APPENDIX F – BACKGROUND SOIL INVESTIGATION

APPENDIX F.1

BACKGROUND SOIL INVESTIGATION SAMPLING AND ANALYSIS REPORT



Kingston Fossil Plant Background Soil Investigation Sampling and Analysis Report

TDEC Commissioner's Order Environmental Investigation Plan Kingston Fossil Plant Harriman, Tennessee

November 14, 2023

Prepared for:

Tennessee Valley Authority Chattanooga, Tennessee



Prepared by:

Stantec Consulting Services Inc. Lexington, Kentucky

Revision Record

Revision	Description	Date
0	Submittal to TDEC	August 24, 2020
1	Addresses August 16, 2023 TDEC Review Comments and Issued for TDEC	November 14, 2023

Sign-off Sheet

This document entitled Kingston Fossil Plant Background Soil Investigation sampling and analysis report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Tennessee Valley Authority (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by

Anna Blair, Earth Scientist

J.M.K_ Reviewed by _ -

James M. Kerr, Jr., Senior Principal Geologist

Approved by

Rebekah Brooks, Principal Hydrogeologist

Table of Contents

ABBR	EVIATIONS	5	. 11
1.0	INTRODU	CTION	.1
2.0	OBJECTI	/E AND SCOPE	.3
3.0	FIELD AC	TIVITIES	.4
3.1	WORK LO	CATIONS	.4
	3.1.1	Soil Horizons	. 5
	3.1.2	Rock Outcrops	. 5
3.2	DOCUME	NTATION	.5
	3.2.1	Field Forms	. 5
	3.2.2	Equipment Calibration	.6
	3.2.3	Photographs	.7
3.3	SOIL BOR	INGS AND SAMPLING	.7
	3.3.1	Soil Borings	.7
	3.3.2	Soil Sampling	.9
3.4	ROCK OU	TCROP SURVEY	.9
3.5	INVESTIG	ATION DERIVED WASTE	10
3.6	SAMPLE S	SHIPMENT	11
3.7	VARIATIO	NS	11
	3.7.1	Variations in Scope	11
	3.7.2	Variations in Procedures	11
4.0	SUMMAR	Υ1	13
5.0	REFEREN	CES1	14

LIST OF APPENDICES

APPENDIX A EXHIBITS

- Exhibit A.1 Site Location Map
- Exhibit A.2 Background Soil Boring Location Map
- Exhibit A.3 Rock Outcrop Survey Area

APPENDIX B TABLES

Table B.1 Summary of Background Soil Samples

- Table B.2 Soil Analytical Results for Percent Ash, Metals, Anions, and General Chemistry
- Table B.3 Soil Analytical Results for Radiological Parameters

Table B.4 Soil Field pH Results

APPENDIX C SUBSURFACE LOGS

APPENDIX D PHOTOGRAPHIC LOGS

Attachment D.1Photographic Logs of Soil CoresAttachment D.2Photographic Logs of Rock Outcrops

Abbreviations

BGS	Background Soil
CCR	Coal Combustion Residuals
CCR Parameters	Constituents listed in Appendix III and IV of 40 CFR 257 and five inorganic constituents included in Appendix I of Tennessee Rule 0400- 11-01-04
CEC	Civil & Environmental Engineering Consultants, Inc.
CFR	Code of Federal Regulations
COC	Chain-of-Custody
DPT	Direct Push Technology
EAR	Environmental Assessment Report
EIP	Environmental Investigation Plan
ENV	Environmental
EnvStds	Environmental Standards, Inc.
FSP	Field Sampling Personnel
ft bgs	feet below ground surface
GPS	Global Positioning System
ID	Identification
IDW	Investigation derived waste
KIF Plant	Kingston Fossil Plant
IDW	Investigation derived waste
PG	Professional Geologist
PLM	Polarized Light Microscopy
QAPP	Quality Assurance Project Plan
QC	Quality Control
RJ Lee	RJ Lee Group, Inc.
SAP	Sampling and Analysis Plan
SAR	Sampling and Analysis Report
Stantec	Stantec Consulting Services Inc.
TDEC	Tennessee Department of Environment and Conservation
TDEC Order	Commissioner's Order OGC15-0177
TestAmerica	TestAmerica Laboratories, Inc.
ТІ	Technical Instruction
TVA	Tennessee Valley Authority

Introduction November 14, 2023

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has prepared this Sampling and Analysis Report (SAR) on behalf of the Tennessee Valley Authority (TVA) to document activities related to a Background Soil (BGS) investigation at TVA's Kingston Fossil (KIF) Plant located in Harriman, Tennessee, as shown on Exhibit A.1 (Appendix A).

The purpose of the BGS investigation is to collect soil samples to evaluate the background soil conditions at the KIF Plant in support of fulfilling the requirements for the Tennessee Department of Environment and Conservation (TDEC) issued Commissioner's Order No. OGC15-0177 (TDEC Order) to TVA (TDEC 2015). The TDEC Order sets forth a "process for the investigation, assessment, and remediation of unacceptable risks" at TVA's coal ash disposal sites in Tennessee.

The purpose of this SAR is to document the work completed during the BGS investigation and to present the information and data collected during the execution of the Background Soil Sampling and Analysis Plan (SAP) (Stantec 2018a). This SAR is not intended to provide conclusions or evaluations of results. The scope of the BGS investigation represented herein was conducted pursuant to the SAP and is part of a larger environmental investigation at the KIF Plant. The evaluation of the results will consider other aspects of the environmental investigation, as well as data collected under other State and/or coal combustion residuals (CCR) programs, and will be presented in the Environmental Assessment Report (EAR).

The BGS investigation activities were performed in general accordance with the following documents developed by TVA to support fulfilling the requirements of the TDEC Order at the KIF Plant:

- Background Soil SAP (Stantec 2018a)
- Environmental Investigation Plan (EIP) (Stantec 2018b)
- Quality Assurance Project Plan (QAPP) (Environmental Standards, Inc. 2018).

The BGS investigation was implemented in accordance with TVA- and TDEC-approved Programmatic and Project-specific changes. As approved by TDEC and described herein, soil samples were not collected for analysis of CCR-related constituents from a background well boring because a background well was not installed during implementation of the Hydrogeological Investigation SAP. This and minor variations in scope and procedures from those outlined in the Background Soil SAP and occurring during field activities due to field conditions and programmatic updates are referenced in Section 3.7.

The BGS sampling activities were completed in two field mobilization phases. Phase I field sampling activities were performed from March 11 through 28, 2019, and Phase II field sampling activities were performed on July 11, 2019. An additional sample was collected on February 25, 2020. A rock outcrop survey was also conducted on August 28 and 29, 2019.



Introduction November 14, 2023

Laboratory analysis of constituents was performed by TestAmerica Laboratories, Inc (TestAmerica) in Pittsburgh, Pennsylvania and St. Louis, Missouri (radium samples only) and by RJ Lee Group, Inc. (RJ Lee) in Monroeville, Pennsylvania (percent ash). Additional quality assurance oversight on data acquisition protocols, sampling practices, and data validation or verification was performed by Environmental Standards Inc. (EnvStds) under direct contract to TVA.

Objective and Scope November 14, 2023

2.0 OBJECTIVE AND SCOPE

The primary objective of the BGS investigation conducted pursuant to the Background Soil SAP was to collect soil samples for characterization of background soils on TVA property within the vicinity of the KIF Plant in response to the TDEC Order. The approach for the investigation was to:

- Identify locations where naturally occurring, in-situ, native soils unaffected by CCR material are present
- Mobilize a track mounted direct push technology (DPT) rig to staked boring locations approved by TDEC and considered suitable for the DPT rig to safely drill into the native underlying soils
- Advance the DPT rig and collect background soil samples for analyses.

The scope of work for the BGS investigation consisted of the following tasks:

- Verifying and documenting proposed sampling locations using global positioning system (GPS) survey
- Collecting field measurements of soil pH
- Collecting soil samples for laboratory analysis of CCR-related constituents as described in the SAP.

These activities were carried out concurrently with advancement of the soil borings.

In addition to the collection of soil samples, a rock outcrop survey was conducted. The scope of work of the survey consisted of the following tasks:

- Visually inspecting accessible rock and residuum outcrops in the vicinity of the KIF Plant to determine if naturally occurring sources of metallic ore minerals are present in the area
- Collecting rock samples with hand tools for further visual assessment where potential naturally
 occurring sources of metallic ore minerals were identified
- Recording sample collection locations using field GPS equipment.

Field Activities November 14, 2023

3.0 FIELD ACTIVITIES

BGS investigation field activities were conducted between March 11, 2019 and February 25, 2020. A rock outcrop survey was conducted on August 28 and 29, 2019. Soil samples that were collected from the 12 background soil borings are included with the BGS investigation. Prior to initiating field activities, TVA conducted environmental reviews, obtained permits, and performed utility clearances as necessary to complete the field work.

Stantec performed soil sample collection and rock outcrop survey activities based on guidance and specifications listed in TVA's Environmental (ENV) Technical Instructions (TIs), the SAP, and the QAPP (EnvStds 2018), except as noted in the Variations section of this report. As part of TVA's commitment to generate representative and reliable data, oversight of certain field activities, field documentation, centralized data management, and data validation or verification of laboratory analytical data was performed by EnvStds under direct contract with TVA. In addition, on behalf of TDEC, Civil and Environmental Consultants, Inc. (CEC) collected split soil samples at one boring location (KIF-BG11). Additional details of the CEC sample collection are provided in Section 3.3.1.

During the BGS investigation, Stantec conducted the following field activities:

- Verified boring locations proposed in the SAP using the GPS
- Collected GPS measurements at the boring locations
- Collected soil samples from 12 BGS boring locations
- Recorded field measurements of soil pH at the 12 sampled boring locations
- Collected quality control (QC) samples, including four matrix spike/matrix spike duplicates, five field duplicates, 12 field blanks, three equipment blanks and two liner blanks
- Conveyed collected samples via laboratory-provided courier service or Federal Express Shipment to TestAmerica and via Federal Express shipment to RJ Lee for analysis
- Visually inspected six rock outcrop areas
- Collected ten rock outcrop samples for further visual assessment.

Details on each activity are presented in the sections below.

3.1 WORK LOCATIONS

The BGS investigation field activities were conducted at 12 BGS boring and six rock outcrop locations near the KIF Plant under the BGS investigation scope of work. The BGS investigation boring locations and rock outcrop survey areas are shown on Exhibits A.2 and A.3 (Appendix A), respectively. A list of the BGS investigation borings and associated soil samples is included in Table B.1 (Appendix B).

Field Activities November 14, 2023

3.1.1 Soil Horizons

Surficial soil samples were typically collected at depths ranging from 0.0 to 0.5 feet below ground surface (ft bgs) using a hand auger. Along with surficial samples, the Field Sampling Personnel (FSP) collected approximately two feet of soil from each five-foot soil run (one foot in both directions from the midpoint of the five-foot interval) for the total depth of the boring. In cases where swelling soils occurred within the sample liners in excess of the planned five-foot run, a 2.5-foot run was used instead. When this occurred, the two-foot sample interval was collected proportionally from the bottom of the first 2.5-foot run and the top of the second 2.5-ft run representing the originally planned five-foot run interval. Samples were collected from multiple soil depths to provide data for vertical characterization of background soils.

3.1.2 Rock Outcrops

The rock outcrops were visually inspected for the presence of naturally occurring ore-related minerals. Visual inspections included removing weathered surficial rock or residuum (if necessary, to identify any ore-related minerals that might be present) and photographing the outcrops. Representative samples were generally collected directly from the outcrops using hand tools and retained for further visual assessment to inform a written description of the sample and sample analysis, as necessary. In areas where the outcrop consisted primarily of residuum and/or where outcrops had been anticipated to exist but were not found during the outcrop survey field work, grab samples were collected from float (i.e., pieces of rock that have been separated from nearby bedrock outcrops) present in those areas for further description. Outcrop strike and dip measurements were taken using a Brunton[®] Pocket Transit. The rock sample locations were recorded using field GPS equipment (Trimble[®] R1 unit).

3.2 DOCUMENTATION

Stantec planned the BGS investigation activities per ENV-TI-05.08.01, *Planning Sampling Events* and maintained field documentation in general accordance with ENV-TI-05.80.03, *Field Record Keeping* and the QAPP. Field activities and data were primarily recorded on program-specific field forms. Health and safety forms were completed in accordance with TVA and Stantec health and safety requirements. Additional information regarding field documentation is provided below.

3.2.1 Field Forms

Stantec used program-specific field forms to record field observations and data for specific activities. Field forms used during the BGS investigation included:

- Daily Field Activity Log
- Subsurface Log
- Soil pH Calibration and Inspection Log
- Soil pH Data Form
- Chain-of-Custody (COC).

Field Activities November 14, 2023

3.2.1.1 Daily Field Activity Log

Stantec FSP recorded daily field activities, observations, and data on a *Daily Field Activity Log* to chronologically document the field program. Deviations from the SAP or QAPP were also documented on the *Daily Field Activity Log*.

3.2.1.2 Subsurface Log

A Professional Geologist (PG) licensed in the State of Tennessee prepared a *Subsurface Log* for each boring. The log documented time, boring location, drilling personnel, tooling/equipment used, depth to water, sample number, sample recovery, subsurface lithology, and other relevant observations. Soil color was logged per the appropriate Munsell Soil Color Chart (Munsell Color 2009). The *Subsurface Logs* are provided in Appendix C.

3.2.1.3 Soil pH Calibration and Inspection Log

Stantec FSP recorded daily soil pH meter calibrations on a *Soil pH Calibration and Inspection Log* for each day that soil pH measurements were taken. The log documented temperature, temperature verification, temperature-adjusted calibration values, post calibration pH values, and calibration solution details. Additional information on equipment calibration is provided in Section 3.2.2.

3.2.1.4 Soil pH Data Form

Stantec FSP prepared a *Soil pH Data Form* for each day that soil pH measurements were taken. The form documented the sample identification (ID), boring ID, the depth range, pH measurement date and time, and the field pH value.

3.2.1.5 Chain-of-Custody Form

Stantec FSP completed *COC* documentation for each soil and outcrop sample collected for laboratory analysis during the BGS investigation. The sample ID, sample location, sample depth (if applicable), type of sample, sampling date and time, analyses requested, and sample custody record were recorded on the *COCs*. The Field Team Leader reviewed the *COCs* for completeness, and the FSP conducted a QC check of samples in each cooler compared to sample IDs on the corresponding *COC* prior to submittal to the laboratory. *COCs* were completed in general accordance with *ENV-TI-05.80.02:* Sample Labeling and *Custody*.

3.2.2 Equipment Calibration

Field instruments used to collect, generate, or measure environmental data were calibrated each day prior to sampling, as specified by the SAP, QAPP, and Stantec Standard Operating Procedure -REV 1 for measurement of soil pH for the ExTech ExStik 110 meter (Stantec 2018c). Temperature was recorded using a calibrated National Institute of Standards and Technology traceable thermometer. Additional details regarding equipment calibration were recorded on the *Soil pH Calibration and Inspection Logs*.

Field Activities November 14, 2023

3.2.3 Photographs

Photographs of the soil cores from boring activities and rock outcrop survey areas were taken during the BGS investigation. Photographic logs of BGS subsurface soil cores and the rock outcrop areas are provided in Attachments D.1 and D.2, respectively, in Appendix D.

3.3 SOIL BORINGS AND SAMPLING

3.3.1 Soil Borings

The BGS investigation borings were advanced by Hawkston Drilling, LLC, under Stantec oversight, using a DPT rig equipped with a 3.75-inch dual tube tooling system. The BGS investigation borings were advanced in two phases: Phase I - March 11 through 28, 2019, and Phase II - July 11, 2019. On February 25, 2020, a single sample was collected by hand auger. The boring locations are shown on Exhibit A.2. The two mobilizations were necessary to complete the defined scope of work.

A list of BGS investigation borings and associated soil samples collected is included in Table B.1; the locations of the BGS investigation borings are shown on Exhibit A.2. BGS investigation borings were advanced in the following chronological sequence:

- <u>KIF-BG07</u> On March 12, 2019, the DPT rig mobilized to location KIF-BG07. The DPT rig advanced one soil boring at this location. Refusal was encountered at 53.5 ft bgs. The boring was logged and sampled as KIF-BG07.
- <u>KIF-BG03</u> On March 13, 2019, the DPT rig mobilized to location KIF-BG03. The DPT rig advanced two soil borings at this location. Refusal was encountered at 14.1 ft bgs (first boring), and at 15.0 ft bgs (second boring). The first boring, drilled to 14.1 ft bgs, was logged and sampled as KIF-BG03. Samples from the deepest boring, drilled to 15.0 ft bgs, were not logged and sampled because they did not reach a significantly greater depth to allow for an additional sampling interval.
- <u>KIF-BG02</u> The original location of KIF-BG02 was within an area without required environmental reviews and was relocated with TDEC approval. On March 14, 2019, the DPT rig mobilized to location KIF-BG02. The DPT rig advanced three soil borings at this location. Refusal was encountered at 9.5 ft bgs (first boring), 9.5 ft bgs (second boring), and 15.5 ft bgs (third boring). The deepest boring, drilled to 15.5 ft bgs, was logged and sampled as KIF-BG02.
- <u>KIF-BG05</u> On March 18, 2019, the DPT rig mobilized to location KIF-BG05. The DPT rig advanced one boring at this location. Refusal was encountered at 29.3 ft bgs. The boring was logged and sampled as KIF-BG05.
- <u>KIF-BG04</u> On March 19, 2019, the DPT rig mobilized to location KIF-BG04. The DPT rig advanced three soil borings at this location. Refusal was encountered at 7.6 ft bgs (first boring), 11.1 ft bgs (second boring), and 8.0 ft bgs (third boring). The deepest boring, drilled to 11.1 ft bgs, was logged and sampled as KIF-BG04.

Field Activities November 14, 2023

<u>KIF-BG11</u> – On March 21, 2019, the DPT rig mobilized to location KIF-BG11. The DPT rig advanced three soil borings at this location. Refusal was encountered at 15.0 ft bgs (first boring), 10.0 ft bgs (second boring), and 40.4 ft bgs (third boring). The deepest boring, drilled to 40.4 ft bgs, was logged and sampled as KIF-BG11.

CEC collected split samples from 6.5 to 8.5 ft bgs, 16.5 to 18.5 ft bgs, and 26.5 to 28.5 ft bgs at KIF-BG11.

- <u>KIF-BG10</u> The original location of KIF-BG10 was moved with TDEC approval because of access restrictions. On March 25, 2019, the DPT rig mobilized to location BG10. The DPT rig advanced one soil boring at this location. Refusal was encountered at 22.2 ft bgs. The boring was logged and sampled as KIF-BG10.
- <u>KIF-BG08</u> On March 26, 2019, the DPT rig mobilized to location KIF-BG08. The DPT rig advanced one soil boring at this location. Refusal was encountered at 27.5 ft bgs. The boring was logged and sampled as KIF-BG08.
- <u>KIF-BG09</u> On March 26, 2019, the DPT rig mobilized to location KIF-BG09. The DPT rig advanced one soil boring at this location. Refusal was encountered at 31.8 ft bgs. The boring was logged and sampled as KIF-BG09.
- <u>KIF-BG12</u> March 27, 2019, the DPT rig mobilized to location KIF-BG12. The DPT rig advanced one soil boring at this location. Refusal was encountered at 37.0 ft bgs. The boring was logged and sampled as KIF-BG12.
- <u>KIF-BG01</u> On March 28, 2019, the DPT rig mobilized to location KIF-BG01. The DPT rig advanced three soil borings at this location. Refusal was encountered at 8.0 ft bgs (first boring), 5.1 ft bgs (second boring), and 6.9 ft bgs (third boring). The deepest boring, drilled to 8.0 ft bgs, was logged and sampled as KIF-BG01.
- <u>KIF-BG06</u> During the Phase I mobilization, the boring at KIF-BG06 encountered CCR material in the first soil sampling interval (0 – 5 ft bgs). Following TDEC approval, a revised boring location for KIF-BG06 was drilled on July 11, 2019, during the Phase II mobilization. The DPT rig advanced one soil boring at this location. Refusal was encountered at 9.5 ft bgs. The boring was logged and sampled as KIF-BG06. As described in Section 3.7.2., an additional sample was collected with a hand auger approximately 10 feet north of boring KIF-BG06 for polarized light microscopy (PLM) analysis on February 25, 2020. This sample location is noted as KIF-BG06A.

Following sample collection, as described in Section 3.3.2, the borings were backfilled using a 30 percent solids bentonite grout placed by the tremie method to within approximately six inches of the surface. The top six inches were restored to match the surrounding existing conditions.

Field Activities November 14, 2023

3.3.2 Soil Sampling

During advancement of each boring, a Tennessee-licensed PG prepared field subsurface logs using the *Subsurface Log* form. Each form includes a description of subsurface lithology, sample recovery, color using the Munsell Soil Color Charts and other relevant parameters as required by the SAP and TIs. As part of the logging process, soil cores were photographed by the FSP with interval data documented on a white board. Analytical and duplicate samples were collected from the BGS investigation borings and documented in the *Daily Field Activity Log* and *COC*, as shown on Table B.1.

The sampling team typically collected approximately two-foot grab samples from the mid-point of each five-foot soil run based on recovery, except as otherwise noted in the Variations section. The collected soil was placed in clean, resealable plastic bags and homogenized using gloved hands and when necessary clean, unused, disposable, or decontaminated sampling tools. Decontamination of sampling equipment was conducted in accordance with TVA, ENV-TI-05.80.05, *Field Sampling Equipment Cleaning and Decontamination*. Once the sample was sufficiently homogenized, an aliquot of the homogenized sample and deionized water was used to create a soil paste for measurement of the soil pH with the ExTech ExStik 110 pH meter according to Stantec Standard Operating Procedure – REV 1. The measurements were recorded on the *Soil pH Data Form* within 15 minutes after creating the soil paste.

Afterwards, the sample was placed in an appropriate laboratory-supplied sample container. Soil samples were collected in accordance with ENV-TI-05.80.50, *Soil and Sediment Sampling* and ENV-TI-05.80.04, *Field Sampling Quality Control*. Sample containers were labeled and handled in accordance with ENV-TI-05.80.02, *Sample Labeling and Custody*. FSP secured caps on each bottle and attached a custody seal across the cap before placing the sample container in a cooler with ice (within 15 minutes of sample collection) for shipment to the laboratory.

The samples were analyzed for CCR-related constituents listed in Appendices III and IV of Title 40 of the Code of Federal Regulations (CFR) Part 257 (40 CFR 257). In addition, five inorganic constituents listed in Appendix I of Tennessee Rule 0400-11-01-.04 and not included in the 40 CFR 257 Appendices III and IV were analyzed to maintain continuity with the TDEC environmental programs. These additional TDEC Appendix I constituents included copper, nickel, silver, vanadium, and zinc. The combined federal CCR Appendices III and IV constituents and TDEC Appendix I inorganic constituents are referred to as "CCR Parameters." In addition, surficial soil samples from each BGS investigation boring location were analyzed for the presence of ash (percent ash) by PLM.

3.4 ROCK OUTCROP SURVEY

The rock outcrop survey was conducted from August 28 to August 29, 2019. The survey areas are shown on Exhibit A.3. As part of the survey process, rock outcrops were photographed by the FSP with area name, and strike and dip documented on a white board. Additional photographs of individual rock specimens were taken using both 0X and 15X magnification to record visible information about the mineralogy. A photographic log for the rock outcrop survey is provided in Appendix D.2.

Field Activities November 14, 2023

The survey was completed in the following chronological sequence:

- Area 03 On August 28, 2019, the survey team mobilized to location Area 03. Two rock samples were collected from the outcrops (KIF-ROC-AREA03-01 and KIF-ROC-AREA03-02).
- Area 06 On August 28, 2019, the survey team mobilized to location Area 06. One rock sample was collected from the outcrops (KIF-ROC-AREA06-01).
- Area 01 On August 29, 2019, the survey team mobilized to location Area 01. Three rock samples were collected from the outcrops (KIF-ROC-AREA01-01, KIF-ROC-AREA01-02, and KIF-ROC-AREA01-03).
- Area 02 On August 29, 2019, the survey team mobilized to location Area 02. One rock sample was collected from the outcrops (KIF-ROC-AREA02-01).
- Area 04 On August 29, 2019, the survey team mobilized to location Area 04. One grab sample of float was collected (KIF-ROC-AREA04-G1).
- Area 05 On August 29, 2019, the survey team mobilized to location Area 05. Two rock samples were collected from the outcrops (KIF-ROC-AREA05-01 and KIF-ROC-AREA05-02) and one grab sample of float was collected (KIF-ROC-AREA05-G1).

3.5 INVESTIGATION DERIVED WASTE

Investigation derived waste (IDW) generated during the BGS investigation included:

- Used calibration solutions
- Soil cuttings
- Personal protective equipment
- Decontamination fluids
- General trash.

Soil cuttings and decontamination water produced during the BGS investigation were dispersed to the ground surface as authorized by TVA KIF Plant personnel and in accordance with ENV-TI-05.80.05, *Field Sampling Equipment Cleaning and Decontamination* and the Background Soil SAP. Where CCR materials were encountered during the advancement of the background soil borings, soil cuttings and decontamination water, along with other IDW, were handled in accordance with KIF Plant-specific waste management plan, and local, state, and federal regulations. Transportation and disposal of IDW was coordinated with TVA KIF Plant personnel.

