PROJECT NUMBER: 112417 DATES of FIELD WORK: May 2, 2011 - May 3, 2011

SAMPLE DESCRIPTION				SAMPLE CONTAINER					NOTES
DATE	TIME	FIELD SAMPLE NUMBER	SAMPLE LOCATION	MATRIX (soil, etc)	Number of CONTAINERS	CONTAINER TYPE	PRESERV.	FILTERED? Y/N	
5/2/11	1433	B-8 0-1		Soil	2	6,4oz	N	N	Hld for TCLP
	1434	B-8 1-2							
	1435	B-8 2-3							
	1137	B-7 0-1							DUP-2
	1138	B-7 1-2							
	1139	B-7 2-3							
		Dup 2		GW	1	250mL			
	1345	Rinse Blank 1		GW	1	250mL			
	1118	B-5 0-1		Soil	2	6,4oz	N	N	
	1119	B-5 1-2							
	1120	B-5 2-3							
	1125	B-6 0-1							
	1126	B-6 1-2							
	1127	B-6 2-3							
	1242	VCP-1 0-1							
	1244	VCP-1 2-3							
	1317	VCP-1 4-5							
	1303	B-10 0-1							KDFE Split
	1305	B-10 2-3							
	1309	B-10 4-5							

Laboratory: ESC
 Sampler: L. Messenger

Chain - of - Custody No.: NA



KLEINFELDER SAMPLE CONTROL LOG

PROJECT NAME: Kansas Oxide

PROJECT NUMBER: 112417

DATES of FIELD WORK: 5/2/11-5/3/11

SAMPLE DESCRIPTION				SAMPLE CONTAINER					NOTES
DATE	TIME	FIELD SAMPLE NUMBER	SAMPLE LOCATION	MATRIX (soil, etc)	Number of CONTAINERS	CONTAINER TYPE	PRESERV.	FILTERED? Y/N	
5/2/11	1328	UCP-2 0-1		Soil	2	62,407	N	N	Hold for TCLP
	1330	UCP-2 2-3							
	1331	UCP-2 3-4							
	1407	B-11 0-1							
	1408	B-11 1-2							
	1409	B-11 2-3							
5/3/11	820	B-12 0-1							KDHE Split
	821	B-12 1-2							
	822	B-12 2-3							
	840	B-18 0-1	KDHE Split					*	Hold for analysis
	841	B-18 1-2						*	
	842	B-18 2-3						*	
	854	B-17 0-1							KDHE Split
	855	B-17 1-2							
	856	B-17 2-3							
	910	B-16 0-1							
	920	B-16 1-2							
	930	B-16 2-3							
	935	B-13 0-1							Hold for TCLP
	936	B-13 1-2							
	937	B-13 2-3							

Laboratory: ESC
 Sampler: L. Messinger

Chain - of - Custody No.: NA

* analyze based on 1st round of results Page 3 of 4



KLEINFELDER SAMPLE CONTROL LOG

PROJECT NAME: Kansas Oxide PROJECT NUMBER: 112417 DATES of FIELD WORK: 5/2/11 - 5/3/11

SAMPLE DESCRIPTION				SAMPLE CONTAINER					NOTES
DATE	TIME	FIELD SAMPLE NUMBER	SAMPLE LOCATION	MATRIX (soil, etc)	Number of CONTAINERS	CONTAINER TYPE	PRESERV.	FILTERED? Y/N	
5/3/11	958	B-15 0-1		Soil	2	G, 402	N	N	Hold for TPLP
	959	B-15 1-2							
	1000	B-15 2-3							
	1012	B-14 0-1							
	1013	B-14 1-2							
	1014	B-14 2-3							
	1535	VCP-3 0-1							
	1045	VCP-4 0-1							Dup-3
		DUP-3							
	1055	Rinse Blank 2		GW	1	250ml	Y	N	
		GW-Dup 1 (Filtered)					Y	Y	GW-IF dup
		GW-Dup 2 (unfiltered)					Y	N	GW-LU dup

Laboratory: ESC
 Sampler: L. Messenger

Chain - of - Custody No.: NA

APPENDIX E

Photograph Log



Kansas Oxide
603 Sunshine Road
Kansas City, Kansas



Facing southwest, view of subject site parking lot and landscaped area along Brinkerhoff Road.



Facing southwest, view of northeast corner of subject site.



Facing southwest across parking lot.



Facing west, view of northeast corner of subject site.



Facing west, locations of B-1 through B-4 shown.



Facing south, location of B-4 shown.



Kansas Oxide
603 Sunshine Road
Kansas City, Kansas



Facing southeast, location of B-3 and B-4 shown.



Facing southwest, Geoprobe sampling at B-1.



Facing west, location of GW-2.



Facing southeast, location of B-12.



Facing west, location of B-14.



Facing southwest, location of B-15.



Kansas Oxide
603 Sunshine Road
Kansas City, Kansas



Facing northwest, location of B-13.



Facing west, location of B-11.



Facing west, landscaped area near B-5 shown.



Facing west, parking lot of Central Solutions and area of GW-3.



Facing northwest, east side of Central Solutions and area of B-10, VCP-1 and VCP-2.



Facing south, railroad tracks along west side of subject site.



Kansas Oxide
603 Sunshine Road
Kansas City, Kansas



Facing southwest, Geoprobe sampling at B-5.



XRF field screening.