Field Activities November 14, 2023

3.6 SAMPLE SHIPMENT

Soil samples were packed and transported or shipped under *COC* procedures as required by ENV-TI-05.80.06, *Handling and Shipping of Samples* and ENV-TI-05.80.02, *Sample Labeling and Custody*. The soil samples were shipped to TestAmerica in St. Louis, Missouri (radium analysis only) and delivered via courier to TestAmerica in Nashville, Tennessee and then subsequently shipped to TestAmerica in Pittsburgh, Pennsylvania (all other analyses). The samples to be analyzed by PLM (percent ash) were shipped to RJ Lee located in Monroeville, Pennsylvania. TestAmerica submitted sample receipt forms to EnvStds to document the condition in which the samples were received. Rock outcrop samples collected were transported by Stantec field personnel to the Lexington, Kentucky, Stantec office for additional visual inspection and photo documentation.

3.7 VARIATIONS

The proposed scope and procedures for the BGS investigation were outlined in the SAP, QAPP, and applicable TVA TIs, as detailed in the sections above. Variations in scope or procedures discussed with TDEC and/or TVA, changes based on field conditions, or additional field sampling performed to complete the scope of work in the SAP are described in the following sections. As discussed below, these variations do not impact the overall usability and representativeness of the data provided in this SAR for the BGS investigation at the KIF Plant.

3.7.1 Variations in Scope

Variations in scope are provided below.

- Soil samples were not collected within the screened interval of proposed background monitoring well KIF-102 because 11 borings in the exploration area for this location did not encounter groundwater, and the well was not installed. This change was approved by TDEC.
- Background soil boring KIF-BG02 was relocated as approved by TDEC because it was originally located in an area lacking required environmental surveys.
- Background soil boring KIF-BG06 was relocated as approved by TDEC because CCR material was encountered within the surficial sample.
- Background soil boring KIF-BG10 was relocated as approved by TDEC because of access restrictions.

3.7.2 Variations in Procedures

Variations in procedures occurring in the field are provided below.

• Soil cores were collected in 2.5-foot intervals instead of 5.0-foot intervals as specified in the SAP during boring advancement from the ground surface to the top of bedrock/partially weathered rock/weathered rock (refusal) at borings KIF-BG08, KIF-BG10, KIF-BG11, and KIF-BG12 to allow

Field Activities November 14, 2023

for swelling soils. The soil cores were collected continuously; therefore, there were no gaps in record due to the change in core intervals.

- The soil sample collected for PLM analysis at boring KIF-BG06 was collected by hand auger on a different day and at an offset location (approximately 10 feet to the north) than the samples collected at the original boring. The sample collected for the PLM analysis is considered to be representative of the original boring location.
- The frequency of field QC sample collection did not meet the specific QAPP and SAP requirements. The results of the collected field QC samples were evaluated as part of the data validation/verification process performed by EnvStds.

Summary November 14, 2023

4.0 SUMMARY

The data presented in this report are from the BGS investigation at the KIF Plant. The BGS investigation included collecting soil analytical samples to assess CCR Parameters and percent ash. A total of 80 soil samples, including five duplicate samples, were collected from the 12 BGS borings (KIF-BG01 through KIF-BG12) and analyzed for CCR Parameters. Surficial soil samples from each BGS investigation boring location were analyzed for the presence of ash (percent ash) by PLM. Soil samples were also tested for pH in the field.

A list of samples collected, along with duplicates, is presented in Table B.1. The soil analytical data are presented in Tables B.2 and B.3, and the field soil pH data are summarized in Table B.4. Analytical data were reported by TestAmerica and RJ Lee and validated by EnvStds.

Additionally, a rock outcrop survey was conducted near the KIF Plant to determine if naturally occurring sources of metallic ore minerals are present in the area. Six rock outcrop areas were documented and sampled.

Stantec has completed the BGS investigation at the KIF Plant in Harriman, Tennessee, in accordance with the Background Soil SAP documented herein. The data collected during the BGS investigation are usable for reporting and evaluation in the EAR and meet the objectives of the TDEC Order EIP. The complete dataset from this investigation will be evaluated along with data collected under other TDEC Order SAPs, as well as data collected under other State and CCR programs. This evaluation will be provided in the EAR.

References November 14, 2023

5.0 REFERENCES

- Environmental Standards, Inc. 2018. *Quality Assurance Project Plan for the Tennessee Valley Authority Kingston Fossil Plant Environmental Investigation*. Prepared for Tennessee Valley Authority. Revision 3. November 2018.
- Munsell Color. 2009. Munsell Soil Color Book.
- Stantec Consulting Services Inc. (Stantec). 2018a. *Background Soil Sampling and Analysis Plan, Kingston Fossil Plant.* Revision 4. Prepared for Tennessee Valley Authority. November 9, 2018.
- Stantec. 2018b. *Environmental Investigation Plan, Kingston Fossil Plant.* Revision 4. Prepared for Tennessee Valley Authority. November 9, 2018.
- Stantec. 2018c. Standard Operating Procedures REV 1 for the ExTech ExStik 110 meter. September 5, 2018.
- Tennessee Department of Environment and Conservation (TDEC). *Commissioner's Order No. OGC15-*0177. August 6, 2015.

Tennessee Valley Authority (TVA), ENV-TI-05.80.02, Sample Labeling and Custody.

TVA, ENV-TI-05.80.03, Field Record Keeping.

TVA, ENV-TI-05.80.04, Field Sampling Quality Control.

TVA, ENV-TI-05.80.05, Field Sampling Equipment Cleaning and Decontamination.

TVA, ENV-TI-05.80.06, Handling and Shipping of Samples.

TVA, ENV-TI-05.80.50, Soil and Sediment Sampling.

APPENDIX A - EXHIBITS



Exhibit No.

A.1

Title

Site Location Map

Client/Project

Tennessee Valley Authority Kingston Fossil Plant (KIF) TDEC Order

Project Locati	on			175668			
Roane County	y, Tennes	ssee		Prepared by MB on 2020-05-19 Technical Review by AB on 2020-05-19			
C)	1,000	2,000	3,000	4,000 Feet		
Legen	1:12, d	000 (At orig	inal docume	ent size of 22	(34)		

CCR Unit Area (Approximate)



Polishing Pond (Approximate)

Engineered Wetlands (Approximate)

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet 2. Topographic mapping corresponds to the Harriman Quadrangle (Edition of 2019, Scale 1:24,000) and the Elverton Quadrangle (Edition of 2019, Scale 1:24,000)

















Exhibit No.

A.2

Background Soil Boring Location Map

Client/Project

Tennessee Valley Authority Kingston Fossil Plant (KIF) TDEC Order

Project L Roane	ocation County, Tenne	essee	ī	17566 Prepared by MB on 2020 Technical Review by AB on 2020				
	0	800	1,600	2,400	3,200 Feet			
	1:9,	600 (At origir	nal documer	nt size of 22x3	4)			
Leg	end							
۲	Backgrou	nd Soil Boring	J					
	2017 lmag	gery Bounda	ry					
	2018 lmag	gery Bounda	ry					
	CCR Unit	Area (Appro	ximate)					
	Engineere	ed Wetlands	(Approximat	e)				
	Polishing I	Pond (Appro	ximate)					



Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet 2. Imagery provided by TVA and flown by Tuck Mapping on March 16, 2017; 2018 Imagery provided by TVA and is dated September 12, 2018 and ESRI World Imagery







Exhibit No. **A.3**

Title

Rock Outcrop Survey Area

Client/Project

Tennessee Valley Authority Kingston Fossil Plant (KIF) TDEC Order

Project Lo	ocation		175668043			
Roane C	County, Teni	nessee		Prepar Technical Re	ed by DMB on 202 view by EM on 202	20-07-29 20-07-29
	0	400	800	1,200	1,600	
	1:	4,800 (At ori	ginal docun	nent size of 22	2x34)	
Lege	end					
\bullet	Rock Sa	mple				
	Rock Ou	utcrop Surve	ey Area			
	2018 lma	agery Bound	dary			
	2019 lma	agery Bound	darv			

KIF Study Area Boundary

TVA Property Boundary (Approximate)

CCR Unit Area (Approximate)

Engineered Wetlands Area (Approximate)

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet 2. Imagery provided by TVA and flown by Tuck Mapping on March 16, 2017; 2018 and 2019 Imagery provided by TVA and are dated September 12, 2018 and March 7, 2019



APPENDIX B - TABLES

Laces of the start of the s								Analysis Type		
Part of the sector of	Location ID	Sample ID	Sample Type	% Ash	Total Metals	Total Mercury	Anions	pH (laboratory)	pH (field)	Radium-226, Radium-228, Radium-226+228
HP IDCalibry Control (Control)Calibry Control (Control)Calibry Control)Calibry Control)<		KIF-BS-BG01-0.0/0.5-20190328	Normal Environmental Sample	х	х	х	х	х	х	х
Physical startPhysical startPhysi	KIF-BG01	KIF-BS-BG01-1.5/3.5-20190328	Normal Environmental Sample		х	х	х	х	х	х
Hard state Hard state I		KIF-BS-BG01-6.0/8.0-20190328	Normal Environmental Sample		х	х	х	х	х	х
<table-container> Base of the sector o</table-container>		KIF-BS-BG02-0.0/0.5-20190314	Normal Environmental Sample	х	х	х	х	х	х	х
<table-container>14 Model17 # deficit 2.32 Since 1.Nome Exclusion symple111<</table-container>		KIF-BS-BG02-0.7/2.7-20190314	Normal Environmental Sample		х	х	х	х	х	х
[248.001.94.03.0004] Num Fakomention I	KIF-BG02	KIF-BS-BG02-6.5/8.5-20190314	Normal Environmental Sample		х	х	х	х	х	х
<th< td=""><td></td><td>KIF-BS-BG02-11.0/14.0-20190314</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td></th<>		KIF-BS-BG02-11.0/14.0-20190314	Normal Environmental Sample		х	х	х	х	х	х
<table-container> Image: Section of the secti</table-container>		KIF-BS-DUP01-20190314	Field Duplicate Sample		х	х	х	х		х
<table-container> мня мня мня м м M<</table-container>		KIF-BS-BG03-0.0/0.5-20190313	Normal Environmental Sample	х	х	х	х	х	х	х
Minedul If Al. 685,435,250 [M13] None Recommendatory I I I I		KIF-BS-BG03-1.5/3.5-20190313	Normal Environmental Sample		х	х	х	х	х	х
IPA-8601 V171-5200371Non-InformationII	NIF-BGU3	KIF-BS-BG03-6.5/8.5-20190313	Normal Environmental Sample		х	х	х	х	х	х
bit B		KIF-BS-BG03-11.5/13.5-20190313	Normal Environmental Sample		х	х	х	х	х	х
<table-container>Phema<th< td=""><td></td><td>KIF-BS-BG04-0.0/0.5-20190319</td><td>Normal Environmental Sample</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td></th<></table-container>		KIF-BS-BG04-0.0/0.5-20190319	Normal Environmental Sample	х	х	х	х	х	х	х
Original part of the second		KIF-BS-BG04-0.0/1.9-20190319	Normal Environmental Sample		х	х	х	х	х	x
III-3000-300112-0200219Nome forwarental sequeINNNNNNNNNNNFN 8800-600-300112-0200-30Norme Processental SequeNNN	KIF-BG04	KIF-BS-BG04-5.0/7.7-20190319	Normal Environmental Sample		х	х	х	х	х	х
InteractionInteractionInteractionInteractionInteractionInteractionInteractionInteractionInteractionKF 48054R5 48054R5 4051373R5 10733R5		KIF-BS-BG04-10.0/11.1-20190319	Normal Environmental Sample		х	х	х	х	х	х
International International		KIF-BS-BG05-0.0/0.5-20190318	Normal Environmental Sample	х	х	х	х	х	х	х
<table-container> Brt Bisson 11, V12, 2019038 Name Noncommental Sample I N N N N N N N N Inf-Sector 201, V12, 2019038 Name Noncommental Sample I N<td></td><td>KIF-BS-BG05-6.5/8.5-20190318</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td></table-container>		KIF-BS-BG05-6.5/8.5-20190318	Normal Environmental Sample		х	х	х	х	х	х
<table-container> One Norm Ref Res 16, May 5, 20190318 Normal inversional Single I N</table-container>		KIF-BS-BG05-11.5/13.5-20190318	Normal Environmental Sample		х	х	х	х	х	x
Inf-secory-1.02.00.00131Normal Normal SangleI.V.N.V.N.V.Normal Normal SangleN.V.N.V.Normal Normal SangleN.V.N.V.Normal Normal SangleN.V.	KIF-BG05	KIF-BS-BG05-16.5/18.5-20190318	Normal Environmental Sample		х	х	х	х	х	х
Infersion Starts - 2010313Nome Involuncental sampleIII		KIF-BS-BG05-21.0/24.0-20190318	Normal Environmental Sample		х	х	х	х	х	х
Interpretation Interpretation N Interpretation N Interpretation N Interpretation N Interpretation N		KIF-BS-BG05-26.5/28.5-20190318	Normal Environmental Sample		х	х	х	х	х	х
NH-8000 Normal involvemental sequel N Image Im		KIF-BS-BG06A-0.0/0.5-20200225	Normal Environmental Sample	х						
KF-8000 Line Source Control Interaction of the Sour		KIF-BS-DUP01-20200225	Field Duplicate Sample	х						
MP B00 Field Digital Sample Image Image<		KIF-BS-BG06-0.0/0.5-20190711	Normal Environmental Sample		х	х	х	х	х	x
If #5 8601 5/3 5 2030711Normal Environmental SampleICKKK	KIF-BG06	KIF-BS-DUP01-20190711	Field Duplicate Sample		х	х	х	х		х
International International<		KIF-BS-BG06-1.5/3.5-20190711	Normal Environmental Sample		х	х	х	х	х	х
kF = 8-907-0.00-5-20190312 Normal Environmental Sample x <		KIF-BS-BG06-6.0/8.0-20190711	Normal Environmental Sample		х	х	х	х	х	х
KIF 85607Nomal isoronmental SampleINNNNNKIF 85607Nomal isoronmental SampleINNNNNNKIF 85607Nomal isoronmental SampleINNNNNNNKIF 85607Nomal isoronmental SampleINNNNNNNNKIF 85607Nomal isoronmental SampleINNN <td></td> <td>KIF-BS-BG07-0.0/0.5-20190312</td> <td>Normal Environmental Sample</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>x</td>		KIF-BS-BG07-0.0/0.5-20190312	Normal Environmental Sample	х	х	х	х	х	х	x
Hess Hess Fess<		KIF-BS-BG07-1.5/3.5-20190312	Normal Environmental Sample		х	х	х	х	х	x
KH-5607-15/15.20190312Normal Environmental sampleImageNormal Environmental sampleNormal Environmental sampleNorma		KIF-BS-BG07-6.5/8.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KIF-B607Infer 8 5607-16.5/18.5 20190312Normal Environmental SampleIncxxxxxxxInfer 8 5607-18.5/18.5 20190312Normal Environmental SampleIncXX <t< td=""><td></td><td>KIF-BS-BG07-11.5/13.5-20190312</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td></t<>		KIF-BS-BG07-11.5/13.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KiF 8607 Lif P48-5607-21,573-20190312 Normal Environmental Sample x		KIF-BS-BG07-16.5/18.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KH-B5.607 SC282-5203032 Normal Environmental sample x		KIF-BS-BG07-21.5/23.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
kFr-85-8607-315/33-20190312Normal Environmental SamplexxxxxxKF-85-8607-365/38-5.20190312Normal Environmental Samplexx	KIF-BGU7	KIF-BS-BG07-26.5/28.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KF-85-607-55/38.5-20190312Normal Environmental SampleNNNNNNNKF-85-607-45.5/48.5-20190312Normal Environmental SampleNNN<		KIF-BS-BG07-31.5/33.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KF-85-807-41.5y/3.5.20190312Normal Environmental SampleNNNNNNNKF-85-807-45.5y/3.5.20190312Normal Environmental SampleNNN <td></td> <td>KIF-BS-BG07-36.5/38.5-20190312</td> <td>Normal Environmental Sample</td> <td></td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>x</td>		KIF-BS-BG07-36.5/38.5-20190312	Normal Environmental Sample		х	х	х	х	х	x
KiF-85 e607-65/48-20190312Normal Environmental SamplexxxxxxxxKiF-85 e607-51/53 - 20190326Normal Environmental Samplexx<		KIF-BS-BG07-41.5/43.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KIF-85-607-51.5/3.5.2019032Normal Environmental Samplexx <t< td=""><td></td><td>KIF-BS-BG07-46.5/48.5-20190312</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td></t<>		KIF-BS-BG07-46.5/48.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
kif-8s-8608-0/0.5-20190326Normal Environmental Samplexx <th< td=""><td></td><td>KIF-BS-BG07-51.5/53.5-20190312</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td></th<>		KIF-BS-BG07-51.5/53.5-20190312	Normal Environmental Sample		х	х	х	х	х	х
KIF-85-608-1.5/3.5-20190326Normal Environmental SampleNNNNNNNNNKIF-85-608-1.5/3.5-20190326Normal Environmental SampleINN<		KIF-BS-BG08-0.0/0.5-20190326	Normal Environmental Sample	х	х	х	х	Х	х	х
KIF-B69KIF-B6908-15.20190326Normal Environmental SampleNNN <t< td=""><td></td><td>KIF-BS-BG08-1.5/3.5-20190326</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>x</td></t<>		KIF-BS-BG08-1.5/3.5-20190326	Normal Environmental Sample		х	х	х	х	х	x
KIF-B608KIF-B5-00326Normal Environmental SampleNNNNNNNNKIF-B5-003-16.5/13.5-20190326Normal Environmental SampleNN </td <td></td> <td>KIF-BS-BG08-6.5/8.5-20190326</td> <td>Normal Environmental Sample</td> <td></td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>x</td>		KIF-BS-BG08-6.5/8.5-20190326	Normal Environmental Sample		х	х	х	х	х	x
KlFs5608-16,518.520190326Normal Environmental SampleNN	KIF-BG08	KIF-BS-BG08-11.5/13.5-20190326	Normal Environmental Sample		х	х	х	х	х	x
KIF-BS-080-21.5/23.5-20190326Normal Environmental SamplexxxxxxxxKIF-BS-080-26.5/27.5-20190326Normal Environmental Samplexx </td <td></td> <td>KIF-BS-BG08-16.5/18.5-20190326</td> <td>Normal Environmental Sample</td> <td></td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td> <td>х</td>		KIF-BS-BG08-16.5/18.5-20190326	Normal Environmental Sample		х	х	х	х	х	х
KIF-Bs-G08-26,5/27.520190326 Normal Environmental Sample x		KIF-BS-BG08-21.5/23.5-20190326	Normal Environmental Sample		х	х	х	Х	х	х
KIPBS 609-0/0.520190326 Normal Environmental Sample x <th< td=""><td></td><td>KIF-BS-BG08-26.5/27.5-20190326</td><td>Normal Environmental Sample</td><td></td><td>х</td><td>х</td><td>х</td><td>х</td><td>х</td><td>x</td></th<>		KIF-BS-BG08-26.5/27.5-20190326	Normal Environmental Sample		х	х	х	х	х	x
KIF-BS-DUP03-20190326Field Duplicate SamplexxxxxxKIF-BS-BG09-1.5/3.5-20190326Normal Environmental Sample0xxxxxxxKIF-BS-BG09-1.5/3.5-20190326Normal Environmental Sample0xxxxxxxxxKIF-BS-BG09-1.5/3.5-20190326Normal Environmental Sample0xx </td <td></td> <td>KIF-BS-BG09-0.0/0.5-20190326</td> <td>Normal Environmental Sample</td> <td>Х</td> <td>х</td> <td>x</td> <td>x</td> <td>x</td> <td>х</td> <td>х</td>		KIF-BS-BG09-0.0/0.5-20190326	Normal Environmental Sample	Х	х	x	x	x	х	х
KIF-BS-BG09-1.5/3.5-20190326 Normal Environmental Sample x		KIF-BS-DUP03-20190326	Field Duplicate Sample	х	x	x	x	Х		х
KIF-BG09 KIF-BS-BG09-6.5/8.5-20190326 Normal Environmental Sample x		KIF-BS-BG09-1.5/3.5-20190326	Normal Environmental Sample		x	x	x	x	x	x
NF-BOD NF-BOD Normal Environmental Sample x x x x x x x KIF-BS-BG09-16.5/18.5-20190326 Normal Environmental Sample x		KIF-BS-BG09-6.5/8.5-20190326	Normal Environmental Sample		x	x	x	х	х	x
KIF-BS-BG09-16.5/18.5-20190326Normal Environmental SamplexxxxxKIF-BS-BG09-21.5/23.5-20190326Normal Environmental SamplexxxxxxKIF-BS-BG09-26.5/28.5-20190326Normal Environmental Samplexxxxxx		KIF-BS-BG09-11.5/13.5-20190326	Normal Environmental Sample		x	x	x	X	Х	х
KIF-BS-BG09-21.5/23.5-20190326 Normal Environmental Sample x		KIF-BS-BG09-16.5/18.5-20190326	Normal Environmental Sample		x	x	x	x	x	x
KIF-BS-BG09-26.5/28.5-20190326 Normal Environmental Sample x x x x x x x x		KIF-BS-BG09-21.5/23.5-20190326	Normal Environmental Sample		х	x	x	х	х	x
		KIF-BS-BG09-26.5/28.5-20190326	Normal Environmental Sample		x	х	x	х	х	х

							Analysis Type		
Location ID	Sample ID	Sample Type	% Ash	Total Metals	Total Mercury	Anions	pH (laboratory)	pH (field)	Radium-226, Radium-228, Radium-226+228
	KIF-BS-BG10-0.0/0.5-20190325	Normal Environmental Sample	x	х	х	х	х	х	x
	KIF-BS-BG10-0.0/2.2-20190325	Normal Environmental Sample		х	х	х	х	Х	х
KIE PC10	KIF-BS-BG10-6.5/8.5-20190325	Normal Environmental Sample		х	х	х	х	х	x
KII-5010	KIF-BS-BG10-11.5/13.5-20190325	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG10-16.5/18.5-20190325	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG10-20.0/22.2-20190325	Normal Environmental Sample		х	х	х	х	х	х
	KIF-BS-BG11-0.0/0.5-20190322	Normal Environmental Sample	х	х	х	х	х	х	х
	KIF-BS-BG11-1.5/3.5-20190321	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG11-6.5/8.5-20190321	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG11-11.5/13.5-20190321	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG11-16.5/18.5-20190321	Normal Environmental Sample		х	х	х	х	х	Х
KII-0011	KIF-BS-BG11-21.5/23.5-20190321	Normal Environmental Sample	x		х	х	х	х	Х
	KIF-BS-DUP02-20190321	Field Duplicate Sample		х	х	х	х		Х
	KIF-BS-BG11-26.5/28.5-20190321	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG11-31.5/33.5-20190322	Normal Environmental Sample		х	х	х	х	х	х
	KIF-BS-BG11-36.5/38.5-20190322	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG12-0.0/0.5-20190327	Normal Environmental Sample	х	х	х	х	х	х	Х
	KIF-BS-BG12-1.5/3.5-20190327	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG12-6.5/8.5-20190327	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG12-11.5/13.5-20190327	Normal Environmental Sample		х	х	х	х	х	Х
KIF-BG12	KIF-BS-BG12-16.5/18.5-20190327	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG12-21.5/23.5-20190327	Normal Environmental Sample		х	х	х	х	х	Х
	KIF-BS-BG12-26.5/28.5-20190327	Normal Environmental Sample		х	x	х	х	x	x
	KIF-BS-BG12-31.5/33.5-20190327	Normal Environmental Sample		х	x	x	x	x	X
	KIF-BS-BG12-35.0/37.0-20190327	Normal Environmental Sample		x	x	x	x	x	x

Notes

% Ash	PLM
Total Metals	SW-846 6020A
Total Mercury	SW-846 7471B
Anions	SW-846 9056A
pH (laboratory)	SW-846 9045D
Radium-226, Radium-228, Radium-226+228	EPA 901.1
ID	identification

1. Field and laboratory quality control sample results except for field duplicates are not included in report tables but were used for data validation.

Sample Location	1	1	KIF-BG01			KIF-I	BG02	
Sample Date Sample ID		28-Mar-19 KIF-BS-BG01-0.0/0.5-20190328	28-Mar-19 KIF-BS-BG01-1.5/3.5-20190328	28-Mar-19 KIF-BS-BG01-6.0/8.0-20190328	14-Mar-19 KIF-BS-BG02-0.0/0.5-20190314	14-Mar-19 KIF-BS-BG02-0.7/2.7-20190314	14-Mar-19 KIF-BS-BG02-6.5/8.5-20190314	14-Mar-19 KIF-BS-BG02-11.0/14.0-20190314
Sample Depth Sample Type Level of Review		0 - 0.5 π Normal Environmental Sample Final-Verified	1.5 - 3.5 π Normal Environmental Sample Final-Verified	6 - 8 π Normal Environmental Sample Final-Verified	0 - 0.5 π Normal Environmental Sample Final-Verified	0.7 - 2.7 π Normal Environmental Sample Final-Verified	6.5 - 8.5 π Normal Environmental Sample Final-Verified	11 - 14 π Normal Environmental Sample Final-Verified
	Units							
PLM								
% ASH	%	3	-	-	4	-	-	-
Total Metals								
Antimony	mg/kg	0.0868 J	0.165 J	<0.0721	0.218 J	0.138 J	<0.0751	<0.0719
Arsenic	mg/kg	2.42	5.25	1.59	5.71	4.59	3.84	3.06
Barium	mg/kg	80.3	107	151	83.6	143	81.9	130
Beryllium	mg/kg	0.870	0.654	0.966	0.573	0.557	0.576	1.35
Boron	mg/kg	2.67 J	2.55 J	4.63 J	3.52 J	2.47 J	2.30 J	3.20 J
Cadmium	mg/kg	0.0621 J	0.0474 J	<0.0198	0.0818 J	<0.0201	<0.0206	<0.0197
Calcium	mg/kg	1,450	2,280	2,530	3,030	621	35.6 J	587
Chromium	mg/kg	22.3	19.3	30.2	14.9	21.2	19.4	30.5
Cobalt	mg/kg	13.2	28.1	14.4	9.03	7.71	7.37	16.5
Copper	mg/kg	12.4	9.53	21.0	9.92	11.9	9.90	19.0
Lead	mg/kg	14.1	17.1	7.99	17.9	25.4	10.5	9.74
Lithium	mg/kg	14.9	11.0	28.5	7.12	12.4	12.8	26.4
Mercury	mg/kg	0.0420	0.0439	<0.0155	0.0562 U*	0.0483 U*	0.0310 U*	<0.0162
Molybdenum	mg/kg	0.284 J	0.691	<0.190	0.886	0.688	0.312 J	<0.189
Nickel	mg/kg	16.9	11.6	33.3	8.85	10.8	9.36	33.3
Selenium	mg/kg	0.450 J	0.833	0.465 J	1.30	0.888	0.942	1.23
Silver	mg/kg	<0.0334	<0.0316	<0.0314	<0.0390	<0.0319	<0.0327	<0.0313
Thallium	mg/kg	0.185	0.259	0.237	0.221	0.296	0.186	0.251
Vanadium	mg/kg	18.5	21.2	18.7	25.6	30.2	25.1	23.8
Zinc	mg/kg	40.0	22.9	48.8	44.3	29.6	24.6	62.0
Anions								
Chloride	mg/kg	<4.71	<4.62	<4.11	<5.62	<4.57	6.83 J	<4.48
Fluoride	mg/kg	2.67 J	0.810 UR	3.17 J	1.23 J	<0.801	<0.813	<0.785
Sulfate	mg/kg	30.1 J	213 J	30.2 J	<9.83	21.8	<8.12	<7.84
General Chemist	ry							
pH (lab)	SU	7.0	6.7	8.1	6.8	5.4	4.8	5.4
		See notes on last page.						



Sample Location	1	KIF-BG02		KIF-I	3G03		KIF-I	BG04
Sample Date Sample ID		14-Mar-19 KIF-BS-DUP01-20190314	13-Mar-19 KIF-BS-BG03-0.0/0.5-20190313	13-Mar-19 KIF-BS-BG03-1.5/3.5-20190313	13-Mar-19 KIF-BS-BG03-6.5/8.5-20190313	13-Mar-19 KIF-BS-BG03-11.5/13.5-20190313	19-Mar-19 KIF-BS-BG04-0.0/0.5-20190319	19-Mar-19 KIF-BS-BG04-0.0/1.9-20190319
Sample Depth		11 - 14 ft	0 - 0.5 ft	1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	0 - 0.5 ft	0 - 1.9 ft
Sample Type		Field Duplicate Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units							
PLM								
% ASH	%	-	2	-	-	-	<1	-
Total Metals								
Antimony	mg/kg	<0.0714	0.271 J	0.0955 J	<0.0815	<0.0829	0.0875 J	0.0783 UJ
Arsenic	mg/kg	3.32	11.9	4.11	2.91	4.97	4.07 J	3.62 J
Barium	mg/kg	137	122	59.0	141	92.4	105	114
Beryllium	mg/kg	1.34	1.02	0.949	1.09	1.63	1.07	1.05
Boron	mg/kg	3.39 J	9.51 J	6.65 J	7.99 J	7.63 J	3.09 J	3.03 J
Cadmium	mg/kg	<0.0196	0.188	0.128 J	<0.0223	<0.0227	0.0388 J	0.0313 J
Calcium	mg/kg	655	15,400	13,500	651	113	906	711
Chromium	mg/kg	30.5	30.1	25.4	31.1	28.8	30.1	32.8
Cobalt	mg/kg	21.2	17.2	13.4	21.5	32.2	20.1	20.0
Copper	mg/kg	19.5	20.6	17.2	21.3	26.1	25.4 J	28.0 J
Lead	mg/kg	9.56	49.6	14.5	23.5	15.5	12.7	10.5
Lithium	mg/kg	26.7	15.6	10.2	13.3	14.7	20.2 J	18.1 J
Mercury	mg/kg	<0.0155	0.0722 U*	0.0339 U*	<0.0205	0.0189 U*	0.0189 J	0.0175 J
Molybdenum	mg/kg	<0.188	1.51	0.461 J	<0.214	0.318 J	0.235 J	0.249 J
Nickel	mg/kg	34.2	21.1	23.1	27.7	20.9	30.6	35.6
Selenium	mg/kg	1.29	1.60	0.943	0.640 J	1.10	0.783 J	0.610 J
Silver	mg/kg	<0.0311	<0.0380	<0.0348	<0.0355	<0.0361	< 0.0304	<0.0341
Thallium	mg/kg	0.262	0.438	0.254	0.417	0.320	0.239	0.266
Vanadium	mg/kg	24.5	32.7	21.6	26.7	27.7	26.0	27.5
Zinc	mg/kg	64.0	55.6	32.4	35.1	39.2	58.1	58.0
Anions								
Chloride	mg/kg	<4.51	<5.14	<4.87	<5.15	<5.27	<4.52	<4.53
Fluoride	mg/kg	<0.791	3.42	2.73	<0.903	<0.924	0.792 UJ	<0.793
Sulfate	mg/kg	<7.90	19.8	35.5	55.3	20.8	8.35 J	21.1
General Chemistry	1							
pH (lab)	SU	5.5	7.7	8.1	5.0	5.0	5.5	5.9
		See notes on last page.						

Sample Location	I	KIF-	BG04			KIF-BG05		
Sample Date		19-Mar-19	19-Mar-19	18-Mar-19	18-Mar-19	18-Mar-19	18-Mar-19	18-Mar-19
Sample ID		KIF-BS-BG04-5.0/7.7-20190319	KIF-BS-BG04-10.0/11.1-20190319	KIF-BS-BG05-0.0/0.5-20190318	KIF-BS-BG05-6.5/8.5-20190318	KIF-BS-BG05-11.5/13.5-20190318	KIF-BS-BG05-16.5/18.5-20190318	KIF-BS-BG05-21.0/24.0-20190318
Sample Depth		5 - 7.7 ft	10 - 11.1 ft	0 - 0.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft	21 - 24 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units							
PLM		•						
% ASH	%	-	-	2	-	-	-	-
Total Metals								
Antimony	mg/kg	0.108 J	0.0776 UJ	0.135 J	0.0727 J	0.0784 UJ	0.0769 UJ	0.0755 UJ
Arsenic	mg/kg	8.22 J	4.65 J	5.41 J	5.61 J	5.28 J	10.6 J	4.60 J
Barium	mg/kg	156	516	155	188	156	205	248
Beryllium	mg/kg	1.44	1.04	0.987	0.857	0.866	0.928	1.01
Boron	mg/kg	3.12 J	3.21 J	7.20 J	1.84 J	2.27 J	4.46 J	5.22 J
Cadmium	mg/kg	0.136	0.0723 J	0.0678 J	0.0350 J	<0.0215	0.0777 J	0.0513 J
Calcium	mg/kg	1,430	2,550	14,100	642	1,000	1,400	2,380
Chromium	mg/kg	35.0	38.3	28.8	21.9	22.6	25.0	33.8
Cobalt	mg/kg	36.3	28.6	14.0	11.7	12.0	14.6	17.1
Copper	mg/kg	19.9 J	22.2 J	20.3 J	13.8 J	23.9 J	16.0 J	38.4 J
Lead	mg/kg	14.1	7.07	16.7	18.5	10.4	12.2	9.90
Lithium	mg/kg	21.3 J	29.6 J	20.0 J	21.3 J	23.8 J	15.9 J	21.5 J
Mercury	mg/kg	0.0234 J	<0.0171	0.0376 J	0.0165 J	0.0301 J	<0.0163	<0.0191
Molybdenum	mg/kg	0.498 J	0.669 J	0.521 J	0.406 J	0.343 J	0.419 J	0.199 UJ
Nickel	mg/kg	29.1	55.5	27.7	17.8	19.6	20.6	37.0
Selenium	mg/kg	1.23 J	1.12 J	1.03 J	1.63 J	1.34 J	0.933 J	1.85 J
Silver	mg/kg	<0.0345	<0.0338	<0.0351	<0.0304	<0.0342	<0.0335	<0.0329
Thallium	mg/kg	0.239	0.271	0.275	0.185	0.170	0.205	0.282
Vanadium	mg/kg	34.0	27.0	25.7	23.0	20.5	25.6	26.9
Zinc	mg/kg	68.1	66.3	65.3	41.2	43.1	48.5	59.1
Anions	-							
Chloride	mg/kg	<4.77	<4.69	<5.28	<4.40	<4.53	<4.70	<4.81
Fluoride	mg/kg	2.69 J	2.51 J	2.21	1.15	4.40	1.88	1.65
Sulfate	mg/kg	181 J	138 J	25.4	14.3	12.6	27.4	20.5
General Chemistry	У							
pH (lab)	SU	7.0	7.6	7.8	6.1	7.2	7.6	8.4
		See notes on last page.						



Sample Location		KIF-BG05		KIF-BG07					
Sample Date		18-Mar-19	25-Feb-20	25-Feb-20	11-Jul-19	11-Jul-19	11-Jul-19	11-Jul-19	12-Mar-19
Sample ID		KIF-BS-BG05-26.5/28.5-20190318	KIF-BS-BG06A-0.0/0.5-20200225	KIF-BS-DUP01-20200225	KIF-BS-BG06-0.0/0.5-20190711	KIF-BS-DUP01-20190711	KIF-BS-BG06-1.5/3.5-20190711	KIF-BS-BG06-6.0/8.0-20190711	KIF-BS-BG07-0.0/0.5-20190312
Sample Depth		26.5 - 28.5 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	1.5 - 3.5 ft	6 - 8 ft	0 - 0.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Field Duplicate Sample	Normal Environmental Sample	Field Duplicate Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units								
PLM									
% ASH	%	-	1	2	-	-	-	-	1
Total Metals									
Antimony	mg/kg	0.0758 J	-	-	0.151 J	0.125 J	0.0783 UJ	0.0824 UJ	-
Arsenic	mg/kg	5.43 J	-	-	6.32	6.11	2.78	3.04	-
Barium	mg/kg	292	-	-	199	178	251	188	-
Beryllium	mg/kg	0.969	-	-	1.11	1.06	1.14	1.11	-
Boron	mg/kg	4.01 J	-	-	5.83 J	4.77 J	4.32 J	4.90 J	-
Cadmium	mg/kg	0.0211 J	-	-	0.0575 J	0.0505 J	<0.0215	0.0234 J	-
Calcium	mg/kg	2,630	-	-	4,360 J	5,540 J	2,040 J	1,940 J	-
Chromium	mg/kg	36.7	-	-	38.1	35.5	41.1	39.6	-
Cobalt	mg/kg	16.3	-	-	19.4	17.8	14.9	19.4	-
Copper	mg/kg	25.3 J	-	-	27.4	21.8	25.1	36.7	-
Lead	mg/kg	8.25	-	-	20.6	19.9	13.7	12.9	-
Lithium	mg/kg	21.3 J	-	-	23.2	21.6	22.6	25.0	-
Mercury	mg/kg	<0.0184	-	-	0.0257 U*	0.0346 U*	0.0224 U*	<0.0176	-
Molybdenum	mg/kg	0.207 J	-	-	0.540 J	0.545 J	0.291 J	0.284 J	-
Nickel	mg/kg	36.4	-	-	38.4	37.0	32.8	37.8	-
Selenium	mg/kg	0.936 J	-	-	0.975	1.75	0.859	0.729	-
Silver	mg/kg	<0.0322	-	-	<0.0328	<0.0343	<0.0341	<0.0359	-
Thallium	mg/kg	0.304	-	-	0.338	0.330	0.324	0.353	-
Vanadium	mg/kg	23.5	-	-	32.7	28.4	28.7	28.3	-
Zinc	mg/kg	61.1	-	-	72.7	67.8	57.7	64.4	-
Anions									
Chloride	mg/kg	<4.38	-	-	<4.68	<4.75	<4.78	<5.25	-
Fluoride	mg/kg	1.49	-	-	1.46 J	1.51 J	2.49 J	1.60 J	-
Sulfate	mg/kg	16.1	-	-	9.24 J	10.6 J	15.0	47.4	-
General Chemistry	/								
pH (lab)	SU	8.7	-	-	7.4	7.4	7.4	6.8	-
		See notes on last page.							

Stantec

Sample Location	1	I			KIF-BG07			
Sample Date		12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19
Sample ID		KIF-BS-BG07-0.0/0.5-20190312	KIF-BS-BG07-1.5/3.5-20190312	KIF-BS-BG07-6.5/8.5-20190312	KIF-BS-BG07-11.5/13.5-20190312	KIF-BS-BG07-16.5/18.5-20190312	KIF-BS-BG07-21.5/23.5-20190312	KIF-BS-BG07-26.5/28.5-20190312
Sample Depth		0 - 0.5 ft	1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft	21.5 - 23.5 ft	26.5 - 28.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Validated	Validated	Validated	Validated	Validated	Validated	Validated
	Units							
PLM								
% ASH	%	-	-	-	-	-	-	-
Total Metals								
Antimony	mg/kg	0.353	0.338	0.345	0.219 J	0.102 J	0.215 J	0.116 J
Arsenic	mg/kg	6.11	6.73	7.31	4.95	2.32	11.7	8.30
Barium	mg/kg	48.5	24.9	19.8	18.1	10.0	70.5	89.7
Beryllium	mg/kg	0.261	0.182	0.196	0.167	0.105 J	2.51	1.61
Boron	mg/kg	1.68 J	<1.67	<1.73	<1.74	<1.59	12.9	11.9 J
Cadmium	mg/kg	0.0371 J	<0.0211	<0.0218	<0.0219	<0.0200	0.273	0.276
Calcium	mg/kg	345	124	87.1	37.6 J	36.0 J	49.5 J	67.8 J
Chromium	mg/kg	16.2	18.6	28.1	11.4	5.17	19.7	20.4
Cobalt	mg/kg	4.63	1.33	1.81	13.4	1.24	50.2	23.1
Copper	mg/kg	7.61	9.90	11.2	7.21	4.10	60.4	29.5
Lead	mg/kg	14.1	7.80	9.14	19.4	3.81	46.4	18.0
Lithium	mg/kg	8.73	9.02	7.48	4.23	2.88	5.03	6.87
Mercury	mg/kg	0.174	0.188	0.105	0.0483	0.0369 J	<0.0275	<0.0216
Molybdenum	mg/kg	1.01	1.22	1.13	0.559 U*	0.392 U*	0.583 U*	0.292 U*
Nickel	mg/kg	5.98	5.07	3.74	2.80	2.25	47.4	47.8
Selenium	mg/kg	0.576 J	0.358 J	0.567 J	0.316 J	0.220 J	1.33	1.73
Silver	mg/kg	< 0.0332	<0.0335	<0.0346	<0.0348	<0.0318	<0.0433	<0.0481
Thallium	mg/kg	0.216	0.214	0.197	0.166	0.0542 J	0.258	0.285
Vanadium	mg/kg	28.6	33.6	31.4	14.4	8.86	22.7	23.5
Zinc	mg/kg	22.0	22.1	16.3	11.9	8.06	170	55.4
Anions								
Chloride	mg/kg	<4.56	<4.87	<4.76	<4.89	<4.53	16.5	7.69 J
Fluoride	mg/kg	<0.800	<0.853	<0.834	<0.857	<0.795	<1.11	<1.15
Sulfate	mg/kg	28.4	22.6	<8.33	<8.56	<7.93	<11.1	<11.5
General Chemistry	/							
pH (lab)	SU	5.4	5.3	5.4	5.2	5.2	4.7	4.9
		See notes on last page.						



Sample Location	KIF-BG07						KIF-BG08		
Sample Date Sample ID Sample Depth Sample Type Level of Review	Units	12-Mar-19 KIF-BS-BG07-31.5/33.5-20190312 31.5 - 33.5 ft Normal Environmental Sample Validated	12-Mar-19 KIF-BS-BG07-36.5/38.5-20190312 36.5 - 38.5 ft Normal Environmental Sample Validated	12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 41.5 - 43.5 ft Normal Environmental Sample Validated	12-Mar-19 KIF-BS-BG07-46.5/48.5-20190312 46.5 - 48.5 ft Normal Environmental Sample Validated	12-Mar-19 KIF-BS-BG07-51.5/53.5-20190312 51.5 - 53.5 ft Normal Environmental Sample Validated	26-Mar-19 KIF-BS-BG08-0.0/0.5-20190326 0 - 0.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG08-1.5/3.5-20190326 1.5 - 3.5 ft Normal Environmental Sample Final-Verified	
PLM									
% ASH	%	-	-	-	-	-	3	-	
Total Metals									
Antimony	mg/kg	0.539	0.799	<0.0936	<0.0956	<0.0953	0.228	0.286 J	
Arsenic	mg/kg	9.32	30.6	7.78	3.22	4.90	4.24	6.81	
Barium	mg/kg	32.8	45.9	118	58.7	66.5	33.2	30.2	
Beryllium	mg/kg	1.94	3.47	1.36	1.37	1.22	0.166	0.256	
Boron	mg/kg	9.34 J	11.8 J	12.6	15.5	12.9	<1.53	<1.68	
Cadmium	mg/kg	0.582	0.645	0.630	0.0988 J	0.0853 J	0.0232 J	<0.0211	
Calcium	mg/kg	101	263	348	544	386	649	261	
Chromium	mg/kg	16.7	25.7	19.8	14.8	21.0	11.8	12.7	
Cobalt	mg/kg	23.7	25.1	43.2	10.7	28.6	6.09	30.6	
Copper	mg/kg	18.2	63.8	16.4	14.0	135	5.41	11.8	
Lead	mg/kg	17.0	492	23.1	8.57	10.9	9.62	15.1 J	
Lithium	mg/kg	5.35	3.65	8.19	9.19	10.8	6.44	10.4 J	
Mercury	mg/kg	<0.0243	0.0272 J	<0.0194	<0.0181	<0.0205	0.0654	0.145	
Molybdenum	mg/kg	0.318 U*	2.66	0.319 U*	<0.251	<0.251	0.805	1.01	
Nickel	mg/kg	42.4	45.5	38.7	21.2	28.7	4.69	5.83	
Selenium	mg/kg	2.17	2.15	1.44	1.49	1.15	0.704	0.440 J	
Silver	mg/kg	<0.0442	<0.0434	<0.0407	<0.0416	<0.0415	<0.0306	<0.0336	
Thallium	mg/kg	0.182	0.189	0.532	0.283	0.307	0.163	0.234	
Vanadium	mg/kg	16.3	30.6	21.6	15.2	18.0	19.6	26.5	
Zinc	mg/kg	100	1,120	80.4	67.0	44.3	22.4	25.2	
Anions									
Chloride	mg/kg	<6.02	<6.47	<5.79	<5.97	<5.66	4.37 J	<4.59	
Fluoride	mg/kg	<1.05	<1.13	<1.01	<1.05	<0.992	2.80 J	0.805 UR	
Sulfate	mg/kg	<10.5	<11.3	<10.1	<10.4	<9.90	18.3	32.0 J	
General Chemistr	у								
pH (lab)	SU	5.3	5.8	5.8	5.7	5.8	7.2	5.1	
		See notes on last page.							



Sample Location	1			KIF-BG08			KIF-BG0	9
Sample Date		26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19
Sample ID		KIF-BS-BG08-6.5/8.5-20190326	KIF-BS-BG08-11.5/13.5-20190326	KIF-BS-BG08-16.5/18.5-20190326	KIF-BS-BG08-21.5/23.5-20190326	KIF-BS-BG08-26.5/27.5-20190326	KIF-BS-BG09-0.0/0.5-20190326	KIF-BS-DUP03-20190326
Sample Depth		6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft	21.5 - 23.5 ft	26.5 - 27.5 ft	0 - 0.5 ft	0 - 0.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Field Duplicate Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units							
PLM								
% ASH	%	-	-	-	-	-	5	3
Total Metals								
Antimony	mg/kg	0.230 J	0.138 J	0.157 J	0.0835 J	0.0825 UJ	0.135 J	0.131 J
Arsenic	mg/kg	6.29	5.09	1.87	1.63	4.14	3.08	3.16
Barium	mg/kg	40.8	29.4	22.6	17.9	8.50	25.6	25.5
Beryllium	mg/kg	0.312	0.301	0.363	0.410	0.279	0.152	0.144
Boron	mg/kg	<1.81	<1.68	1.75 J	<1.69	<1.80	<1.68	<1.61
Cadmium	mg/kg	<0.0228	<0.0212	<0.0209	<0.0213	<0.0226	<0.0211	0.0270 J
Calcium	mg/kg	51.6 J	67.6	41.6 J	77.1	36.0 J	260	269
Chromium	mg/kg	14.7	20.4	7.16	4.90	6.02	6.85	7.04
Cobalt	mg/kg	16.3	3.08	4.59	2.13	5.61	1.70	2.02
Copper	mg/kg	15.3	10.3	5.82	4.20	2.83	2.89	2.62
Lead	mg/kg	16.0 J	8.37 J	6.94	4.34 J	2.63 J	7.73	7.97
Lithium	mg/kg	15.2 J	11.0 J	3.68	4.61 J	1.98 J	4.77	4.52
Mercury	mg/kg	0.0850	0.0660	0.0183 J	0.0287 J	0.0189 J	0.0423	0.0428
Molybdenum	mg/kg	0.634 J	0.571 J	0.506 J	0.273 J	<0.217	0.520 J	0.502 J
Nickel	mg/kg	7.99	4.98	4.35	3.49	1.86	3.41	3.94
Selenium	mg/kg	0.893	0.728	0.680	0.630	0.374 J	0.389 J	0.553 J
Silver	mg/kg	<0.0362	<0.0337	<0.0331	<0.0339	<0.0359	<0.0335	<0.0323
Thallium	mg/kg	0.221	0.147	0.0926 J	0.0697 J	<0.0333	0.124	0.120
Vanadium	mg/kg	23.3	19.1	11.5	8.73	4.83	12.9	13.4
Zinc	mg/kg	40.4	27.8	16.0	15.4	9.46	15.4	15.6
Anions								
Chloride	mg/kg	<4.87	<4.71	<4.62	<4.77	<4.83	<4.64	<4.48
Fluoride	mg/kg	0.854 UR	0.825 UR	0.809 UR	0.835 UR	0.847 UR	0.869 J	0.795 J
Sulfate	mg/kg	<8.53	<8.24	<8.08	<8.34	<8.46	16.2	16.5
General Chemistr	у							
pH (lab)	SU	5.1	5.1	5.2	5.1	5.1	5.6	5.6
		See notes on last page.						



Sample Location		KIF-BG09						
Sample Date		26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	25-Mar-19
Sample ID		KIF-BS-BG09-1.5/3.5-20190326	KIF-BS-BG09-6.5/8.5-20190326	KIF-BS-BG09-11.5/13.5-20190326	KIF-BS-BG09-16.5/18.5-20190326	KIF-BS-BG09-21.5/23.5-20190326	KIF-BS-BG09-26.5/28.5-20190326	KIF-BS-BG10-0.0/0.5-20190325
Sample Depth		1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft	21.5 - 23.5 ft	26.5 - 28.5 ft	0 - 0.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units							
PLM								
% ASH	%	-	-	-	-	-	-	4
Total Metals								
Antimony	mg/kg	0.139 J	0.191 J	0.104 J	0.113 J	<0.0746	<0.0753	0.316 J
Arsenic	mg/kg	2.76	4.98	2.97	5.78	2.88	1.82	8.27
Barium	mg/kg	16.3	18.2	17.3	15.7	18.6	41.4	97.5
Beryllium	mg/kg	0.109 J	0.205	0.158	0.148	0.140	0.529	0.681
Boron	mg/kg	<1.60	<1.62	<1.64	<1.65	<1.62	1.86 J	<1.85
Cadmium	mg/kg	<0.0202	<0.0204	<0.0207	<0.0208	<0.0204	<0.0207	0.133 J
Calcium	mg/kg	214	51.3 J	32.0 J	33.6 J	37.0 J	240	668
Chromium	mg/kg	8.55	11.1	9.45	7.48	10.7	9.55	13.0
Cobalt	mg/kg	1.50	1.95	1.76	9.44	2.80	11.3	7.48
Copper	mg/kg	4.49	9.41	4.27	4.45	3.39	6.69	7.47
Lead	mg/kg	5.42	8.58	5.80 J	7.60 J	3.23	6.23	26.9 J
Lithium	mg/kg	5.79	8.74	6.30 J	5.28 J	3.88	17.6	4.22 J
Mercury	mg/kg	0.0837	0.0746	0.0275 J	0.0359 J	0.0172 J	<0.0168	0.0603
Molybdenum	mg/kg	0.625	0.704	0.354 J	0.318 J	0.314 J	0.227 J	2.35
Nickel	mg/kg	3.40	4.87	3.50	3.02	3.09	9.96	7.76
Selenium	mg/kg	0.271 J	0.471 J	0.475 J	0.303 J	0.428 J	0.269 J	1.40
Silver	mg/kg	<0.0320	<0.0324	<0.0329	<0.0330	<0.0325	<0.0328	<0.0371
Thallium	mg/kg	0.127	0.154	0.0983 J	0.0780 J	0.0606 J	0.119 J	0.191
Vanadium	mg/kg	15.2	21.7	12.1	10.2	6.84	10.3	24.2
Zinc	mg/kg	12.5	22.5	15.9	14.2	12.1	22.3	75.9
Anions								
Chloride	mg/kg	<4.34	<4.49	<4.51	<4.52	<4.49	<4.58	<5.06
Fluoride	mg/kg	0.761 UR	0.787 UR	0.791 UR	0.791 UR	0.786 UR	0.803 UR	1.13 J
Sulfate	mg/kg	22.1	<7.86	<7.90	<7.90	<7.85	<8.01	13.4 J
General Chemistr	у							
pH (lab)	SU	5.4	5.2	5.2	5.5	5.6	5.5	6.0
		See notes on last page.						


TABLE B.2 - Soil Analytical Results for Percent Ash, Metals, Anions, and General Chemistry Kingston Fossil Plant March 2019 - February 2020

Sample Location				KIF-BG10			KIF-BG11		
Sample Date Sample ID Sample Depth Sample Type Level of Review		25-Mar-19 KIF-BS-BG10-0.0/2.2-20190325 0 - 2.2 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-6.5/8.5-20190325 6.5 - 8.5 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-11.5/13.5-20190325 11.5 - 13.5 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-16.5/18.5-20190325 16.5 - 18.5 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-20.0/22.2-20190325 20 - 22.2 ft Normal Environmental Sample Final-Verified	22-Mar-19 KIF-BS-BG11-0.0/0.5-20190322 0 - 0.5 ft Normal Environmental Sample Final-Verified	21-Mar-19 KIF-BS-BG11-1.5/3.5-20190321 1.5 - 3.5 ft Normal Environmental Sample Final-Verified	
	Units								
PLM		• •							
% ASH	%	-	-	-	-	-	2	-	
Total Metals									
Antimony	mg/kg	0.277 J	0.299 J	0.223 J	0.410 J	0.208 J	0.187 J	0.0847 J	
Arsenic	mg/kg	9.32	9.16	9.79	2.48	3.17	3.80 J	3.09 J	
Barium	mg/kg	137	30.0	18.1	23.6	24.8	58.0	56.4	
Beryllium	mg/kg	0.569	0.245	0.212	0.451	0.276	0.348	0.388	
Boron	mg/kg	<1.72	<1.66	<1.56	4.80 J	2.97 J	2.48 J	3.12 J	
Cadmium	mg/kg	0.122 J	0.0514 J	0.0243 J	0.0333 J	<0.0228	0.0421 J	<0.0203	
Calcium	mg/kg	512	230	182	279	221	3,910	233	
Chromium	mg/kg	15.2	14.5	21.8	9.36	6.82	14.1	15.9	
Cobalt	mg/kg	27.3	10.7	6.06	14.3	7.08	7.07	8.68	
Copper	mg/kg	7.74	6.54	7.24	15.4	7.84	6.66	8.52	
Lead	mg/kg	29.8 J	23.3 J	11.1 J	19.1 J	11.9 J	11.3	14.4	
Lithium	mg/kg	3.86 J	4.77 J	4.97 J	4.27 J	4.35 J	6.77 J	11.8 J	
Mercury	mg/kg	0.0642	0.111	0.118	0.0725	0.108	0.0534	0.0346	
Molybdenum	mg/kg	1.21	1.30	1.00	0.727	0.415 J	0.682	0.498 J	
Nickel	mg/kg	7.44	4.48	3.34	5.10	3.41	5.49	7.77	
Selenium	mg/kg	0.790	0.244 J	0.309 J	0.485 J	0.725	0.645	0.669	
Silver	mg/kg	<0.0344	<0.0332	<0.0311	<0.0344	<0.0362	0.102 J	<0.0322	
Thallium	mg/kg	0.453	0.225	0.153	0.187	0.184	0.160	0.200	
Vanadium	mg/kg	26.3	24.9	28.0	31.1	20.2	19.9	23.5	
Zinc	mg/kg	46.1	27.0	24.6	30.2	18.3	29.3	27.2	
Anions									
Chloride	mg/kg	<4.74	<4.61	<4.54	<4.79	<4.98	<4.37	<4.69	
Fluoride	mg/kg	0.831 UR	0.807 UR	0.795 UR	0.840 UR	0.873 UR	3.76 J	0.823 UR	
Sulfate	mg/kg	29.2 J	28.8 J	25.6 J	18.7 J	8.72 UJ	9.59 J	41.1 J	
General Chemistry	/								
pH (lab)	SU	5.7	5.4	5.3	5.2	5.4	7.6	5.2	
		See notes on last page.							



Sample Location					KIF-BG11			
Sample Date		21_Mar_19	21_Mar_19	21_Mar_19	21_Mar_19	21_Mar_19	21_Mar_19	22-Mar-19
Sample ID		KIF-BS-BG11-6 5/8 5-20190321	KIE-BS-BG11-11 5/13 5-20190321	KIE-BS-BG11-16 5/18 5-20190321	KIE-BS-BG11-21 5/23 5-20190321	KIF-BS-DI IP02-20190321	KIE-BS-BG11-26 5/28 5-20190321	KIE-BS-BG11-31 5/33 5-20190322
Sample Denth		65-85ft	11 5 - 13 5 ft	16 5 - 18 5 ft	21 5 - 23 5 ft	21 5 - 23 5 ft	26 5 - 28 5 ft	31 5 - 33 5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Field Duplicate Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units							
PLM			•					
% ASH	%	-	-	-	-	-	-	-
Total Metals	-							
Antimony	mg/kg	0.0795 UJ	0.0913 J	0.502 J	0.396 J	0.486 J	0.297 J	0.292 J
Arsenic	mg/kg	3.17 J	3.05 J	40.0 J	40.4 J	46.0 J	12.8 J	18.8 J
Barium	mg/kg	57.7	75.9	80.4	58.4	55.6	75.2	56.5
Beryllium	mg/kg	0.990	0.405	1.08	1.59	1.84	0.933	1.33
Boron	mg/kg	2.06 J	1.83 J	3.16 J	4.09 J	3.69 J	3.60 J	3.86 J
Cadmium	mg/kg	<0.0218	<0.0206	0.0987 J	0.152 J	0.112 J	0.0879 J	0.112 J
Calcium	mg/kg	44.3 J	67.3	248	202	200	291	277
Chromium	mg/kg	20.3	12.4	28.4	12.0	11.6	13.5	11.0
Cobalt	mg/kg	14.6	7.45	2.71	22.3 J	6.80 J	18.2	21.8
Copper	mg/kg	13.7	8.58	29.5	28.3	28.8	24.0	22.6
Lead	mg/kg	11.6	12.4	22.5	61.8	43.5	37.1	34.5
Lithium	mg/kg	8.32 J	11.1 J	15.1 J	15.0 J	13.4 J	17.0 J	12.0 J
Mercury	mg/kg	0.0392	0.0752	0.0916	0.138	0.141	0.149	0.137
Molybdenum	mg/kg	0.447 J	0.568 J	5.84	3.32	3.09	1.88	2.32
Nickel	mg/kg	9.27	9.38	27.5	33.0	31.3	20.4	30.3
Selenium	mg/kg	0.833	0.446 J	0.867	0.828	0.564 J	1.15	1.23
Silver	mg/kg	<0.0346	<0.0328	<0.0403	<0.0445	<0.0397	<0.0383	<0.0429
Thallium	mg/kg	0.164	0.196	0.668	1.01	0.736	0.466	0.648
Vanadium	mg/kg	22.4	21.1	42.0	30.6	29.8	33.1	27.7
Zinc	mg/kg	25.9	29.9	106	138	150	71.1	96.8
Anions								
Chloride	mg/kg	15.6	19.3	13.0 J	6.78 J	6.05 J	<5.67	<5.88
Fluoride	mg/kg	0.822 UR	0.833 UR	0.963 UR	1.11 UR	0.989 UR	0.994 UR	1.03 UR
Sulfate	mg/kg	8.21 UJ	8.32 UJ	9.62 UJ	11.1 UJ	9.87 UJ	9.93 UJ	10.3 UJ
General Chemistry								
pH (lab)	SU	4.6	4.7	5.0	5.3	5.1	5.5	5.5
		See notes on last page.						

TABLE B.2 - Soil Analytical Results for Percent Ash, Metals, Anions, and General Chemistry Kingston Fossil Plant March 2019 - February 2020

Sample Location		KIF-BG11			KIF-	BG12		
Sample Date		22-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19
Sample ID		KIF-BS-BG11-36.5/38.5-20190322	KIF-BS-BG12-0.0/0.5-20190327	KIF-BS-BG12-0.0/0.5-20190327	KIF-BS-BG12-1.5/3.5-20190327	KIF-BS-BG12-6.5/8.5-20190327	KIF-BS-BG12-11.5/13.5-20190327	KIF-BS-BG12-16.5/18.5-20190327
Sample Depth		36.5 - 38.5 ft	0 - 0.5 ft	0 - 0.5 ft	1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Validated	Validated	Validated	Validated	Validated
	Units							
PLM								
% ASH	%	-	4	-	-	-	-	-
Total Metals		-	-					
Antimony	mg/kg	0.346 J	-	0.266 J	0.215 J	0.193 J	0.123 J	0.0775 J
Arsenic	mg/kg	16.3 J	-	6.30	6.09 J	5.86 J	4.06 J	2.77 J
Barium	mg/kg	48.9	-	45.5	22.4	26.6	19.0	12.9
Beryllium	mg/kg	1.09	-	0.270	0.202 J	0.190 J	0.169 J	0.134 J
Boron	mg/kg	2.71 J	-	1.76 J	1.90 J	<1.66	<1.63	<1.54
Cadmium	mg/kg	0.0808 J	-	0.0478 J	<0.0205	<0.0209	<0.0206	<0.0194
Calcium	mg/kg	252	-	1,180	66.6	45.1 J	30.6 J	23.1 J
Chromium	mg/kg	9.85	-	19.2	14.1 J	14.6 J	7.42 J	5.58 J
Cobalt	mg/kg	25.8	-	2.33	1.73 J	2.08 J	1.82 J	1.75 J
Copper	mg/kg	19.5	-	7.16	10.3	10.2	7.60	4.68
Lead	mg/kg	21.9	-	11.0	11.7 J	12.7 J	9.46 J	7.11 J
Lithium	mg/kg	11.0 J	-	8.49 J	8.76	9.40	6.38	3.69
Mercury	mg/kg	0.0638	-	0.0765	0.187	0.0760	0.0486	0.0256 J
Molybdenum	mg/kg	1.40	-	1.07	0.711	0.682	0.427 J	0.253 J
Nickel	mg/kg	19.0	-	5.40	4.40	5.02	4.04	2.73
Selenium	mg/kg	1.03	-	0.698	0.598 J	0.797 J	0.355 J	0.162 J
Silver	mg/kg	<0.0393	-	0.0641 J	<0.0325	<0.0332	<0.0327	<0.0308
Thallium	mg/kg	0.466	-	0.206	0.190	0.165	0.118 J	0.0775 J
Vanadium	mg/kg	22.8	-	31.3	25.2	22.7	14.3	9.47
Zinc	mg/kg	71.1	-	25.3	17.9 J	21.6 J	16.3 J	9.89 J
Anions								
Chloride	mg/kg	<5.41	-	6.34 J	8.67 J	12.0 J	12.0 J	7.81 J
Fluoride	mg/kg	0.948 UR	-	2.00 J	0.797 UR	0.825 UR	0.794 UR	0.715 UR
Sulfate	mg/kg	9.46 UJ	-	27.7 J	7.96 UJ	8.24 UJ	7.93 UJ	7.14 UJ
General Chemistr	у							
pH (lab)	SU	5.4	-	6.5	4.9	4.6	4.6	4.6
		See notes on last page.						



TABLE B.2 - Soil Analytical Results for Percent Ash, Metals, Anions, and General Chemistry **Kingston Fossil Plant** March 2019 - February 2020

Sample Location	1		KIF-I	BG12	
Sample Date Sample ID Sample Depth Sample Type Level of Review	Unite	27-Mar-19 KIF-BS-BG12-21.5/23.5-20190327 21.5 - 23.5 ft Normal Environmental Sample Validated	27-Mar-19 KIF-BS-BG12-26.5/28.5-20190327 26.5 - 28.5 ft Normal Environmental Sample Validated	27-Mar-19 KIF-BS-BG12-31.5/33.5-20190327 31.5 - 33.5 ft Normal Environmental Sample Validated	27-Mar-19 KIF-BS-BG12-35.0/37.0-20190327 35 - 37 ft Normal Environmental Sample Validated
PLM	Onito				
% <u>ASH</u>	%		<u>-</u>	-	_
Total Metals	70			_	
Antimony	ma/ka	0.303	0 147 1	0.211	0 173
Antimony	mg/kg	13.6 1	6 31 1	0.2115	6.82
Borium	mg/kg	166	51.2	9.90 J	61.2
Bondlium	mg/kg	1 02 1	1 00 1	1 15 1	0.037
Boron	mg/kg	3.44	11.00 5	1.15.5	0.957
Cadmium	mg/kg	1 87	0.373	0.469	0.0013 1
Calcium	mg/kg	36.1.1	44.0 1	37.5 1	11.8
Chromium	mg/kg	6.05 1	12.7	11.6 1	41.03
Cobalt	mg/kg	30.7 1	20.0.1	23.5.1	16.7
Copper	mg/kg	27.8	18 1	33.1	38.0
Lead	mg/kg	427 1	602 1	247 1	65.5
Lithium	mg/kg	5.62	18.0	15 1	13.0
Mercury	mg/kg	0.0347 1	<0.0220	<0.0196	<0.0213
Molybdenum	mg/kg	2 00	0.360 1	0.503 1	0.621 1
Nickel	mg/kg	23.0	18 1	16.7	19.9
Selenium	mg/kg	0.626.1	1.96.1	1 72 .1	1 29
Silver	mg/kg	<0.020 0	<0.0434	0.0715.1	<0.0395
Thallium	mg/kg	0.659	0.285	0 441	0 264
Vanadium	mg/kg	18.9	32.1	38.1	31.2
Zinc	mg/kg	555 J	232 J	253 J	51.3
Anions					
Chloride	ma/ka	20.1.1	6 74 J	<5 42	5 97 J
Fluoride	ma/ka	1 03 UR	1 04 UR	0.950 UR	0.922 UR
Sulfate	ma/ka	10.2 UJ	10.4 UJ	9.49 UJ	9.21 UJ
General Chemistr	<u>۳</u>				0.2.00
pH (lab)	SU	4.7	4.9	5.0	4.9

Notes:

<0.03	analyte was not detected at a concentration greater than the Method Detection Limit
-	parameter not analyzed / not available
%	percent
ft	feet below ground surface
ID	identification
J	quantitation is approximate due to limitations identified during data validation
mg/kg	milligrams per kilogram
PLM	Polarized Light Microscope - analysis for % ash
SU	Standard Unit
U*	this result should be considered "not detected" because it was detected in an associated field or laboratory blank at a similar level
UJ	this compound was not detected, but the reporting or detection limit should be considered estimated due to a bias identified during data validation
UR	Unreliable reporting or detection limit; compound may or may not be present in sample.

1. Level of review is defined in the Quality Assurance Project Plan.

2. Non-detect (ND) results reported by RJ Lee Group for percent (%) ash expressed as <1 in table. KIF-BG06A surficial PLM sample had to be recollected at a later date due to the initial sample being lost in shipment. 3. The 0-0.5 foot sample was collected using a hand auger when accessible during the drilling operations at that boring location; it may or may not have been the first sample obtained and thus could have a different sample date.

4. Level of review for % ash samples is Final-Verified.



Sample Location			KIF-BG01		KIF-BG02				
Sample Date	Umito	28-Mar-19	28-Mar-19	28-Mar-19	14-Mar-19	14-Mar-19	14-Mar-19	14-Mar-19	
Sample ID		KIF-BS-BG01-0.0/0.5-20190328	KIF-BS-BG01-1.5/3.5-20190328	KIF-BS-BG01-6.0/8.0-20190328	KIF-BS-BG02-0.0/0.5-20190314	KIF-BS-BG02-0.7/2.7-20190314	KIF-BS-BG02-6.5/8.5-20190314	KIF-BS-BG02-11.0/14.0-20190314	
Sample Depth		0 - 0.5 ft	1.5 - 3.5 ft	6 - 8 ft	0 - 0.5 ft	0.7 - 2.7 ft	6.5 - 8.5 ft	11 - 14 ft	
Sample Type		Normal Environmental Sample							
Level of Review		Final-Verified							
Radiological Parameters	Units								
Radium-226	pCi/g	1.31 +/-(0.290)	0.792 +/-(0.197)	0.782 +/-(0.238)	1.31 +/-(0.331)	1.32 +/-(0.339)	1.47 +/-(0.339)	0.698 +/-(0.214)	
Radium-228	pCi/g	1.47 +/-(0.452)	0.826 +/-(0.471)	1.76 +/-(0.348)	1.28 +/-(0.415)	1.90 +/-(0.463)	2.09 +/-(0.432)	1.94 +/-(0.410)	
Radium-226+228	pCi/g	2.78 +/-(0.537)	1.62 +/-(0.511)	2.54 +/-(0.422)	2.59 +/-(0.531)	3.22 +/-(0.574)	3.56 +/-(0.549)	2.64 +/-(0.462)	



Sample Location		KIF-BG02		KIF-I	BG03		KIF-E	3G04
Sample Date	Unite	14-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	13-Mar-19	19-Mar-19	19-Mar-19
Sample ID		KIF-BS-DUP01-20190314	KIF-BS-BG03-0.0/0.5-20190313	KIF-BS-BG03-1.5/3.5-20190313	KIF-BS-BG03-6.5/8.5-20190313	KIF-BS-BG03-11.5/13.5-20190313	KIF-BS-BG04-0.0/0.5-20190319	KIF-BS-BG04-0.0/1.9-20190319
Sample Depth		11 - 14 ft	0 - 0.5 ft	1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	0 - 0.5 ft	0 - 1.9 ft
Sample Type		Field Duplicate Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
Radiological Parameters	00							
Radium-226	pCi/g	0.845 +/-(0.290)	1.18 +/-(0.284)	1.10 +/-(0.264)	0.942 +/-(0.315)	1.18 +/-(0.333)	1.01 +/-(0.249)	0.960 +/-(0.253)
Radium-228	pCi/g	2.06 +/-(0.480)	1.66 +/-(0.353)	1.96 +/-(0.416)	2.39 +/-(0.523)	2.77 +/-(0.552)	1.38 +/-(0.361)	1.15 +/-(0.361)
Radium-226+228	pCi/g	2.91 +/-(0.561)	2.84 +/-(0.453)	3.06 +/-(0.493)	3.33 +/-(0.611)	3.95 +/-(0.645)	2.39 +/-(0.439)	2.11 +/-(0.441)



Sample Location		KIF-	BG04	KIF-BG05					
Sample Date Sample ID Sample Depth Sample Type Level of Review	Unite	19-Mar-19 KIF-BS-BG04-5.0/7.7-20190319 5 - 7.7 ft Normal Environmental Sample Final-Verified	19-Mar-19 KIF-BS-BG04-10.0/11.1-20190319 10 - 11.1 ft Normal Environmental Sample Final-Verified	18-Mar-19 KIF-BS-BG05-0.0/0.5-20190318 0 - 0.5 ft Normal Environmental Sample Final-Verified	18-Mar-19 KIF-BS-BG05-6.5/8.5-20190318 6.5 - 8.5 ft Normal Environmental Sample Final-Verified	18-Mar-19 KIF-BS-BG05-11.5/13.5-20190318 11.5 - 13.5 ft Normal Environmental Sample Final-Verified	18-Mar-19 KIF-BS-BG05-16.5/18.5-20190318 16.5 - 18.5 ft Normal Environmental Sample Final-Verified	18-Mar-19 KIF-BS-BG05-21.0/24.0-20190318 21 - 24 ft Normal Environmental Sample Final-Verified	
Radiological Parameters	Units	<u>I</u>							
Radium-226 Radium-228	pCi/g pCi/g	1.12 +/-(0.285) 2.17 +/-(0.448)	1.17 +/-(0.274) 2.04 +/-(0.455)	1.27 +/-(0.343) 1.82 +/-(0.410)	0.986 +/-(0.255) 2.06 +/-(0.394)	1.14 +/-(0.240) 2.03 +/-(0.344)	0.967 +/-(0.236) 1.17 +/-(0.353)	0.907 +/-(0.225) 1.89 +/-(0.335)	
Radium-226+228	pCi/g	3.29 +/-(0.531)	3.21 +/-(0.531)	3.09 +/-(0.535)	3.05 +/-(0.469)	3.17 +/-(0.419)	2.14 +/-(0.425)	2.80 +/-(0.404)	



Sample Location		KIF-BG05		KIF-BG06			KIF-BG07	
Sample Date Sample ID		18-Mar-19 KIF-BS-BG05-26.5/28.5-20190318	11-Jul-19 KIF-BS-BG06-0.0/0.5-20190711	11-Jul-19 KIF-BS-DUP01-20190711	11-Jul-19 KIF-BS-BG06-1.5/3.5-20190711	11-Jul-19 KIF-BS-BG06-6.0/8.0-20190711	12-Mar-19 KIF-BS-BG07-0.0/0.5-20190312	12-Mar-19 KIF-BS-BG07-1.5/3.5-20190312
Sample Depth Sample Type		26.5 - 28.5 ft Normal Environmental Sample	0 - 0.5 ft Normal Environmental Sample	0 - 0.5 ft Field Duplicate Sample	1.5 - 3.5 ft Normal Environmental Sample	6 - 8 ft Normal Environmental Sample	0 - 0.5 ft Normal Environmental Sample	1.5 - 3.5 ft Normal Environmental Sample
Level of Review	Units	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Validated	Validated
Radiological Parameters								
Radium-226	pCi/g	1.09 +/-(0.203)	1.04 +/-(0.268)	1.00 +/-(0.329)	0.622 +/-(0.157)	0.647 +/-(0.231)	1.27 +/-(0.294)	1.06 +/-(0.258)
Radium-228	pCi/g	1.59 +/-(0.291)	1.81 +/-(0.436)	1.14 +/-(0.593)	1.35 +/-(0.308)	2.23 +/-(0.443)	1.59 +/-(0.370)	1.77 +/-(0.376)
Radium-226+228	pCi/g	2.68 +/-(0.355)	2.85 +/-(0.512)	2.14 +/-(0.678)	1.97 +/-(0.346)	2.88 +/-(0.500)	2.86 +/-(0.473)	2.83 +/-(0.456)



Sample Location					KIF-BG07			
Sample Date		12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19	12-Mar-19
Sample ID		KIF-BS-BG07-6.5/8.5-20190312	KIF-BS-BG07-11.5/13.5-20190312	KIF-BS-BG07-16.5/18.5-20190312	KIF-BS-BG07-21.5/23.5-20190312	KIF-BS-BG07-26.5/28.5-20190312	KIF-BS-BG07-31.5/33.5-20190312	KIF-BS-BG07-36.5/38.5-20190312
Sample Depth		6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft	21.5 - 23.5 ft	26.5 - 28.5 ft	31.5 - 33.5 ft	36.5 - 38.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Validated	Validated	Validated	Validated	Validated	Validated	Validated
	Units							
Radiological Parameters								
Radium-226	pCi/g	0.843 +/-(0.230)	0.641 +/-(0.184)	0.635 +/-(0.165)	1.36 +/-(0.417)	0.652 +/-(0.342)	1.40 +/-(0.393)	1.37 +/-(0.430)
Radium-228	pCi/g	1.26 +/-(0.326)	1.06 +/-(0.303)	0.982 +/-(0.239)	2.85 +/-(0.644)	2.43 +/-(0.991)	2.61 +/-(0.557)	2.16 +/-(0.739)
Radium-226+228	pCi/g	2.10 +/-(0.399)	1.70 +/-(0.354)	1.62 +/-(0.290)	4.21 +/-(0.767)	3.08 +/-(1.05)	4.01 +/-(0.682)	3.53 +/-(0.855)



		KIF-BG07			KIF-BG08				
Units	12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 41.5 - 43.5 ft Normal Environmental Sample Validated	12-Mar-19 KIF-BS-BG07-46.5/48.5-20190312 46.5 - 48.5 ft Normal Environmental Sample Validated	12-Mar-19 KIF-BS-BG07-51.5/53.5-20190312 51.5 - 53.5 ft Normal Environmental Sample Validated	26-Mar-19 KIF-BS-BG08-0.0/0.5-20190326 0 - 0.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG08-1.5/3.5-20190326 1.5 - 3.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG08-6.5/8.5-20190326 6.5 - 8.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG08-11.5/13.5-20190326 11.5 - 13.5 ft Normal Environmental Sample Final-Verified		
-							·		
pCi/g	0.683 +/-(0.243)	0.288 +/-(0.484)U	1.17 +/-(0.285)	0.748 +/-(0.181)	0.809 +/-(0.199)	1.29 +/-(0.369)	1.33 +/-(0.352)		
pCi/g	2.27 +/-(0.566) 2.95 +/-(0.616)	2.66 +/-(0.586) 2.95 +/-(0.760)	2.62 +/-(0.467) 3 79 +/-(0.547)	0.555 +/-(0.203) 1 30 +/-(0.272)	1.14 +/-(0.236) 1.95 +/-(0.309)	1.47 +/-(0.442) 2 76 +/-(0 576)	1.62 +/-(0.435)		
	Difference period	12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 41.5 - 43.5 ft Normal Environmental Sample Validated Units pCi/g 0.683 +/-(0.243) pCi/g 2.27 +/-(0.566) pCi/g 2.95 +/-(0.616)	KIF-BG07 12-Mar-19 12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 KIF-BS-BG07-46.5/48.5-20190312 41.5 - 43.5 ft 46.5 - 48.5 ft Normal Environmental Sample Validated Validated Validated Units 0.683 +/-(0.243) pCi/g 2.27 +/-(0.566) pCi/g 2.27 +/-(0.566) pCi/g 2.95 +/-(0.760)	KIF-BG07 12-Mar-19 12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 12-Mar-19 41.5 - 43.5 ft KIF-BS-BG07-46.5/48.5-20190312 Normal Environmental Sample 46.5 - 48.5 ft Validated Normal Environmental Sample Validated Validated Volidated 0.288 +/-(0.484)U 1.17 +/-(0.285) 2.66 +/-(0.586) 2.66 +/-(0.586) 2.62 +/-(0.467) pCi/g 2.95 +/-(0.616) 2.95 +/-(0.760).I	KIF-BG07 12-Mar-19 12-Mar-19 12-Mar-19 12-Mar-19 12-Mar-19 12-Mar-19 12-Mar-19 KIF-BS-BG07-41.5/43.5-20190312 46.5 - 48.5 ft Normal Environmental Sample XIF-BS-BG07-46.5/48.5-20190312 KIF-BS-BG07-51.5/53.5-20190312 KIF-BS-BG08-0.0/0.5-20190326 0 - 0.5 ft Units Normal Environmental Sample Validated Validated Validated Normal Environmental Sample Validated Normal Environmental Sample Normal Environmental Sample Normal Environmental Sample Normal Environmental Sample Validated Normal Environmental Sample Normal Environ Sample	KIF-BG07 KIF-B 12-Mar-19 12-Mar-19 12-Mar-19 12-Mar-19 26-Mar-19 26-Mar-19 KIF-BS-BG08-1.5/3.5-20190326 1.5 - 3.5 ft Normal Environmental Sample Validated Validated Validated 1.5 - 3.5 ft Normal Environmental Sample Normal Environmental Sample Validated Normal Environmental Sample Norm	KIF-BG07 KIF-BG07 KIF-BG08 12-Mar-19 12-Mar-19 12-Mar-19 12-Mar-19 26-Mar-19 26-Mar-19 26-Mar-19 KIF-BS-BG08-0.0/0.5-20190326 KIF-BS-BG08-1.5/3.5-20190326 KIF-BS-BG08-6.5/8.5-20190326 KIF-BS-BG08-6.5/8.5-2019026 KIF-BS-BG08-6.5/8.5-2019026		



Sample Location			KIF-BG08		KIF-BG09				
Sample Date Sample ID Sample Depth Sample Type Level of Review		26-Mar-19 KIF-BS-BG08-16.5/18.5-20190326 16.5 - 18.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG08-21.5/23.5-20190326 21.5 - 23.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG08-26.5/27.5-20190326 26.5 - 27.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG09-0.0/0.5-20190326 0 - 0.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-DUP03-20190326 0 - 0.5 ft Field Duplicate Sample Final-Verified	26-Mar-19 KIF-BS-BG09-1.5/3.5-20190326 1.5 - 3.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG09-6.5/8.5-20190326 6.5 - 8.5 ft Normal Environmental Sample Final-Verified	
	Units								
Radiological Parameters		•							
Radium-226	pCi/g	0.660 +/-(0.167)	0.643 +/-(0.162)	0.361 +/-(0.134)	0.861 +/-(0.234)	0.675 +/-(0.188)	0.799 +/-(0.243)	0.659 +/-(0.178)	
Radium-228	pCi/g	0.569 +/-(0.302)	0.316 +/-(0.309)U	0.583 +/-(0.212)	0.659 +/-(0.227)	0.708 +/-(0.244)	0.875 +/-(0.279)	0.983 +/-(0.240)	
Radium-226+228	pCi/g	1.23 +/-(0.345)	0.959 +/-(0.349)J	0.944 +/-(0.251)	1.52 +/-(0.326)	1.38 +/-(0.308)	1.67 +/-(0.370)	1.64 +/-(0.299)	



Sample Location			KIF-I	BG09		KIF-BG10		
Sample Date Sample ID Sample Depth Sample Type Level of Review		26-Mar-19 KIF-BS-BG09-11.5/13.5-20190326 11.5 - 13.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG09-16.5/18.5-20190326 16.5 - 18.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG09-21.5/23.5-20190326 21.5 - 23.5 ft Normal Environmental Sample Final-Verified	26-Mar-19 KIF-BS-BG09-26.5/28.5-20190326 26.5 - 28.5 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-0.0/0.5-20190325 0 - 0.5 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-0.0/2.2-20190325 0 - 2.2 ft Normal Environmental Sample Final-Verified	25-Mar-19 KIF-BS-BG10-6.5/8.5-20190325 6.5 - 8.5 ft Normal Environmental Sample Final-Verified
	Units							
Radiological Parameters								
Radium-226	pCi/g	0.742 +/-(0.244)	0.643 +/-(0.222)	0.385 +/-(0.121)	0.411 +/-(0.142)	0.841 +/-(0.236)	0.901 +/-(0.221)	1.09 +/-(0.289)
Radium-228	pCi/g	0.835 +/-(0.258)	0.676 +/-(0.235)	0.311 +/-(0.137)U	0.803 +/-(0.210)	0.675 +/-(0.214)	0.280 +/-(0.469)U	1.36 +/-(0.414)
Radium-226+228	pCi/g	1.58 +/-(0.355)	1.32 +/-(0.323)	0.696 +/-(0.183)J	1.21 +/-(0.254)	1.52 +/-(0.319)	1.18 +/-(0.518)J	2.45 +/-(0.505)



Sample Location		KIF-BG10			KIF-BG11			
Sample Date		25-Mar-19	25-Mar-19	25-Mar-19	22-Mar-19	21-Mar-19	21-Mar-19	21-Mar-19
Sample ID		KIF-BS-BG10-11.5/13.5-20190325	KIF-BS-BG10-16.5/18.5-20190325	KIF-BS-BG10-20.0/22.2-20190325	KIF-BS-BG11-0.0/0.5-20190322	KIF-BS-BG11-1.5/3.5-20190321	KIF-BS-BG11-6.5/8.5-20190321	KIF-BS-BG11-11.5/13.5-20190321
Sample Depth		11.5 - 13.5 ft	16.5 - 18.5 ft	20 - 22.2 ft	0 - 0.5 ft	1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified	Final-Verified
	Units							
Radiological Parameters								
Radium-226	pCi/g	0.846 +/-(0.238)	1.04 +/-(0.238)	1.04 +/-(0.246)	1.15 +/-(0.300)	1.31 +/-(0.362)	0.938 +/-(0.237)	1.41 +/-(0.323)
Radium-228	pCi/g	1.03 +/-(0.258)	0.852 +/-(0.305)	0.475 +/-(0.392)	1.28 +/-(0.429)	1.54 +/-(0.638)	1.41 +/-(0.327)	1.56 +/-(0.390)
Radium-226+228	pCi/g	1.88 +/-(0.351)	1.89 +/-(0.387)	1.52 +/-(0.463)	2.43 +/-(0.523)	2.85 +/-(0.734)	2.35 +/-(0.404)	2.97 +/-(0.506)



Sample Location Sample Date Sample ID Sample Depth Sample Type Level of Review	Units	21-Mar-19 KIF-BS-BG11-16.5/18.5-20190321 16.5 - 18.5 ft Normal Environmental Sample Final-Verified	21-Mar-19 KIF-BS-BG11-21.5/23.5-20190321 21.5 - 23.5 ft Normal Environmental Sample Final-Verified	21-Mar-19 KIF-BS-DUP02-20190321 21.5 - 23.5 ft Field Duplicate Sample Final-Verified	KIF-BG11 21-Mar-19 KIF-BS-BG11-26.5/28.5-20190321 26.5 - 28.5 ft Normal Environmental Sample Final-Verified	22-Mar-19 KIF-BS-BG11-31.5/33.5-20190322 31.5 - 33.5 ft Normal Environmental Sample Final-Verified	22-Mar-19 KIF-BS-BG11-36.5/38.5-20190322 36.5 - 38.5 ft Normal Environmental Sample Final-Verified	KIF-BG12 27-Mar-19 KIF-BS-BG12-0.0/0.5-20190327 0 - 0.5 ft Normal Environmental Sample Validated
Radiological Parameters								
Radium-226	pCi/g	2.16 +/-(0.520)	2.27 +/-(0.472)	2.05 +/-(0.410)	1.55 +/-(0.303)	2.04 +/-(0.514)	1.54 +/-(0.300)	1.04 +/-(0.311)
Radium-228	pCi/g	1.96 +/-(0.507)	1.99 +/-(0.548)J	1.24 +/-(0.371)J	1.52 +/-(0.372)	1.37 +/-(0.724)	0.953 +/-(0.332)	1.78 +/-(0.356)
Radium-226+228	pCi/g	4.12 +/-(0.726)	4.26 +/-(0.723)J	3.29 +/-(0.553)J	3.07 +/-(0.480)	3.41 +/-(0.888)	2.49 +/-(0.447)	2.82 +/-(0.473)



Sample Location		KIF-BG12						
Sample Date		27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19	27-Mar-19
Sample ID		KIF-BS-BG12-1.5/3.5-20190327	KIF-BS-BG12-6.5/8.5-20190327	KIF-BS-BG12-11.5/13.5-20190327	KIF-BS-BG12-16.5/18.5-20190327	KIF-BS-BG12-21.5/23.5-20190327	KIF-BS-BG12-26.5/28.5-20190327	KIF-BS-BG12-31.5/33.5-20190327
Sample Depth		1.5 - 3.5 ft	6.5 - 8.5 ft	11.5 - 13.5 ft	16.5 - 18.5 ft	21.5 - 23.5 ft	26.5 - 28.5 ft	31.5 - 33.5 ft
Sample Type		Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample	Normal Environmental Sample
Level of Review		Validated	Validated	Validated	Validated	Validated	Validated	Validated
	Units							
Radiological Parameters								
Radium-226	pCi/g	1.11 +/-(0.270)	1.17 +/-(0.328)	1.04 +/-(0.264)	0.650 +/-(0.255)	1.12 +/-(0.250)	1.70 +/-(0.374)	1.67 +/-(0.400)
Radium-228	pCi/g	1.79 +/-(0.368)	1.66 +/-(0.393)	1.13 +/-(0.388)	1.03 +/-(0.298)	1.33 +/-(0.281)	2.23 +/-(0.525)	1.41 +/-(0.882)
Radium-226+228	pCi/g	2.90 +/-(0.456)	2.83 +/-(0.512)	2.17 +/-(0.469)	1.68 +/-(0.392)	2.45 +/-(0.376)	3.93 +/-(0.645)	3.08 +/-(0.968)



Sample Location Sample Date Sample ID Sample Depth Sample Type Level of Review		KIF-BG12 27-Mar-19 KIF-BS-BG12-35.0/37.0-20190327 35 - 37 ft Normal Environmental Sample Validated
	Units	
Radiological Parameters		
Radium-226	pCi/g	2.05 +/-(0.452)
Radium-228	pCi/g	2.33 +/-(0.485)
Radium-226+228	nCi/a	$4 38 \pm (-(0.663))$

Notes:

ft	feet below ground surface
ID	identification
J	quantitation is approximate due to limitations identified during data validation
pCi/g	picoCurie per gram
U	not detected

1. Level of review is defined in the Quality Assurance Project Plan.

2. The 0-0.5 foot sample was collected using a hand auger when accessible during the drilling operations at that boring location; it may or may not have been the first sample obtained and thus could have a different sample date.



TABLE B.4 - Soil Field pH Results Kingston Fossil Plant March 2019 - July 2019

Sample Location	Sample ID	Sample Date	Sample Depth	pH (field)
		I		SU
	KIF-BS-BG01-0.0/0.5-20190328	28-Mar-19	0 - 0.5 ft	6.21
KIF-BG01	KIF-BS-BG01-1.5/3.5-20190328	28-Mar-19	1.5 - 3.5 ft	5.87
	KIF-BS-BG01-6.0/8.0-20190328	28-Mar-19	6 - 8 ft	6.83
	KIF-BS-BG02-0.0/0.5-20190314	14-Mar-19	0 - 0.5 ft	6.92
KIF-BG02	KIF-BS-BG02-0.7/2.7-20190314	14-Mar-19	0.7 - 2.7 ft	4.71
	KIF-BS-BG02-6.5/8.5-20190314	14-Mar-19	6.5 - 8.5 ft	4.84
	KIF-BS-BG02-11.0/14.0-20190314	14-Mar-19	11 - 14 ft	5.63
	KIF-BS-BG03-0.0/0.5-20190313	13-Mar-19	0 - 0.5 ft	7.49
KIF-BG03	KIF-BS-BG03-1.5/3.5-20190313	13-Mar-19	1.5 - 3.5 ft	7.86
	KIF-BS-BG03-6.5/8.5-20190313	13-Mar-19	6.5 - 8.5 ft	5.33
	KIF-BS-BG03-11.5/13.5-20190313	13-Mar-19	11.5 - 13.5 ft	4.48
	KIF-BS-BG04-0.0/0.5-20190319	19-Mar-19	0 - 0.5 ft	5.63
KIF-BG04	KIF-BS-BG04-0.0/1.9-20190319	19-Mar-19	0 - 1.9 ft	5.20
	KIF-BS-BG04-5.0/7.7-20190319	19-Mar-19	5 - 7.7 ft	6.56
	KIF-BS-BG04-10.0/11.1-20190319	19-Mar-19	10 - 11.1 ft	7.22
	KIF-BS-BG05-0.0/0.5-20190318	18-Mar-19	0 - 0.5 ft	7.46
	KIF-BS-BG05-6.5/8.5-20190318	18-Mar-19	6.5 - 8.5 ft	5.71
KIF-BG05	KIF-BS-BG05-11.5/13.5-20190318	18-Mar-19	11.5 - 13.5 ft	6.79
	KIF-BS-BG05-16.5/18.5-20190318	18-Mar-19	16.5 - 18.5 ft	7.50
	KIF-BS-BG05-21.0/24.0-20190318	18-Mar-19	21 - 24 ft	7.90
	KIF-BS-BG05-26.5/28.5-20190318	18-Mar-19	26.5 - 28.5 ft	7.94
	KIF-BS-BG06-0.0/0.5-20190711	11-Jul-19	0 - 0.5 ft	6.92
KIF-BG06	KIF-BS-BG06-1.5/3.5-20190711	11-Jul-19	1.5 - 3.5 ft	6.23
	KIF-BS-BG06-6.0/8.0-20190711	11-Jul-19	6 - 8 ft	6.30
	KIF-BS-BG07-0.0/0.5-20190312	12-Mar-19	0 - 0.5 ft	5.89
	KIF-BS-BG07-1.5/3.5-20190312	12-Mar-19	1.5 - 3.5 ft	5.30
	KIF-BS-BG07-6.5/8.5-20190312	12-Mar-19	6.5 - 8.5 ft	4.02
	KIF-BS-BG07-11.5/13.5-20190312	12-Mar-19	11.5 - 13.5 ft	4.07
	KIF-BS-BG07-16.5/18.5-20190312	12-Mar-19	16.5 - 18.5 ft	4.14
KIF-BG07	KIF-BS-BG07-21.5/23.5-20190312	12-Mar-19	21.5 - 23.5 ft	4.14
	KIF-BS-BG07-26.5/28.5-20190312	12-Mar-19	26.5 - 28.5 ft	3.98
	KIF-BS-BG07-31.5/33.5-20190312	12-Mar-19	31.5 - 33.5 ft	4.78
	KIF-BS-BG07-36.5/38.5-20190312	12-Mar-19	36.5 - 38.5 ft	5.24
	KIF-BS-BG07-41.5/43.5-20190312	12-Mar-19	41.5 - 43.5 ft	4.45
	KIF-BS-BG07-46.5/48.5-20190312	12-Mar-19	46.5 - 48.5 ft	4.52
	KIF-BS-BG07-51.5/53.5-20190312	12-Mar-19	51.5 - 53.5 ft	5.29
	KIF-BS-BG08-0.0/0.5-20190326	26-Mar-19	0 - 0.5 ft	6.80
	KIF-BS-BG08-1.5/3.5-20190326	26-Mar-19	1.5 - 3.5 ft	4.58
	KIF-BS-BG08-6.5/8.5-20190326	26-Mar-19	6.5 - 8.5 ft	4.59
KIF-BG08	KIF-BS-BG08-11.5/13.5-20190326	26-Mar-19	11.5 - 13.5 ft	4.66
	KIF-BS-BG08-16.5/18.5-20190326	26-Mar-19	16.5 - 18.5 ft	4.36
	KIF-BS-BG08-21.5/23.5-20190326	26-Mar-19	21.5 - 23.5 ft	5.10
	KIF-BS-BG08-26.5/27.5-20190326	26-Mar-19	26.5 - 27.5 ft	4.79
	KIF-BS-BG09-0.0/0.5-20190326	26-Mar-19	0 - 0.5 ft	5.62
	KIF-BS-BG09-1.5/3.5-20190326	26-Mar-19	1.5 - 3.5 ft	5.05
	KIF-BS-BG09-6.5/8.5-20190326	26-Mar-19	6.5 - 8.5 ft	4.63
KIF-BG09	KIF-BS-BG09-11.5/13.5-20190326	26-Mar-19	11.5 - 13.5 ft	5.01
	KIF-BS-BG09-16.5/18.5-20190326	26-Mar-19	16.5 - 18.5 ft	5.11
	KIF-BS-BG09-21.5/23.5-20190326	26-Mar-19	21.5 - 23.5 ft	5.18
	KIF-BS-BG09-26.5/28.5-20190326	26-Mar-19	26.5 - 28.5 ft	5.63



TABLE B.4 - Soil Field pH Results Kingston Fossil Plant March 2019 - July 2019

Sample Location	Sample ID	Sample Date	Sample Depth	pH (field)
				SU
	KIF-BS-BG10-0.0/0.5-20190325	25-Mar-19	0 - 0.5 ft	5.79
	KIF-BS-BG10-0.0/2.2-20190325	25-Mar-19	0 - 2.2 ft	5.85
	KIF-BS-BG10-6.5/8.5-20190325	25-Mar-19	6.5 - 8.5 ft	5.18
KIF-BG IU	KIF-BS-BG10-11.5/13.5-20190325	25-Mar-19	11.5 - 13.5 ft	5.09
	KIF-BS-BG10-16.5/18.5-20190325	25-Mar-19	16.5 - 18.5 ft	4.79
	KIF-BS-BG10-20.0/22.2-20190325	25-Mar-19	20 - 22.2 ft	5.32
	KIF-BS-BG11-0.0/0.5-20190322	22-Mar-19	0 - 0.5 ft	7.39
	KIF-BS-BG11-1.5/3.5-20190321	21-Mar-19	1.5 - 3.5 ft	7.75
	KIF-BS-BG11-6.5/8.5-20190321	21-Mar-19	6.5 - 8.5 ft	4.76
	KIF-BS-BG11-11.5/13.5-20190321	21-Mar-19	11.5 - 13.5 ft	5.56
KIF-BG11	KIF-BS-BG11-16.5/18.5-20190321	21-Mar-19	16.5 - 18.5 ft	5.04
	KIF-BS-BG11-21.5/23.5-20190321	21-Mar-19	21.5 - 23.5 ft	5.25
	KIF-BS-BG11-26.5/28.5-20190321	21-Mar-19	26.5 - 28.5 ft	4.97
	KIF-BS-BG11-31.5/33.5-20190322	22-Mar-19	31.5 - 33.5 ft	5.28
	KIF-BS-BG11-36.5/38.5-20190322	22-Mar-19	36.5 - 38.5 ft	5.47
	KIF-BS-BG12-0.0/0.5-20190327	27-Mar-19	0 - 0.5 ft	5.67
	KIF-BS-BG12-1.5/3.5-20190327	27-Mar-19	1.5 - 3.5 ft	4.87
	KIF-BS-BG12-6.5/8.5-20190327	27-Mar-19	6.5 - 8.5 ft	4.90
	KIF-BS-BG12-11.5/13.5-20190327	27-Mar-19	11.5 - 13.5 ft	5.02
KIF-BG12	KIF-BS-BG12-16.5/18.5-20190327	27-Mar-19	16.5 - 18.5 ft	4.99
	KIF-BS-BG12-21.5/23.5-20190327	27-Mar-19	21.5 - 23.5 ft	5.00
	KIF-BS-BG12-26.5/28.5-20190327	27-Mar-19	26.5 - 28.5 ft	5.16
	KIF-BS-BG12-31.5/33.5-20190327	27-Mar-19	31.5 - 33.5 ft	4.89
	KIF-BS-BG12-35.0/37.0-20190327	27-Mar-19	35 - 37 ft	5.06

Notes:

ft	feet below ground surface
ID	identification
SU	Standard Unit

APPENDIX C - SUBSURFACE LOGS

Subsurface Boring Legend

Lithology Graphics

Symbol	Lithology
	Fill
	Top Soil
07070700 0000000 0700000 07070700	Gravel
0 0 0 0 0 0 0 0 0 0 0 0	Well Graded Gravel (GW)
0 0 0 0 9 0 0 0 0 0 0	Poorly Graded Gravel (GP)
	Silty Gravel (GM)
	Silty, Clayey Gravel (GC-GM)
	Clayey Gravel (GC)
	Well Graded Gravel with Silt (GW-GM)
	Well Graded Gravel with Clay (GW-GC)
	Poorly Graded Gravel with Silt (GP-GM)
	Poorly Graded Gravel with Clay (GP-GC)
• • • • •	Well Graded Sand (SW)
	Poorly Graded Sand (SP)
	Silty Sand (SM)
	Silty, Clayey Sand (SC-SM)
	Clayey Sand (SC)
	Well Graded Sand with Silt (SW-SM)
$\cdot \cdot \square$	Well Graded Sand with Clay (SW-SC)
	Poorly Graded Sand with Silt (SP-SM)
$\boxed{\vdots}$	Poorly Graded Sand with Clay (SP-SC)
	Silt (ML)
	Silty Clay (CL-ML)
	Lean Clay (CL)
	Organic Silt (OL)
	Elastic Silt (MH)
	Fat Clay (CH)
	Organic Clay (OH)
	Shale
× × × × × × × × × × × × × × × × × × ×	Siltstone
	Coal
	Limestone
· · · · · · · · · · · · · · · · · · ·	Sandstone

Other Graphics

Symbol	Description	
	Denotes environmental analytical sample interval	
	Denotes SS sample interval	
	Denotes ST sample interval	
	Denotes DP sample interval	
	Denotes RS sample interval	
	Denotes RC sample interval	
Ā	First water level reading	
Ţ	Second water level reading	
Common Abbrovictions		

Common Abbreviations

Abbreviation	Definition
DP	Direct Push
HA	Hand Auger
HSA	Hollow Stem Auger
N/A	Not Applicable
NR	Not Recorded
RC	Rock Core
RQD	Rock Quality Designation
RS	Rotary Sonic
SS	Split Spoon
ST	Shelby Tube
WH	Weight of Hammer
WR	Weight of Rod

General Notes

The boring logs include sample numbering used during drilling. For assigned Environmental Analytical Sample ID numbers, see relevant Environmental Chain-of- Custody forms from the drilling date range listed on each log.

For pH readings and additional field data, see applicable field documentation (e.g., Soil pH Data Form) from the drilling date range listed on each log.

Lithology Graphics are based on TVA drafting standards.



Page: 1 of 1

		Poroholo			Stantas Borin		KIF-	BG01			
	liont				Boring Loopti	iy inc on			66.1		
			Tennes				573,590.	20 N; 2,404,743	.001		
	roject	Number	175668	5043	Surface Eleva	ation	771.7 ft	Elevatio	on D		NGVD29
	roject	Name			Date Started	_	3/28/19	Comple	ted	3/28/1	9
	roject	Location	n <u>Ha</u>	rriman, Lennessee	Depth to Wate	er	N/A	Date/Tir	me	N/A	
	ispect	Or J. Ar	narew		Depth to Wate	er		Date/Tir	me	N/A	
	vrilling	Contract	ling ond			and		Svetem w/ 60"	+323	U-UZ	
		irden Drii Vrilling on	ling and d Somp	I Sampling Tools (Type and Size		ie 301	r Sampling	J System w/ 60	PVC	, inters	
	Nordr	ill Tooling	u Samp 1 (Type	and Size) N/A	`			Overdrill	Do	nth N	Δ/Δ
	ample	ni Tooning ar Hamm	or Type	GH70 Direct Push Weight N/A	Drop	N/A		Overunii Efficiency	De	י µח א	
	oreho	le Azimu	th	N/A (Vertical)	Drop	inatio	 on (from	Vertical)	N/A	A	
	eview	/ed Bv	A. Bla	air	Approved By	L	Price		,.		
					, approved by		. 10	2			
		Lithology			Overburden:	S	ample ^{1,2}	Depth Ft [°]		Rec. Ft	Blows/PSI
Dep	th Ft [°]	Elevation	Graphic	Description	Rock Core:	F	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	771.7		Top of Hole		т		00.05	1 10	0.5	
	0.5	//1.2	111	_ ORGANIC SILT, OL, 10YR 4/6 (dark	yellowish	P,	HAU1	0.0 - 0.5	(((0.5	
- 1					/				1 11		-
- 2				plasticity, moist	brown), nign	1.5/3					-
						.5-201	DP01	0.0 - 5.0	0.0 - 5	3.2	N/A
- 3						90328			°		-
	4.0	767.7									_
4				CLAYEY SILT, ML, 10YR 4/3 (brown)), very dense,				(((
- 5				dry Shale fragments absorved from 4 5' t	o 5 0'						_
				Shale hagments observed from 4.5 to	0 5.0				(((
- 6						6.0/8		50-80	5.0 -	3.0	– N/A
- 7				Color change to 2.5Y 6/2 (pale red)		8.0-201	D1 02	0.0 - 0.0	8.0	0.0	-
	7.8	763.9				190328			$ \rangle\rangle\rangle$		
- 8	8.0	763.7		Shale							
				Bedrock Refusal /							_
				Bottom of Hole at 8.0 Ft.							
											_
											-
											-
			4. –	Environmental Semple Custedy (two Sp	lit Channe may be	roquir	ad to obto	in oufficient com			-
			I.E= G=	Geotechnical Sample Custody (100 Sp	ant Spoons may be	lequii		in suncient san	ipie)		-
			2: a,b, 3: Der	c denote Split Spoon divided between E	nvironmental and G Irface	Geoteo	chnical Sa	mples			
			4: Gra	b sample (0.0/0.5-20190328) sampled u	sing hand auger						_
											-
											-





	Client E	Borehole	ID _N/A	A	Stantec Bor	ng N	lo. KIF-	BG02			
	Client		Tennes	see Valley Authority	Boring Loca	tion	572,746.	20 N; 2,403,194.	85 E	NAD83	
F	Project	Number	175668	043	Surface Elev	/atio	n 797.6 ft	Elevatio	n Da	atum I	NGVD29
F	Project	Name	KIF TD	EC Order	Date Started	1	3/14/19	Complet	ed	3/14/	19
F	Project	Location	n Ha	rriman, Tennessee	Depth to Wa	ter	N/A	Date/Tin	ne	N/A	
l t	nspect	or J. Ar	ndrew	LoggerM. Edmunds	Depth to Wa	ter_	N/A	Date/Tin	ne	N/A	
	Drilling	Contract	or Ha	wkston (Subcontractor)	Drill Rig Typ	e an	d ID Geop	orobe 3230DT, #	3230-	-02	
	Overbu	rden Dril	ling and	Sampling Tools (Type and Size)	DT37 Dual Tu	ibe S	oil Sampling	System w/ 60" F	PVCI	liners	
F	Rock D	rilling an	d Samp	ling Tools (Type and Size)	L						
	Overdri	ill Tooling	g (Type	and Size) <u>N/A</u>				Overdrill	Dep	th _	N/A
5	Sample	er Hamme	er Type	GH70 Direct Push Weight N/A	Drop	N/A		Efficiency	N/.	A	
	Boreho	le Azimu	th	N/A (Vertical)	Borehole In	clina	tion (from	Vertical)	N/A		
F	Review	ed By _	A. Bla	air	Approved B	y _	L. Price				
		Lithology			Overburder	ו:	Sample ^{1,2}	Depth Ft ³	F	Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Rock Core	:	RQD %	Run Ft	F	Rec. Ft	Rec. %
- 0	0.0	797.6		Top of Hole							
ľ	0.1/	797.5⁄	///	Topsoil, roots, and sand	/	HA4	HA01	0.0 - 0.5	22	0.5	
				LEAN CLAY WITH SILT, CL, 5YR 3/1	(very dark				$\rangle\rangle\rangle$		-
1'				gray) to 5YR 4/6 (yellowish red), non-p	plastic to low	0.7/2.7)))		
				plasticity, iim, moist		-2019					
						0314	0001	0.0 5.0	0.0	2.2	- NI/A
							DPUT	0.0 - 5.0	- 5.0	3.3	IN/A
- 3									M		-
									222		
- 4)))		-
- 5				Color change to 5YR 5/6 (yellowish re	d), low				m		-
				plasticity, firm to stiff, some manganes	e concretions						
- 6				at 5.0'							-
- 7						3.5/8.5-			5.0		-
<u>n</u>						-20190	DP02	5.0 - 10.0	- 10.0	5.0	N/A
- 8						314			222		-
10.0000	0.0	788.6)))		
- 9	9.0	700.0	//	WELL GRADED SAND WITH CLAY.	SW-SC. 5YR						-
2002	10.0	797.6	••••	3/3 (dark reddish brown), medium to c	oarse, loose to						
g – 10	10.0	/0/.0	///	medium dense, moist, with abundant s	shale gravel				<u> </u>		_
r Po				and saprolitic shale clay	/						
- 11				SILTY LEAN CLAY, CL, 10YR 5/3 (bro	own), low shale gravel						-
			$\langle / / \rangle$	historical bedding structure maintained							
- 12						11.0/1-			=)///		-
ě.			$\langle / / \rangle$			4.0-201	DP03	10.0 - 15.0	10-15	5.0	N/A
- 13						190314			ю		-
			///						1111		



Page: 2 of 2

Client Borehole ID N/A	Stantec Boring	g No. KIF-	BG02		
Client Tennessee Valley Au	uthority Boring Location	on <u>572,746</u> .	20 N; 2,403,194.85	E NAD83	
Project Number 175668043	Surface Eleva	ation <u>797.6 ft</u>	Elevation D	Datum_I	NGVD29
Lithology	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³ Elevation Graphic Descri	ption Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 14 - 15 15.5 782.1 SILTY LEA plasticity, f historical b	N CLAY, CL, 10YR 5/3 (brown), low irm, dry, saprolitic bedrock, shale gravel, redding structure maintained <i>(Continued)</i>				-
Bedrock R Bottom of I	efusal / Hole at 15.5 Ft.		· · · ·		_
					-
					_
1: E = Environmenta G = Geotechnical 2: a,b,c denote Split 3: Depths are report	al Sample Custody (two Split Spoons may be r I Sample Custody t Spoon divided between Environmental and G ted in feet below ground surface	required to obta Geotechnical Sa	in sufficient sample) mples)	-
4. Grab sample (0.0	vo.5-20190314) sampled using hand auger				-
					_
					-
					_
					-
					_
					-
					_
					_
					_
					_
	Stantec Consulting Services Inc.				12/20/1



SUBSURFACE LOG

Page: 1 of 1

					Otanta a Davin		KIE-	BC03		
		sorenoie			Stantec Borin	ig No.	<u></u>	5605		
	lient		Tennes	see Valley Authority	Boring Locati	on	571,694.9	92 N; 2,405,055.07	E NAD83	}
P	roject	Number	175668	043	Surface Eleva	ation	747.8 ft	Elevation	Datum_	NGVD29
P	roject	Name	KIF TD	EC Order	Date Started		3/13/19	Complete	3/13/	19
P	roject	Locatio	n <u>Har</u>	riman, Tennessee	Depth to Wat	er	N/A	Date/Time	N/A	
Ir	nspect	or J. Ar	ndrew	Logger D. Mihalek	Depth to Wat	er	N/A	Date/Time	N/A	
	rilling	Contract	or Hav	wkston (Subcontractor)	Drill Rig Type	e and	ID Geop	orobe 3230DT, #32	30-02	
C)verbu	ırden Dril	ling and	Sampling Tools (Type and Size)	DT37 Dual Tub	be Soil	Sampling	System w/ 60" PV	C liners	
R	lock D	rilling an	d Samp	ling Tools (Type and Size) <u>N/A</u>	\					
C	verdr	ill Tooling	g (Type a	and Size) <u>N/A</u>				Overdrill D	epth _	N/A
s	ample	er Hamm	er Type	GH70 Direct Push Weight N/A	Drop _I	N/A		Efficiency _	N/A	
B	oreho	le Azimu	th	N/A (Vertical)	Borehole Incl	inatio	n (from	Vertical) N	/A	
R	leview	ved By	A. Bla	ir	Approved By	L.	Price			
		Lithology			Overburden:	Sa	mple ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:	R	QD %	Run Ft	Rec. Ft	Rec. %
	0.0	747.8		Top of Hole						
- 0				ORGANIC SILT, OL, 7.5YR 5/2 (brow	n), firm, moist	HA4	HA01	0.0 - 0.5	0.5	
- 1	1.5	746.3))	
- 2				LEAN CLAY, CL, 7.5YR 5/4 (brown), I	low plasticity,	5/3.5-2	0004	0,0, 5 ,0	0.7	N1/A
- 3				firm, moist, chert fragments (coarse) th	hroughout	201903	DPUI	0.0 - 5.0 5.0	2.7	N/A
4						513			((
									11	
- 5									₩	-
- 6				Dry at 6.0'		٥L))	,
- 7						.5/8.5-		5.0	\$	
- 8				Color change to 7.5YR 6/1 (gray), low hard at 7.0'	plasticity, very	20190	DP02	5.0 - 10.0	4.5	N/A
						313			((
5									21	
- 10))	-
- 11))	
- 12						.5/13.9	DP03	10.0 - 14.1	4.1	N/A
- 13	13.0	734.8				5-2019		4.1	((
31/02/21	14 1	733 7	\sim	Shale, dark gray, very hard, laminated	l, moderately	0313			((
<u> </u>		100.1		weathered, bedrock, some mica (weather between laminations	thered)				11	
60010]					-
ž.				Bottom of Hole at 14.1 Ft.						
SUBSU										
E. G.										
₹. -										
43_ IVA										-
089967			1: E =	Environmental Sample Custody (two Spl	lit Spoons may be	require	ed to obta	in sufficient sample	e)	
1 COG			G =	Geotechnical Sample Custody	vironmental and (- Sentad	hnical Sa	mnles		
BOKING			2: a,b, 3: Dep	ths are reported in feet below ground su	rface					
VA EIr			4: Gra	b sample (0.0/0.5-20190313) sampled us	sing hand auger					



Page: 1 of 1

Client	Borehole		4	Stantec Borin		-BG04		
Client	Dorenoie	Tennes		Boring Locatio	9 110. <u></u>	2 41 N [.] 2 406 622 1	4 F NAD83	3
Project	t Number	175668		Surface Eleva	ntion 791.2 ft	Elevation	Datum	
Projec	t Name	KIF TD	EC Order	Date Started	3/19/19		d 3/19/	19
Projec	t Location	<u>ווויי</u> אם Ha	rriman, Tennessee	Depth to Wate	er 1.4 ft	Date/Tim	e 3/19/	19 11:55
Inspec	tor J. An	Idrew	Logger D. Mihalek	Depth to Wate	er N/A	Date/Tim	e N/A	
Drilling	Contract	or Ha	wkston (Subcontractor)	Drill Rig Type	and ID Geo	 pprobe 3230DT, #3	230-02	
Overbi	, urden Dril	ling and	Sampling Tools (Type and Size)	DT37 Dual Tub	e Soil Samplin	ng System w/ 60" P	VC liners	
Rock E	Drilling and	d Samp	ling Tools (Type and Size)NA					
Overd	rill Tooling) (Type	and Size) <u>N/A</u>			Overdrill E	Depth	N/A
Sampl	er Hamme	er Type	GH70 Direct Push Weight N/A	Drop _N	I/A	Efficiency	N/A	
Boreho	ole Azimu	th	N/A (Vertical)	Borehole Incli	nation (fron	n Vertical)	N/A	
Review	ved By _	A. Bla	air	Approved By	L. Price			
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0.0	791.2		Top of Hole					
0.5	790.7		CLAYEY SILT, ML, low plasticity, soft,	moist, some	HA01	0.0 - 0.5	0.5	
- 1 🕎				/	1.9-20		221	-
- 2			SILT, ML, 7.5YR 4/3 (brown), soft, mo	ist	190319			-
					DP01	0.0 - 5.0	1.9	N/A
- 3							· \\)	-
- 4								-
5.0	786.2							
- 5			FAT CLAY, CH, 2.5Y 4/2 (dark grayish	ı brown), high	л		M	_
- 6			plasticity, firm, moist		0/7.7-2			-
					01903			_
'					تة DP02	5.0 - 10.0	2.7	N/A
- 8							· ((()	-
9.0	782.2		Wet at 8.5'				(((_
10.0	701.0		FAT CLAY, CH, 2.5Y 3/1 (very dark gr	ay), medium	10			
- 10	701.2		plasticity, wet, with black shale fragme	ents	.0/11.1		₩	—
<u> </u>	780.1	\sim	Shale, black, wet, fissile		DP03	10.0 - 11.1	1.1	N/A
			Bedrock Refusal /		319			
			Bottom of Hole at 11.1 Ft.					-
								-
								-
1								_
1								-
		1: E = G =	Environmental Sample Custody (two Spli Geotechnical Sample Custody	it Spoons may be r	equired to obt	ain sufficient samp	le)	-
		2: a,b,	c denote Split Spoon divided between En	ivironmental and G	eotechnical S	amples		-
		4: Gra	b sample (0.0/0.5-20190319) sampled us	ing hand auger				





	Client E	Borehole	ID_N/A	λ	Stante	ec Borin	g N	o. KIF-	BG05			
	Client		Tennes	see Valley Authority	Boring	g Locatio	on	576,831.	04 N; 2,406,882	.84	E NAD83	6
F	Project	Number	175668	043	Surfac	ce Eleva	atior	ו <u>777.8</u> ft	Elevatio	on E	Datum_	NGVD29
F	Project	Name	KIF TD	EC Order	Date	Started		3/18/19	Comple	ted	3/18/	19
F	Project	Locatior	ר Ha	rriman, Tennessee	Depth	to Wate	er _	13.0 ft	Date/Ti	me	3/18/	19 14:00
h	nspect	or J. An	drew	Logger D. Mihalek	Depth	to Wate	er _	N/A	Date/Ti	me	N/A	
	Drilling	Contract	or <u>Ha</u>	wkston (Subcontractor)	Drill R	lig Type	and	d ID Geop	orobe 3230DT, #	# 323	80-02	
	Overbu	ırden Dril	ling and	Sampling Tools (Type and Size))DT37	Dual Tub	e So	il Sampling	System w/ 60"	PV	C liners	
F	Rock D	rilling and	d Samp	ling Tools (Type and Size)	4							
	Overdr	ill Tooling	I (Type :	and Size) <u>N/A</u>					Overdrill	De	epth _	N/A
	Sample	er Hamme	er Type	GH70 Direct Push Weight N/A		Drop <u></u>	N/A		Efficiency		N/A	
	Soreho		tn	N/A (vertical)	Boreh		inati	Ion (from	Vertical)	N/	A	
	keview	еа ву	A. Dia		Аррго	vea ву		L. Price				
		Lithology			Ove	erburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Ro	ck Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	777.8		Top of Hole			T					
	10	776.8		ORGANIC SILT, OL, 2.5YR 3/3 (dark	reddish b	prown),	IA4					
- 1	1.0	110.0	/ /									-
- 2			$ \rangle / $	No recovery								-
			$ \rangle / $					DP01	0.0 - 5.0).0 - 5.0	0.0	N/A
- 3			Ň									-
- 4			/									-
	5.0	772.9										
- 5	5.0	112.0		FAT CLAY, CH, 10YR 4/4 (dark vellov	wish brow	/n).				#	1	_
- 6				medium plasticity, soft, moist		,,						-
							6					
- 7							.5/8.5-2	DDOO	50 400	5.0 -		-
- 8							201903	DP02	5.0 - 10.0	. 10.0	3.4	N/A
							18					
- 9												-
≩ – 10				Limestone cobbles embedded at 9.5'						ЦЩ	↓	_
777												
- 11										$ \rangle\rangle$		-
- 12							11.5/					-
							13.5-20	DP03	10.0 - 15.0	0.0 - 1	5.0	N/A
	¥			Wet at 12 0			19031			5.0		-
- 				Wet at 15.0			8					
ц 14				Color change to 5GY 3/2 (very dark g	rayish gre	een) at						
- 15				14.0' Color change to 10V 2 5/1 (greenist h		at with				#	4 I	-
100000				limestone cobbles at 15.0'	uiauk), we	, will						
01							16.5/1					-
- 17							8.5-20			15.0		-
							190318	DP04	15.0 - 20.0) - 20.0	5.0	N/A



Page: 2 of 2

ſ	С	lient E	Borehole	ID N/A		Stantec Borin	ng N	lo. KIF-	BG05			
	С	lient		Tenness	see Valley Authority	Boring Locati	on	576,831.0	04 N; 2,406,882	.84	E NAD83	
	Ρ	roject	Number	1756680	043	Surface Eleva	atior	n <u>777.8</u> ft	Elevatio	n C)atum_1	NGVD29
t			Lithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
	Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
	- 18 - 19				FAT CLAY, CH, 10YR 4/4 (dark yellow medium plasticity, soft, moist <i>(Contir</i>	wish brown), nued)						-
	20											-
	· 21						21.0/					-
	- 23						24.0-201903	DP05	20.0 - 25.0	20.0 - 25.0	5.0	N/A
	- 24	23.5	754.3		WELL GRADED GRAVEL, GW, N 4/ coarse, loose, wet	(dark gray),	318					-
	25 26											-
	27						26.5/28.5	DP06	25.0 - 29.3	25.0 - 29	4.3	N/A
╞	- 28						20190318			ω		-
ł	- 29	29.3	748.5	8 8 8 9 8 8 8 8 9	Limestone boulders at 28.9'							-
					Bedrock Refusal / Bottom of Hole at 29.3 Ft.							_
												-
												-
												-
0530.GDT 12/20/1				1: E = I G =	Environmental Sample Custody (two Sp Geotechnical Sample Custody	lit Spoons may be	requ	ired to obta	in sufficient sam	ple)	1	_
SURF DT 2019(2: a,b,c 3: Dept	: denote Split Spoon divided between Er hs are reported in feet below ground su	rface	Seote	echnical Sa	nples			-
PJ TDEC SUB												-
KIF_TDEC.G												-
75668043_TV/												_
VA EIP BORING LOG 1												-



Page: 1 of 1

	lient E	Borehole	ID N/A	A	Stantec Borin	a No. KIF-E	BG06		
	lient		Tennes	ssee Valley Authority	Boring Locatio	on 575,777.0	09 N; 2,406,717.0	9 E NAD83	3
P	roiect	Number	175668	3043	Surface Eleva	tion 776.6 ft	Elevation	Datum	NGVD29
l p	, roiect	Name	KIF TD	EC Order	Date Started	7/11/19	— Complete	d 7/11/	19
I P	roiect	Locatio	n Ha	rriman, Tennessee	Depth to Wate	er N/A	Date/Tim	e N/A	
l Ir	nspect	tor C.S	exton	Logger C. Sexton	Depth to Wate	er N/A	Date/Tim	e N/A	
c	, Prilling	Contract	or Ha	wkston (Subcontractor)	Drill Rig Type	and ID Geop	orobe 3230DT, #3	230-02	
)verbu	ırden Dril	ling and	Sampling Tools (Type and Size)	DT37 Dual Tub	e Soil Sampling	System w/ 60" P	VC liners	
F	lock D	rilling an	d Samp	ling Tools (Type and Size) N/A					
	Verdr	ill Tooling	g (Type	and Size) N/A			Overdrill D	epth	N/A
s	ample	er Hamm	er Type	GH70 Direct Push Weight N/A	Drop _N	I/A	Efficiency	N/A	
B	oreho	le Azimu	th	N/A	Borehole Incli	nation (from	Vertical)	N/A	
F	Review	/ed By	A. Bla	air	Approved By	L. Price			
		Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
	0.0	776.6		Top of Hole					
- 0	0.6	776.0		CLAYEY SILT WITH GRAVEL, MH, 10	DYR 5/3	[₹] HA01	0.0 - 0.5	0.5	
- 1			$\langle / / \rangle$	(brown) and 10GY 6/1 (greenish gray)	, low to	DP01a	0.0 - 1.5)))	-
					staining /	t.			
- 2				SILTY FAT CLAY SOME GRAVEL, CL (olive) medium to high plasticity soft t	_, 5Y 5/3 o firm_moist to		15 25	20	- N/A
- 3				wet, iron oxide staining		01907	1.5 - 5.5	3.9	IN/A
						1		K(()	
- 4						DP01cG	3.5 - 5.0	88	-
- 5									_
ľ						DP02aG	5.0 - 6.0		
- 6						φ			-
7				Color change to 10BG 5/1 (greenish g	rav) from 6.5')))	
Γ'				to 7.3'	<i>,</i>		0.0 - 0.0	3.7	N/A
- 8	8.0	768.6		Mg nodules at 7.3'	_				-
				CILT 2 5X 5/1 (max) as the band dry	inen evide	DP02cG	8.0 - 9.5	KK	
- 9	9.5	767.1		sil i, 2.5 Y 5/ i (gray), soil to hard, dry, staining, fissured, weathered shale	, iron oxide			(((-
				Bedrock Refusal /					_
				Bottom of Hole at 9.5 Ft.					
				Top of Pook = 0.5 Et					-
				Top of Rock Elevation = 767.1 Ft.					-
									-
			1: E =	Environmental Sample Custody (two Spli	t Spoons may be r	equired to obtai	in sufficient samp	e)	-
			G = 2: a,b,	ceotechnical Sample Custody c denote Split Spoon divided between En	vironmental and G	eotechnical Sar	mples		
			3: Dep 4: Gra	oths are reported in feet below ground sur	face				-
			Old						-



Page: 1 of 3

c	lient E	Borehole	IDN/A	Α	Stantec Borir	ng N	o. KIF-	BG07			
C C	lient		Tennes	ssee Valley Authority	Boring Locati	on	570,793.	51 N; 2,414,941.	.22 E	E NAD83	3
P	roject	Number	175668	8043	Surface Eleva	atior	า 783.4 ft	Elevatio	n D	atum	NGVD29
P	roject	Name	KIF TD	DEC Order	Date Started		3/12/19	Complet	ted	3/12/	19
P	roject	Locatio	n Ha	urriman, Tennessee	Depth to Wat	er	27.0 ft	 Date/Tir	ne	3/27/	19 14:20
Ir	nspect	or J. Ar	ndrew	Logger D. Mihalek	Depth to Wat	er	N/A	Date/Tir	ne	N/A	
	rilling	Contrac	tor Ha	uwkston (Subcontractor)	Drill Rig Type	ano	d ID Geop	 probe 3230DT, #	323	0-02	
C)verbu	irden Dri	lling and	d Sampling Tools (Type and Size	e) DT37 Dual Tub	be Sc	il Sampling	g System w/ 60" l	PVC	liners	
R	lock D	rilling an	d Samp	oling Tools (Type and Size) <u>N/</u>	A						
C	verdr	ill Tooling	g (Type	and Size) N/A				Overdrill	De	pth	N/A
s	ample	er Hamm	er Type	GH70 Direct Push Weight N/A	Drop _	N/A		Efficiency		N/A	
B	oreho	le Azimu	ith	N/A (Vertical)	Borehole Incl	inat	ion (from	Vertical)	N/A	4	
R	leview	ed By	A. Bla	air	Approved By		L. Price				
		Lithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	783.4		Top of Hole							
ľ				SANDY SILT, ML, 5YR 4/6 (yellowish	n red), firm, dry	HA4	HA01	0.0 - 0.5		0.5	
- 1											
						1.5					
- 2						/3.5-20	DP01	0.0 - 5.0	0.0 -	5.0	N/A
- 3)19031	Dioi	0.0 0.0	5.0	0.0	
						2					
- 4											
- 5									IЩ		-
- 6											
- 7						6.5/8					
ľ						3.5-201	DP02	5.0 - 10.0	5.0 - 1	5.0	N/A
- 8						190312			0.0		
	9.0	774.4									
- 9				CLAYEY ELASTIC SILT, MH, 5YR 6	/8 (reddish						
				yellow), soft, moist					IЩ	-	-
10				Color change to 7.5YR 5/8 (strong br	rown) at 10.0'						
- 11											
- 12						11.5/1]]]		
	12.5	770.9	ĮĮĮĮĮĮ			3.5-20	DP03	10.0 - 15.0	0.0 - 1	5.0	N/A
- 13				CLAYEY SAND, SC, 7.5YR 6/8 (redo	dish yellow),	19031			5.0		
				non-plastic, medium dense, moist		2					
14 				1							
ž – 15											-
20060043											
≝ ⊢ 16			$\langle / / \rangle$	1		16.5					
- 17			///			/18.5-2			, ///		
				1		019031:	DP04	15.0 - 20.0	5.0 - 20.0	5.0	N/A



Page: 2 of 3

Client Borehole ID N/A	A	Stantec Borin	g No.	KIF-	BG07			
Client Tennes	see Valley Authority	Boring Location	on	570,793.	51 N; 2,414,941	.22	E NAD83	
Project Number 175668	043	Surface Eleva	ation	783.4 ft	Elevatio	n D	atum N	NGVD29
Lithology		Overburden:	Sa	mple ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³ Elevation Graphic	Description	Rock Core:	R	QD %	Run Ft		Rec. Ft	Rec. %
- 18 18.5 764.9						1 m		-
- 19	Sandstone, olive, weathered, moist, b stiff	edrock, very						-
- 20 20.0 763.4	FAT CLAY CH 7 5VR 6/8 (reddish ve	allow) high				#	-	_
- 21	plasticity, soft, moist	now), nigh						-
- 22			21.5/23.5			20.0		-
- 23			-20190312	DP05	20.0 - 25.0	- 25.0	5.0	N/A _
- 24								-
- 25								_
- 26			20					-
- 27 ¥	Wet at 27.0'		.5/28.5-201	DP06	25.0 - 30.0	25.0 - 30	5.0	– N/A
- 28			90312			0		-
- 29								-
	Very soft at 30.0'							_
			31.5					-
			33.5-20190	DP07	30.0 - 35.0	30.0 - 35.0	5.0	N/A
2 - 34			312					_
35								_
- 36								-
- 37			36.5/38.			35.(-
38			5-20190312	DP08	35.0 - 40.0	0 - 40.0	5.0	N/A _
39								-
40	Color change to 10YR 4/3 (brown) at 4	40.0'						_
41	<u> </u>	-						-
42								-



Page: 3 of 3

ſ	С	lient E	Borehole	D N/A		Stantec Bor	ing N	o. KIF-	BG07			
	С	lient		Tennes	see Valley Authority	Boring Loca	tion	570,793.	51 N; 2,414,941	.22	E NAD83	5
	Ρ	roject	Numbe	r_175668	043	Surface Ele	vatior	ר <u>783.4</u> ft	Elevatio	on E	atum_I	NGVD29
Ī			Lithology			Overburde	n: S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
	Dep	th Ft ³	Elevation	Graphic	Description	Rock Core	:	RQD %	Run Ft		Rec. Ft	Rec. %
_	43				FAT CLAY, CH, 7.5YR 6/8 (reddish ye plasticity, soft, moist <i>(Continued)</i> Coarse sandstone fragments from 43.	ellow), high .0' to 45.0'	41.5/43.5-201903	DP09	40.0 - 45.0	40.0 - 45.0	5.0	N/A _
ľ	44						12					-
	45 46											-
ŀ	47						6.5/48.5-201	DP10	45.0 - 50.0	45.0 - 50.	5.0	N/A
	48 49						90312					-
	50											-
╞	51						σį			50.0	0.5	-
ł	52	53.0	730 /				1.5/53.5-201	DP11	50.0 - 53.5	- 53.5	3.5	N/A _
t	53	53.5	729.9		_ Chert, fragmented to consolidated		90312					-
					Bedrock Refusal / Bottom of Hole at 53.5 Ft.							-
												-
12/20/19												-
20190530.GDT				1: E = G = 2: a,b,c	Environmental Sample Custody (two Sp Geotechnical Sample Custody c denote Split Spoon divided between Er	lit Spoons may b nvironmental and	e requ Geote	ired to obta echnical Sa	in sufficient sam mples	nple))	-
SUBSURF DT :				3: Dep 4: Grat	ths are reported in feet below ground su o sample (0.0/0.5-20190312) sampled us	rface sing hand auger						-
EC.GPJ TDEC												-
TVA_KIF_TDE												-
JG 175668043												-
A EIP BORING LC												_



Page: 1 of 2

С	lient E	Borehole	ID N/A	۱.			Stantec Borin	ıg N	No. KIF-	BG08			
c	lient		Tennes	see Valley Authority			Boring Locati	on	580,466.	24 N; 2,411,765	.65	E NAD83	3
P	roject	Number	175668	043		S	Surface Eleva	atio	n 758.1 ft	Elevatio	n E	Datum	NGVD29
P	roject	Name	KIF TD	EC Order		[Date Started		3/26/19	Comple	ted	3/26/	19
P	roject	Location	n Har	riman, Tennessee		[Depth to Wat	er	17.5 ft	 Date/Tir	ne	3/26/	19 10:30
Ir	nspect	or J. Ar	ndrew	Logger _D.	Mihalek	[Depth to Wat	er _	N/A	Date/Tir	me	N/A	
D	rilling	Contract	or Hav	wkston (Subcontracto	or)	[Drill Rig Type	ar	nd ID Geop	probe 3230DT, #	\$323	80-02	
C	verbu	rden Dril	ling and	Sampling Tools	(Type and	Size)_	DT37 Dual Tub	e S	oil Sampling	y System w/ 60"	PV	C liners	
R	lock D	rilling an	d Samp	ling Tools (Type a	and Size)	N/A							
	verdri	II Tooling	g (Туре а	and Size) <u>N/A</u>						Overdrill	De	epth	N/A
s	ample	er Hamme	er Type	GH70 Direct Push	Weight _	N/A	Drop _I	N/A		Efficiency		N/A	
B	oreho	le Azimu	th	N/A (Vertical)		I	Borehole Incl	ina	tion (from	Vertical)	N/	A	
	leview	ed By	A. Bla	ir		/	Approved By	_	L. Price				
	I	_ithology					Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description			Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	758.1		Top of Hole				т	114.04	00.05	₁	0.5	
				ORGANIC SILT, C)L, 10YR 4/3	(brown),	loose, moist,	A4	HA01	0.0 - 0.5	((0.5	
- 1	1.5	756.6			03								
- 2				CLAYEY SILT, ML	., 10YR 5/6 ()	yellowish	brown),	1.5/3			$ \rangle$		
				non-plastic, soft, n	noist			.5-201	DP01	0.0 - 5.0	0.0 - 5.	5.0	N/A
- 3								90326			°		
4												S .	
- 5	5.0	753.1				5/6 (vollo	wich brown)				{}	1	-
				low plasticity, firm	to stiff, moist	S/O (yello	wish biowii),						
0											((
- 7								6.5/8.5			5.0		
								-20190	DP02	5.0 - 10.0) - 10.0	5.0	N/A
- 8								326			$ \rangle\rangle$		
- 9											$ \rangle$		
- 10												Ĭ	-
- 11										40.0 40.5	10.0		N1/A
2012								11.	DP03	10.0 - 12.5	- 12.5	3.2	N/A
- 12				Medium plasticity,	soft at 12.5'			5/13.5-					
2 - 13				1				20190					
								326		125-150	12.5 -	34	N/A
- 14										12.5 - 15.0	15.0	5.4	IN/A
5 - 15	15.0	743.1										Ω.	-
				FAT CLAY, CH, 10	0YR 5/6 (yello	owish bro	wn), high						
- 16				plasticity, soft, moi	IST			16.	DP05	15.0 - 17.5	15.0 -	3.7	N/A
								5/18.5-			17.5		
	¥							20190				Į	
<u>-</u>				Wet at 17.5'				326			$ \rangle$	/	



Page: 2 of 2

Client	Borehole	ID N/A		Stantec Boring No. KIF-BG08								
Client		Tennes	see Valley Authority	Boring Location 580,466.24 N; 2,411,765.65 E NAD83								
Project	Number	175668	043	Surface Elevat	tion <u>758.1 ft</u>	t Elevation Datum NGVD29						
Lithology				Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI				
Depth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %				
- 18 <u>18.5</u> - 19	739.6		CLAYEY SAND, SC, 7.5YR 5/8 (stror loose, wet	ng brown), very	DP06	7.5 - 20.0 - 20.0	3.0	N/A				
- 20 - 21 - 22					DP07	20.0 - 22.5	3.7	 N/A				
- 23 - 24 - 25					DP08	22.5 - 25.0	2.5	- N/A _				
- 26 - 27 <u>27.0</u> 27.5	731.1 730.6		_ Sandstone, dark gray		97 DP09	25.0 - 27.5	2.5	N/A -				
		DPT ru G = 2: a,b, 3: Dep 4: Grat	Bottom of Hole at 27.5 Ft. Ins beyond 10.0 ft are 2.5 ft in length to Environmental Sample Custody (two Sp Geotechnical Sample Custody c denote Split Spoon divided between E ths are reported in feet below ground su o sample (0.0/0.5-20190326) sampled u	allow for swelling so lit Spoons may be re nvironmental and Ge rface sing hand auger	ils. Recovery o equired to obta eotechnical Sar	greater than run le in sufficient samp mples	ength due to	- • swell _ - - - - - - - - - - - - - - - - - - -				





Client Borehole ID				Stantec Boring No. KIF-BG09							
Client Tennessee Valley Authority				Boring Location 581,532.93 N; 2,412,635.80 E NAD83							
Project Number 175668043				Surface Elevation 773.6 ft			Elevation Datum NGVD29			NGVD29	
Project Name KIF TDEC Order				Date Started 3/26/19			Completed 3/26/19			19	
Project Location Harriman, Tennessee				Depth to Water 28.0 ft		Date/Time3/26/19		19 15:05			
Inspector J. Andrew Logger D. Mihalek				Depth to Water N/A Date/Time N/A							
	rilling	Contract	or Ha	wkston (Subcontractor)	Drill Rig Type and ID_Geoprobe 3230DT, #3230-02						
C)verbu	ırden Dril	ling and	l Sampling Tools (Type and Size	e) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners						
R	lock D	rilling an	d Samp	ling Tools (Type and Size)//	A						
	Verdr	ill Tooling	g (Type	and Size) <u>N/A</u>		Overdrill Depth					
S	ample	er Hamm	er Type	GH70 Direct Push Weight N/A	Drop _	N/A		Efficiency		I/A	
B	oreho	le Azimu	th	N/A (Vertical)	Borehole Incl	inatio	on (from	Vertical)	N/A	۱ ۱	
	leview	ed By	A. Bla		Approved By	L	Price				
		Lithology			Overburden:	S	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Rock Core:	F	RQD %	Run Ft	_	Rec. Ft	Rec. %
- 0	0.0	773.6		Top of Hole		-					_
	0.5	773.1		ORGANIC SILT, OL, 10YR 3/3 (dark	brown), soft, /	HA4	HA01	0.0 - 0.5	K	0.5	
- 1			╽┫┹╡		/				M		
- 2			▋▋ <u></u> ╡ <u></u> ╡╡	medium dense. moist	sn brown),	1.5/3					-
			╟┇╽┇	····, ······		3.5-201	DP01	0.0 - 5.0	л л	5.0	N/A
- 3			 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓			90326			²∭		
	3.8	769.8	HHH								
				SILTY LEAN CLAY, CL, 5YR 4/6 (yell plasticity firm moist	owish red), low						
- 5	5.0	768.6	hh	SILTY SAND SM 10VP 5/6 (vollowis	h brown)	$\left \right $			#		-
				medium dense, moist	sir brown),						
ľ			╟┇┝┇┝┇╎								
- 7	75	766 1				6.5/8.5			<u></u>		
	1.5	700.1		SILTY LEAN CLAY, CL, 10YR 5/6 (ve	ellowish brown),	-20190	DP02	5.0 - 10.0		4.5	N/A
Г°				soft, moist	,,	326			M		
- 9											
)))		
- 10									M		-
- 11)))		
				Wet at 11.0'							
- 12						5/13.5-2	DP03	10.0 - 15.0		4 1	N/A
- 13						201903	D1 00		<u>۱</u> ۶	7.1	
5						126			(((
- 14									K		-
- 15	15.0	758.6							Щ		_
			╟┇┠┇┝┇	SILTY SAND, SM, 10YR 6/8 (brownis	h yellow), fine						
- 16			 	6 moulum, 10036, wet		16.5			III		
- 17			╟┇┠┇┝┇	Weathered sandstone at 17 0'		/18.5-2					
j c	17.5	756.1				019032	DP04	15.0 - 20.0		4.2	N/A
40	1		<u> </u>			6		1	اللالاد		

Stantec Consulting Services Inc.



Page: 2 of 2

Client Borehole ID				Stantec Boring No. KIF-BG09								
Client	Client Tennessee Valley Authority					Boring Location 581,532.93 N; 2,412,635.80 E NAD83						
Project Number175668043				Surface Elevation 773.6 ft Elevation Datum N					NGVD29			
Lithology				Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	F	Rec. Ft	Rec. %		
- 18 - 19			SILTY LEAN CLAY, CL, 10YR 5/6 (yell soft, wet <i>(Continued)</i>	lowish brown),						-		
20.0) 753.6									_		
- 21			SILTY SAND, SM, 10YR 6/8 (brownish to medium, loose	yellow), fine	21					-		
- 22		┇┥┇┥┇┥┆ ┇┥┇┥┇┥			.5/23.5-20	DP05	20.0 - 25.0	20.0 - 25	4.3	– N/A		
- 23		╏┇╏╏			190326			S		-		
- 24										-		
- 25			Wet at 25.0'							_		
- 26										-		
- 27	745.6		Sandstone boulder embedded at 27.0'		26.5/28.5-20	DP06	25.0 - 30.0	25.0 - 30	5.0	– N/A		
- 28 ¥ 20.0) 745.0		LEAN CLAY, CL, 7.5YR 4/6 (strong bro	own), low	190326			.0		-		
- 29			plasticity, firm, moist							-		
- 30	7 742.0									_		
- 31	142.9		Shale, dark gray, weathered, dry			DP07	30.0 - 31.8	10.0 - 31.8	1.8	N/A _		
31.8	3 741.8		Padraak Dafuaal /									
			Bottom of Hole at 31.8 Ft.							_		
										_		
										_		

1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample) G = Geotechnical Sample Custody

- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples 3: Depths are reported in feet below ground surface 4: Grab sample (0.0/0.5-20190326) sampled using hand auger



Page: 1 of 2

Client Borehole ID N/A				Stantec Boring No. KIF-BG10								
Client Tennessee Valley Authority				Boring Location 582,011.89 N; 2,407,288.66 E NAD83								
Project Number 175668043				Surface Elevation 763.2 ft Elevation Datum_NO					NGVD29			
Project Name KIF TDEC Order				Date Started 3/25/19 Completed 3/25/19					5/19			
Project Location Harriman, Tennessee				Depth to Water <u>N/A</u> Date/Time <u>N/A</u>								
Ir	nspect	or J. Ar	ndrew	Logger _D. Mihalek	Depth to Water <u>N/A</u> Date/Time <u>N/A</u>							
	rilling	Contract	tor Hav	wkston (Subcontractor)	Drill Rig Type and ID Geoprobe 3230DT, #3230-02							
C)verbu	ırden Dril	ling and	Sampling Tools (Type and Size)	e) DT37 Dual Tube Soil Sampling System w/ 60" PVC liners							
F	lock D	rilling an	d Samp	ling Tools (Type and Size)								
C	verdr	ill Tooling	g (Type a	and Size) <u>N/A</u>	Overdrill Depth N/A							
s	ample	er Hamm	er Type	GH70 Direct Push Weight N/A	Drop _!	N/A		Efficiency	N/A			
B	oreho	le Azimu	th	N/A (Vertical)	Borehole Incli	inati	on (from	Vertical)	N/A			
F	leview	ed By	A. Bla	air	Approved By		Price					
		Lithology			Overburden:	S	ample ^{1,2}	Depth Ft ³	Rec. F	t Blows/PSI		
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	Rec. F	t Rec. %		
- 0	0.0	763.2		Top of Hole								
ľ	0.5	762.7	777	SILT, OL, 7.5YR 3/2 (dark brown), loo	se, dry to 🦯	HA ⁴ 0	HA01	0.0 - 0.5	0.5			
- 1				\moist, with organics	/	.0/2.2-			222	-		
				FAT CLAY, CH, 7.5YR 5/4 (brown), high	gh plasticity,	201903)))]			
- ²				iim, moist		325	DP01	0.0 - 5.0	2.2	N/A		
- 3							21 01		5			
									((()			
- 4									(()	-		
- 5									111	_		
									88			
- 6									221	-		
- 7						6.5/8						
Ĺ						3.5-201	DP02	5.0 - 10.0	5.0	N/A		
- 8						90325			5	-		
									<u>s</u> ss			
- 9									((()			
- 10									666	-		
									(((
- 11										-		
- 12				Coarse chert fragments embedded in	clay matrix	11.5/1:			- 00	-		
				from 11.5' to 15.0'		3.5-20	DP03	10.0 - 15.0	5.0	N/A		
- 13						190325				-		
- 14												
1									<u>ss</u>			
- 15									666	-		
40												
- 16				Chert fragments and weathered chert	from 15.0' to	16.5/1	DP04	15.0 - 17.5	3.8	N/A		
- 17				17.5'		18.5-20						
I				Otiff with menual in class matrix at 47.51		119032						

Stantec Consulting Services Inc.


SUBSURFACE LOG

Page: 2 of 2

Client Borehole ID			Stantec Boring No. KIF-BG10						
Client		Tenness	ee Valley Authority	Boring Location 582,011.89 N; 2,407,288.66 E NAD83					
Projec	Number	1756680	43	Surface Elevat	ion <u>763.2 ft</u>	Elevation Datum NGVD29			
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation 0	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
- 18 - 19			FAT CLAY, CH, 7.5YR 5/4 (brown), h firm, moist <i>(Continued)</i>	igh plasticity,	DP05	17.5 - 20.0	2.5	N/A	
- 20 - 21 - 22 <u>22.2</u>	741.0				DP06	20.0 - 22.2	2.2		
		DPT ru 1: E = E G = (2: a,b,c 3: Dept 4: Grab	Bottom of Hole at 22.2 Ft.	allow for swelling soi lit Spoons may be re nvironmental and Ge rface sing hand auger	ls. Recovery g equired to obtai	greater than run le in sufficient sampl nples	ength due to	- o swell - - - - - - - - - - - - - - - - - -	
								-	



SUBSURFACE LOG

Page: 1 of 2

Client Borehole ID N/A			Stantec Boring No. KIF-BG11									
c	lient		Tennes	see Valley Authority	Boring L	Boring Location 583,551.7		79 N; 2,410,057.63 E NAD83		3		
P	roject	Number	175668	043	Surface	Eleva	tion	792.1 ft	Elevatio	n E	Datum_	NGVD29
Project NameKIF TDEC Order			Date Sta	Date Started 3/21/19		Completed		19				
P	roject	Location	ר Hai	rriman, Tennessee	Depth to	Wate	er	33.0 ft	Date/Ti	me	3/22/	19 09:33
Ir	nspect	or J. An	drew	Logger _ D. Mihalek	Depth to	Wate	er	N/A	Date/Ti	me	N/A	
D	rilling	Contract	or <u>Hav</u>	wkston (Subcontractor)	Drill Rig	Туре	and	ID Geop	probe 3230DT, #	\$323	80-02	
0	verbu	rden Dril	ling and	Sampling Tools (Type and Size	e)DT37 Du	al Tube	e Soi	I Sampling	g System w/ 60"	PVC	C liners	
R	ock D	rilling an	d Samp	ling Tools (Type and Size) <u>N</u>	A							
0	verdr	II Tooling	(Туре	and Size) <u>N/A</u>					Overdrill	De	pth _	N/A
S	ample	er Hamme	er Type	GH70 Direct Push Weight N/A	Dre	op _N	I/A		Efficiency		N/A	
B	oreho	le Azimu	th	N/A (Vertical)	Borehole	e Inclii	natio	on (from	Vertical)	N/.	A	
	eview	ed By _	A. Bla	air	Approve	d By	L	Price				
		_ithology			Overbu	urden:	S	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock	Core:	F	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	792.1		Top of Hole			_					
				SILT, ML, 7.5YR 5/4 (brown), very de	ense, dry, 90%	6	A.	HA01	0.0 - 0.5	1 1	0.5	
- 1				fines			_					-
- 2	25	789.6					1.5/3.5-			0.0		-
- 3	2.0	100.0		FAT CLAY, CH, 7.5YR 5/4 (brown),	medium		20190:	DP01	0.0 - 5.0) - 5.0	5.0	N/A
				plasticity, stiff, moist			321					
- 4												-
- 5												-
- 6										5.0		-
Ů							6.5	DP02	5.0 - 7.5) - 7.5	3.1	N/A
- 7				Coarse sand embedded from 6.5' to	7.5'		5/8.5-2					-
- 8							019032		75-90	7.5 -	28	N/A
L 9							<u></u>	DI 00	1.0 - 0.0	9.0	2.0	
Ĵ												
- 10												_
- 11									10.0 12.5	10.0 -	3.5	N/A -
12							11.5/1	DF 04	10.0 - 12.5	. 12.5	5.5	IN/A
							13.5-20			[4	-	
- 13							19032			12		-
- 14								DP05	12.5 - 15.0	5 - 15.	3.9	N/A
15												_
5 15												_
j – 16				Chert lens from 16 0' to 16 4'			_	DP06	15.0 - 17.5	15.0 - 1	3.6	N/A
2 - 17							6.5/18			7.5		-
				Color change to 7.5YR 5/6 (strong b	rown) at 17.5'		.5-2019					
18							90321	0007	47 5 00 0	17.5		N1/A
g – 19								DF01	17.5 - 20.0	- 20.0	3.6	N/A
- 20										ļμ	4	_
				Color change to 7.5YR 4/6 (strong b	rown) at 20.0'							

Stantec Consulting Services Inc.



SUBSURFACE LOG

Page: 2 of 2

Client	Client Borehole ID N/A			Stantec Boring No. KIF-BG11					
Client	Tennes	see Valley Authority	Boring Location 583,551.79 N; 2,410,057.63 E NAD83				3		
Projec	t Number 175668	043	Surface Elevation 792.1 ft Elevation Datur			on Datum_	NGVD29		
	Lithology		Overburden:	Sample	^{1,2} Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation Graphic	Description	Rock Core:	RQD 9	6 Run Ft	Rec. Ft	Rec. %		
- 21 - 22		FAT CLAY, CH, 7.5YR 5/4 (brown), m plasticity, stiff, moist <i>(Continued)</i>	edium	21.5/23.5-2	20.0 - 22.5	4.2	N/A -		
- 23 - 24		Wet at 22.5'		0190321 DP(9 22.5 - 25.0	22.5 - 25.0 4.1	N/A _		
- 25 - 26 - 27				26.5/28.5	0 25.0 - 27.5	25.0 - 27.5 4.1	 N/A		
- 28 - 29		Weathered chert lens from 28.5' to 29	3'	-20190321 DP1	1 27.5 - 30.0	27.5 - 30.0	- N/A _		
- 30 - 31 - 32		No chert observed from 30.0' to 32.5'		31.5/33.	2 30.0 - 32.5	³⁰ 0- 325 4.5	N/A -		
- 33 - 34				-20190322 DP1	3 32.5 - 35.0	32.5- 35.0 3.7	N/A _		
- 35 - 36 - 37 <u>37.0</u>	755.1			36.5/38.	4 35.0 - 37.5	35.0 37.5 2.8	– N/A –		
- 38 - 39	750.4	CLAYEY GRAVEL, GC, 7.5YR 5/4 (br cobbles, loose, wet, chert and limestor Interbedded clay lenses from 37.5' to 4	own), coarse to ne gravel 40.0'	5-20190322 DP1	5 37.5 - 40.0	37.5 - 40.0 2.9	- N/A _		
40.0	751.7	∽ Shale bedrock. refusal at 40.4'		DP1	6 40.0 - 40.4	0.0	N/A		
C.GPJ TDEC SUBSURF DT 201905501401		Bedrock Refusal / Bottom of Hole at 40.4 Ft.				- 40,4	-		
TVA_KIF_IUE	DPT ru	ins beyond 5.0 ft are 2.5 ft in length to al	low for swelling so	ils. Recove	ery greater than run	length due to	swell		
TVA EP BORING LOG 175668943.	1: E = G = 2: a,b, 3: Dep 4: Grat	Environmental Sample Custody (two Spl Geotechnical Sample Custody c denote Split Spoon divided between Er ths are reported in feet below ground sur o sample (0.0/0.5-20190322) sampled us	it Spoons may be ivironmental and G face sing hand auger	required to Geotechnica	obtain sufficient sa Il Samples	mple)	-		

_





Client Borehole IDNA			Stantec Boring No. KIF-BG12								
	Client		Tennes	ssee Valley Authority	Boring Location 584,398.52 N; 2,411,876.07 E NAD83						
F	Project	Number	175668	3043	Surface Elevation 798.6 ft Elevation Datum_NGVD			NGVD29			
Project Name KIF TDEC Order			Date Started 3/27/19 Completed 3/27/19			19					
F	Project	Location	n Ha	rriman, Tennessee	Depth to Wat	er	23.5 ft	Date/Tim	ne	3/27/	19 12:57
	nspect	or J. Ar	ndrew	Logger _D. Mihalek	Depth to Wat	er	N/A	Date/Tim	ne	N/A	
[Drilling	Contract	or Ha	wkston (Subcontractor)	Drill Rig Type	e and	ID Geop	probe 3230DT, #3	323	0-02	
	Overbu	ırden Dril	ling and	I Sampling Tools (Type and Size)	DT37 Dual Tub	oe Soil	Sampling	g System w/ 60" F	PVC	C liners	
F	Rock D	rilling an	d Samp	ling Tools (Type and Size)	1						
	Overdr	ill Tooling	g (Type	and Size) N/A				Overdrill	De	pth	N/A
1 5	Sample	er Hammo	er Type	GH70 Direct Push Weight N/A	Drop _	N/A		Efficiency	1	N/A	
E	Boreho	le Azimu	th	N/A (Vertical)	Borehole Incl	linatic	on (from	Vertical)	N//	A	
F	Review	ved By	A. Bla	air	Approved By	L	. Price				
		Lithology			Overburden:	Sa	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	pth Ft ³	Elevation	Graphic	Description	Rock Core:	R	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	798.6		Top of Hole							
Ů	0.5	798.1		SILT, ML, 7.5YR 4/6 (strong brown), s	oft, dry	HA4	HA01	0.0 - 0.5	N	0.5	
- 1				SILTY LEAN CLAY, CL, 2.5YR 4/6 (re	ed), low						
- 2				plasticity, firm, moist		1.5/3.			_)))		
						5-2019	DP01	0.0 - 5.0	.0 - 5.0	5.0	N/A
- 3						0327			_{{		
- 4									((
- 5	5.0	793.6									-
ľ				SILTY LEAN CLAY, CL, 5YR 4/6 (yell	owish red),				- 11		
- 6				firm, moist			DP02	5.0 - 7.5	5.0 - 7	3.8	N/A
- 7						6.5/8.			5		
						5-2019			H	Ţ	
- 8						0327			7.5		
- 9							DP03	7.5 - 10.0	-100	2.7	N/A
L 10									ll		_
10									.)))		
- 11							DP04	10.0 - 12.5	10.0 - \	3.0	N/A
5 - 12						11.5/1:			12.5		
190530.				Soft at 12.0'		3.5-201			H		
§ – 13						90327			12		
14 - 14							DP05	12.5 - 15.0	5 - 15.((2.5	N/A
1DEC				Wet at 14 5'							
- 15				Wet at 14.5							-
- 16							DP06	15.0 - 17.5	15.0	3.0	N/A
≨ ⊈– 17	17.0	781.6	\square			16.5/1			17.5		
756680			///	SILTY LEAN CLAY WITH SAND, CL,	7.5YR 5/6	8.5-20			₩		
9075 – 18	18.5	780.1		(strong brown), medium plasticity, soft	i, wet	190327			;∭		
N - 19				SILTY SAND, SM, 5YR 5/6 (yellowish	red), loose,		DP07	17.5 - 20.0	5 - 20.0	2.4	N/A
			╟┇┥┇	wet					-		



SUBSURFACE LOG

Page: 2 of 2

	Client Borehole ID N/A			Stantec Boring No. KIF-BG12							
	lient		Tennes	see Valley Authority	Boring Location 584.398.52 N: 2.411.876.07 E NAD83						
P	roject	Number	175668	043	Surface Elevation 798.6 ft Elevation Datum			Datum_I	NGVD29		
		Lithology			Overburden:		ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:	R	QD %	Run Ft		Rec. Ft	Rec. %
- 20					·						
- 21	21.5	777.1		SILTY SAND, SM, 5YR 5/6 (yellowish wet <i>(Continued)</i> _ Fragmented shale from 20.0' to 21.5'	red), loose,	21.	DP08	20.0 - 22.5	20.0 - 22.5	3.2	N/A
- 22 - 23				CLAYEY SAND, SC, 10YR 3/3 (dark t plasticity, loose, wet, sand/clay mix, so	prown), low oft	5/23.5-201903					-
- 24	¥			Color change to 10YR 6/6 (brownish y	ellow) at 23.5'	327	DP09	22.5 - 25.0	22.5 - 25.0	3.0	N/A _
- 25									25.0		-
- 27						26.5/28.5-	DP10	25.0 - 27.5	1- 27.5	4.0	N/A -
- 28 - 29				Color change to 10YR 5/6 (yellowish b With weathered sandstone and shale 32.5'	prown) at 27.5' from 27.5' to	20190327	DP11	27.5 - 30.0	27.5 - 30	2.8	N/A
- 30											-
- 31						31.5/3	DP12	30.0 - 32.5	30.0 - 32.5	3.8	N/A
- 33				With sandstone and shale cobbles fro	m 32.5' to 36.5'	3.5-20190327		32 5 - 35 0	32.5 -	3.0	
- 34 - 35						35	DF 13	32.3 - 33.0	- 35.0	3.0	- N/A
- 36	36.5	762.1				.0/37.0-20190;	DP14	35.0 - 37.0	35.0 - 37.0	3.0	N/A -
- 37	37.0	/01.0		_ Limestone and Shale		327					
GDT 8/27/20				Bedrock Refusal / Bottom of Hole at 37.0 Ft.							-
RF DT 20190530.											_
J TDEC SUBSU			DPT ru	ins beyond 5.0 ft are 2.5 ft in length to al	low for swelling so	ils. Re	ecovery gr	eater than run l	leng	th due to	- swell
TDEC. GF											-
ZA_KIF			1: E = G =	Environmental Sample Custody (two Spl Geotechnical Sample Custody	it Spoons may be	require	ed to obta	in sufficient san	nple)	-
G 175668043_1			2: a,b, 3: Dep 4: Gra	c denote Split Spoon divided between Er ths are reported in feet below ground su b sample (0.0/0.5-20190327) sampled us	nvironmental and G face sing hand auger	Geotec	hnical Sai	mples			-
RING LOC				. , , ,	-						_
IVA EIP BO											-

APPENDIX D - PHOTOGRAPHIC LOGS

ATTACHMENT D.1

Photographic Logs of Soil Cores











Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 5	N	orth East Ele	vation
Photo Location: KIF-BG02	© 223°SW (T)) 35°53'51"N, 84°31	1'56"W ±210.0ft ▲ 783ft
Photo Date: 3/14/2019			
Comments: Third boring location interval (10.0-15.0 fee	rt).		
		175628043 HIF THE OPTER BG 02 - ALT 4 RUN 3: 10.0-15.0 R:5.0	3/4(17) E779 14 Mar 2019, 15:19:15
Photograph ID: 6			
Photo Location: KIF-BG02			
Photo Date: 3/14/2019			
Comments: Photo of third boring location interval (15.0- feet) unavailable.	-15.5	No Photo Applica	ıble







Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 9 Photo Location: KIF-BG03 Photo Date:			
3/13/2019 Comments: Interval (10.0-14.1 fee Recovery shown on whiteboard should be	et). e 4.1.	175668 KIFTD 3/13/1 KIF-BGC DP0310 £:5.0	23 С О R DE R 9 3 - 15 - 15 - 03/13/2019 12:14
Photograph ID: 10			
Photo Location: KIF-BG04			
Photo Date: 3/19/2019			
Comments: Photo of second borir location interval (0.0-5 feet) unavailable. Offs feet to the west of the boring.	ng 5.0 set 30 e first	No Photo Applica	ible







Client:	Tenn	essee Valley Authority	Project:	TDEC Order
Site Name:	King	ston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 13 Photo Location: KIF-BG05 Photo Date:		-		
3/18/2019				
Comments: Photo of interval (0.0- feet) unavailable.	5.0		No Photo Applicat	ble
Photograph ID: 14				
Photo Location: KIF-BG05				
Photo Date: 3/18/2019				
Comments: Interval (5.0-10.0 feet)).			2000 - 00 - 00 - 00 - 00 - 00 - 00 - 00



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 15 Photo Location: KIF-BG05			
Photo Date: 3/18/2019			
Comments: Interval (10.0-15.0 fee	et).		03/18/2019 11:26
Photograph ID: 16			
Photo Location: KIF-BG05			
Photo Date: 3/18/2019			113
Comments: Interval (15.0-20.0 fee	et).	KIF-BGO DPO4 19 R:5.0	PORDER 5 - 20 BOTTORA BOTTORA



Client:	Tenn	essee Valley Authority	Project:	TDEC Order
Site Name:	King	ston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 17 Photo Location: KIF-BG05		-		
3/18/2019				
Comments: Photo of interval (20.0 feet) unavailable.)-25.0		No Photo Applicat	ble
Photograph ID: 18				
Photo Location: KIF-BG05				
Photo Date: 3/18/2019				
Comments: Interval (25.0-29.3 fee Interval shown on whi board should be (25.0 feet). Run number sho on white board should DP06. Recovery show white board should be	et). te 0-29.3 own d be vn on e 4.3.	I 75 KII DPC R:L Top	5 25'-30' 1.41' BOTTOM	03/18/2019 12:10







Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 21 Photo Location: KIF-BG07 Photo Date: 3/12/2019			
Comments: Interval (0.0-5.0 feet).	Тор	175668 KIF TDEC KIF-BGO 3/12/19 DPO1 C R:5.0	043 ORDER 0-5.0 → Boltona 03/12/2019 10:41
Photograph ID: 22			
Photo Location: KIF-BG07			and which in the second s
Photo Date: 3/12/2019			A Contraction of the State of the
Comments: Interval (5.0-10.0 feet). Top	17566 KIF TI KIF-BG 3/12/1 DP02 R:5.	8043 EC ORDER 9 5-10' 0 Bottom



Client:	Tenn	essee Valley Authority	Project:	TDEC Order
Site Name:	King	ston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 23 Photo Location: KIF-BG07		_		
Photo Date: 3/12/2019		-		
Comments: Photo of interval (10.0 feet) unavailable.	D-15.0		No Photo Applicat	ole
Photograph ID: 24		-		
Photo Location: KIF-BG07				
Photo Date: 3/12/2019				Tills & ANTRAS
Comments: Interval (15.0-20.0 fee	∍t).	Top	175668 KIF TDEC KIF-BGO 3/12/19 DPO4 1 R:5.0	043 ORDER 5-20 Boltons 03/12/2019 11:31



















Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 33 Photo Location: KIF-BG08 Photo Date: 3/26/2019			
Comments: Interval (5.0-10.0 feet).	1756680 KIF TDEC 3/26/19 KIF-BGO DP02 5 R:5	043 ORDER 8 - 10 O' Barner 03/26/2019 07:49
Photograph ID: 34			
Photo Location: KIF-BG08			
Photo Date: 3/26/2019			
Comments: Photo of interval (10.0 feet) unavailable.)-12.5	No Photo Applica	ble











Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 39 Photo Location: KIF-BG08			
Photo Date: 3/26/2019	States and the	The state	and the second s
Comments: Interval (22.5-25.0 fee	et).	I79 KIF D	5668043 TDEC ORDER 3/26/19 - BGO PO 8 22.5-25 R: 2.5'
Photograph ID: 40			
Photo Location: KIF-BG08			
Photo Date: 3/26/2019			
Comments: Photo of interval (25.0 feet) unavailable.)-27.5	No Photo Appli	icable



		Duala at	
Client:	Tennessee valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 41 Photo Location: KIF-BG09			
Photo Date: 3/26/2019			
Comments: Interval (0.0-5.0 feet). number shown on wh board should be DP0	Run ite 1.	KIF JOECO KIF JOECO DUPOI BEOG R:5.0-5- Borro,	03/26/2019 11:27
Photograph ID: 42			
Photo Location: KIF-BG09			
Photo Date: 3/26/2019	the state of the s		
Comments: Interval (5.0-10.0 feet number shown on wh board should be DP02). Run ite 2.	I7566 KIF TDE 3/26/ KIF-BG DUPOZ R:4	8043 C ORDER 09 5-10 Borton 03/26/2019 11:39



















Client:	Tenn	essee Valley Authority	Project:	TDEC Order
Site Name:	King	ston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 51 Photo Location: KIF-BG10 Photo Date: 3/25/2019		-		
Comments: Photo of interval (15.0 feet) unavailable.)-17.5		No Photo Applicat	ble
Photograph ID: 52		Cher and a second and a second and a second a se	KIF SEC	
Photo Location: KIF-BG10		And a	DPO5 5 C	24
Photo Date: 3/25/2019			R 2 75	20'
Comments: Interval (17.5-20.0 fee	et).			
		Sector and	28 28 cm	03/25/2019 12:30







Client:	Tenn	essee Valley Authority	Project:	TDEC Order
Site Name:	King	ston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 55 Photo Location: KIF-BG11		_		
3/21/2019				
Comments: Photo of third boring location interval (5.0-7 feet) unavailable.	7.5		No Photo Applicat	ble
Photograph ID: 56			WE WE SHOW	
Photo Location: KIF-BG11				
Photo Date: 3/21/2019				
Comments: Third boring location interval (7.5-9.0 feet). Project number showr whiteboard should be 175668043.	ו on		П566043 КІГТДЕС З/21/ГС КІГ-ВС ОРОЗ- R:2. Тор	Bottom 03/21/2019 11:29



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 57 Photo Location: KIF-BG11 Photo Date: 3/21/2019 Comments: Third boring location interval (10.0-12.5 fee Project number shown whiteboard should be 175668043.	et). n on	HISGGONS KIFTDECOF J/21/19 KIF-BGI DPOH 10- R-3.5	DER C2.5 Bettom 03/21/2019 11:46
Photograph ID: 58			
Photo Location: KIF-BG11			
Photo Date: 3/21/2019			
Comments: Photo of third boring location interval (12.5 feet) unavailable.	-15.0	No Photo Applica	ıble


















Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 67 Photo Location: KIF-BG11 Photo Date: 3/22/2019 Comments: Third boring location interval (35.0-37.5 fee	et).	1756690 KIF TDEC 3/22/1 KIF-BGIIC DP14 35'-3 R: 2.8'	03/22/2019 06:52
Photograph ID: 68			
Photo Location: KIF-BG11			
Photo Date: 3/22/2019			
Comments: Photo of third boring location interval (37.5 feet) unavailable.	-40.0	No Photo Applica	ble



Client:	Tenn	essee Valley Authority	Project:	TDEC Order
Site Name:	King	ston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 69 Photo Location: KIF-BG11 Photo Date: 3/22/2019		-		
Comments: Third boring location interval (40.0-40.4 fee recovery, photo unavailable.	et) no		No Photo Applicat	ole
Photograph ID: 70		KORVIL		
Photo Location: KIF-BG12				TEL L
Photo Date: 3/27/2019		5 <u>5 7</u> 7 8 5 9 7 2E 1	³⁷ .2 ²⁷ .3 ²⁷ .4 ²⁷ .5 ³⁷ .6 ³⁷ .	7 8 9 9 7 4 2 4 3
Comments: Interval (0.0-5.0 feet).		Top	175668 KIF TDI 3/27 KIF-80 DP01 R:5	Poris CORDER /19 512 5-5 500 Bottom D3/27/2019 08:28



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 71 Photo Location: KIF-BG12 Photo Date:			
3/27/2019	1 1		
Comments: Interval (5.0-7.5 feet). depth shown on white should be 7.5.	End aboard	Tot	175668043 KIF TDEC OR 3/27/19 KIF-8G12 DPO2 5-7 R:3.8
Photograph ID: 72			
Photo Location: KIF-BG12			
Photo Date: 3/27/2019			
Comments: Photo of interval (7.5- feet) unavailable.	10.0	No Photo Applica	ble























Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 83			
Photo Location: KIF-BG12			1
Photo Date: 3/27/2019			
Comments: Interval (35.0-37.0 fee Run number shown o whiteboard should be DP14.	et). n	175668 KIF TDI 3/27 KIF-BG DP15 33 R:3 Top	BO43 EC ORDER 12 5'-37' BoHtat BoHtat

ATTACHMENT D.2

Photographic Logs of Rock Outcrops



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 1	50	S 180 210 SW	W 270
Photo Location: Area 01	Ŭ•⊥•⊥ ⊕ 220°S\	• T • T • T • T • T • T • T • T • T W (T) ◎ 35°54'36"N, 84°31'10)"W ±32.8ft ▲ 822ft
Direction::		Mar Cal	
Photo Date: 8/29/2019	in the second		
Comments: KIF-ROC-AREA01-01 Geologic formation sh on whiteboard should Conasauga Shale, no Knox. Strike and dip s read N55°E, 43°SE	nown be nt should	17566 8 043 28-29-2019 ROC Area01 Sample 0.102 How Grap CC-AFEA01-01-009092	KIF Arda 01. 29 Adg 2019. 09:11:12
Photograph ID: 2		210 SW 240 270	300. NW
Photo Location: Area 01	© 252°W	(T)	• 1 • 1 • 1 • 1 • 1 'W ±164.1ft ▲ 825ft
Direction::		A SAL	
Photo Date: 8/29/2019			All the second s
Comments: KIF-ROC-AREA01-01	Sample 01		KIF Area 01 29 Aug 2019, 08:56:39







Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 5 Photo Location: Area 01 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA01-01			
Photograph ID: 6			MARTINE STREET
Photo Location: Area 01		and and	Sector and the sector of the s
Direction::	1-3-51-4		
Photo Date: 9/6/2019			
Comments: KIF-ROC-AREA01-01			



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 7 Photo Location: Area 01 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA01-01			
Photograph ID: 8	S	SW	W
Photo Location: Area 01	180 • 1 • 1 • 243°SV	• • • • • • • • • •	$\begin{array}{c} 300 \\ 1 & 1 \\ 1 & 1 \\ 1 \\ 32.8 \\ 1 \\ 4 \\ 868 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ $
Direction::			P Population
Photo Date: 8/29/2019			
Comments: KIF-ROC-AREA01-02 Geologic formation sh on whiteboard should Conasauga Shale, no Knox. Strike and dip s read N55°E, 43°SE	e. nown be t should Sample 02	P35668043 08-29-2019 ROC Area01 Sample 0.2 Knox Grupe KIP-ENPEROI-02	20190829 KIF Area 01 29 Aug 2019, 09:15:50





43'



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 11 Photo Location: Area 01 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA01-02			
Photograph ID: 12			C.p.
Photo Location: Area 01			N.Y.
Direction::		12000	
Photo Date: 9/6/2019			and and a second se
Comments: KIF-ROC-AREA01-02			



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 13	30	SW 240 270	300 NW
Photo Location: Area 01	© 251°W	· T · T · T · T · T · T · T · T · T / (T))"W ±32.8ft ▲ 810ft
Direction::			
Photo Date: 8/29/2019			
Comments: KIF-ROC-AREA01-02			KIF Area 01 29 Aug 2019, 08:57:37
Photograph ID: 14	300 N	W N	NE 60
Photo Location: Area 01	● 4°N (7	• 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1	Ŭ ±32.8ft ▲ 848ft
Direction::		08-29-2019	H2.
Photo Date: 8/29/2019		ROC Area 1	¥3-
Comments: KIF-ROC-AREA01-03 Geologic formation sh on whiteboard should Conasauga Shale, no Knox. Strike and dip s read N35°E, 43°SE	s. nown be it should Sample 0.	Knox Grup F-ROC-AREA 01-03-2019	10829 KIF Area 01 29 Aug 2019, 10:29:30











Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 19		Anton and	
Photo Location: Area 02			
Direction::			····
Photo Date: 9/6/2019		3.5 21	
Comments: KIF-ROC-AREA02-01			
Photograph ID: 20	300	NW 330 N 0	30 NE 60
Photo Location: Area 03	• • • • � 357°N	(T)	"W ±16.4ft ▲ 764ft
Direction::			
Photo Date: 8/28/2019			
Comments: KIF-ROC-AREA03-01 Strike and dip should N85°E, 29°SE	read	175668043 (X+28-2019 RCC - AREA 03 Smpl OL Magarabille Linestone KIF-ROC - ARCAD3-01 - 201905	2730 2730 28 Aug 2019, 10:36:04











Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 25		and the second	and and the the last
Photo Location:	961		1 Tabata
Direction::		and the second	
Photo Date:		a state	The state of the second
9/4/2019		- + hall	1 Beller
Comments: KIF-ROC-AREA03-02			
Photograph ID: 26			
Photo Location: Area 03			
Direction::			
Photo Date: 9/4/2019			
Comments: KIF-ROC-AREA03-02			



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 27 Photo Location: Area 03 Direction::			
Photo Date: 9/4/2019		Alt	
Comments: KIF-ROC-AREA03-02	2		
Photograph ID: 28	NW	330 N 30	NE 60
Photo Location: Area 04	© 16°N (T • I • I • I • I • I • I • T • T) ● 35°54'11"N, 84°32'3"	1 • 1 • 1 • 1 • 1 • W ±52.5ft ▲ 1056ft
Direction::			
Photo Date: 8/29/2019			
Comments: KIF-ROC-AREA04-G	01		KIF Area 04 29 Aug 2019. 17:01:04







Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 31 Photo Location: Area 04 Direction:: Photo Date: 9/4/2019 Comments: KIF-ROC-AREA04-GO	D1		
Photograph ID: 32			
Photo Location:	_		Paris and
Area 04	- Andrew	Serie Carl	10. Etc 10.
Direction::	100 million (1997)	and the second	通数 会会 1 日
9/4/2019	and the second second		N. Ca
Comments: KIF-ROC-AREA04-G	D1		



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 33	and the second	A Description	
Photo Location:	Carlo and		
Area 04	C and a lit	and Barthan	
Direction::	19 22	A CARDON CONTRACTOR	
9/4/2019		and the state of the	A AND AND AND AND AND AND AND AND AND AN
Comments:			and states
KIF-ROC-AREA04-G	01	76	A BALL
	64 5		
	and the second	The states	A CARAGE
	637 21	E when the start	
	200 3	The start	
	1 4 4 1 8	Liff and the	
	1 3. A. A. A. A.	C Start Start	
ļ	200 ST 51		
Photograph ID: 34			
Photo Location: Area 04			
Direction::	Messe		
Photo Date: 9/4/2019			
Comments:			
ĺ	4 Bridger		
ĺ			
ĺ	The second		
ĺ			
ĺ			
ĺ			



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 35			
Photo Location: Area 04			
Direction::		and the second second	and the Aller
Photo Date: 9/4/2019			The second
Comments: KIF-ROC-AREA04-G	01		
Photograph ID: 36	Strat Malla Sanna		
Photo Location: Area 04	the second second		
Direction::		ALL A	
Photo Date: 9/4/2019			
Comments: KIF-ROC-AREA04-G	01		



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 37 Photo Location: Area 05 Direction::	0° • 1 • 1	W 270. 300 NW 330 W (T) 35°54'30"N, 84°31'17	N • 1 • 1 • 1 • 1 • 1 7"W ±32.8ft ▲ 911ft
Photo Date: 8/29/2019			
Comments: KIF-ROC-AREA05-01 Geologic formation sh on whiteboard should Conasauga Shale nea contact with Rome Formation, not simply Rome. Strike and dip should read N55°E, 43	own be ar 3°SE	The rest of another states of a states of	KIE Area 05 28 Aug 2019: 14:39:36
Photograph ID: 38		Y	
Photo Location: Area 05	A		
Direction::			
Photo Date: 9/6/2019	Petro de La resolución dure		
Comments: KIF-ROC-AREA05-01 Geologic formation sh on whiteboard should Conasauga Shale nea contact with Rome Formation, not simply Rome. Strike and dip should read N55°E, 43	own be ar B°SE	, quartz oren ne gr. glacconitic Irons iron oxide Rome FM -AREA05 -	-01-20190829



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 39		and a start and and and	
Photo Location: Area 05	S Me .		
Direction::		and the second	A Participation
Photo Date: 9/6/2019	THE REAL		
Comments: KIF-ROC-AREA05-01			
Photograph ID: 40	B. C. Dans		
Photo Location: Area 05	-		
Direction::			
Photo Date: 9/6/2019		Contraction of	
Comments: KIF-ROC-AREA05-01			



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 41			
Photo Location: Area 05			
Direction::		ATTEN	A STALLAND BADGE
Photo Date: 9/6/2019		and the second	
Comments: KIF-ROC-AREA05-01			
Photograph ID: 42	SW	NW	N NE
Photo Location: Area 05	240 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 ③ 314°NW (T) ●	300 1 • 1 • 1 • 1 • 1 • 1 • 1 35°54'30"N, 84°3	• ı • ı • ı • ı • ı • ı • ³⁰ • ı • 1'17''W ±16.4ft ▲ 898ft
Direction::			
Photo Date: 8/29/2019		H	L Statement of the stat
Comments: KIF-ROC-AREA05-02 Geologic formation sh on whiteboard should Conasauga Shale nea contact with Rome Formation, not simply Rome. Strike and dip should read N64°E, 3	4°SE Sample 02 r		KIF-Area 05 29-Arg 2019. 14-54:40



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 43	W 270	NW 300 330	N 0 30
Photo Location: Area 05	© 331°NV	• 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 V (T) © 35°54'30"N, 84°31'17	/////////////////////////////////////
Direction::		the factor of	
Photo Date: 8/29/2019			
Comments: KIF-ROC-AREA05-02			KIE Area 05 29 Aug 2019: 14:02:46
Photograph ID: 44	W 270	NW 300	N 30
Photo Location: Area 05	↔ <u>1</u> ,	1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • V (T) © 35°54'30"N, 84°31'17	l • ĭ • I • I • ĭ • "W ±16.4ft ▲ 898ft
Direction::			and the second
Photo Date: 8/29/2019			
Comments: KIF-ROC-AREA05-02 Geologic formation sh on whiteboard should Conasauga Shale nea contact with Rome Formation, not simply Rome. Strike and dip should read N64°E, 34	e. Joown be ar 4°SE		KIIF Area105 29 Aug 2019 14:54/25


Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 45 Photo Location: Area 05 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA05-02 Geologic formation sh on whiteboard should Conasauga Shale nea contact with Rome Formation, not simply Rome. Strike and dip should read N64°E, 3	2. hown be ar 4°SE	interbedded fine gr. quan drous iron Rome F - AREA05	shale stale tz, oxides 249' 34' M. - 02-20190829
Photograph ID: 46 Photo Location: Area 05 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA05-02	2		



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 47 Photo Location: Area 05 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA05-02	2		
Photograph ID: 48			
Photo Location: Area 05			
Direction::			
Photo Date: 9/6/2019		1 Parts	
Comments: KIF-ROC-AREA05-02	2		







Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 51	A A AND A		
Photo Location: Area 05	the state of the	5 C	
Direction::		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Photo Date: 9/6/2019	8 T. 8	6. J	
Comments: KIF-ROC-AREA05-G	01		
Photograph ID: 52	The second s		
Photo Location: Area 05	1000		
Direction::	30 30		A COMPANY
Photo Date: 9/6/2019			
Comments: KIF-ROC-AREA05-G	01		



I

Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 53 Photo Location: Area 05 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA05-G	01		
Photograph ID: 54			
Photo Location: Area 05	1000		
Direction::	- FREE MAN	1	
Photo Date: 9/6/2019	1 1 1 1		
Comments: KIF-ROC-AREA05-G	01		



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 55 Photo Location:	5 8	1 set Com	Sall Street
Area 05	1880	Marchar	S SY
Direction::	1 S C	Mar ar a se	
Photo Date: 9/6/2019		A COL	
Comments: KIF-ROC-AREA05-G	01		
Photograph ID: 56	THE REAL PROPERTY OF		
Photo Location: Area 05		1 Martin	
Direction::			
Photo Date: 9/6/2019			
Comments: KIF-ROC-AREA05-G	01		



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 57 Photo Location: Area 05 Direction:: Photo Date: 9/6/2019 Comments: KIF-ROC-AREA05-G	01		
Photograph ID: 58	and the second		
Photo Location: Area 05	() share		
Direction::		1 AL	
Photo Date: 9/6/2019		Strong -	
Comments: KIF-ROC-AREA05-G			



Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 59 Photo Location: Area 05 Direction::		Sel	
Photo Date: 9/6/2019			and a
Comments: KIF-ROC-AREA05-G	01		
Photograph ID: 60			Husen -
Photo Location: Area 05			
Direction::			
Photo Date: 9/6/2019			
Comments: KIF-ROC-AREA05-G	01		







Client:	Tennessee Valley Authority	Project:	TDEC Order
Site Name:	Kingston Fossil Plant (KIF)	Site Location:	Harriman, Tennessee
Photograph ID: 63	Start Mark 198	Street In Frank	The state of the second
Photo Location: Area 06			State States
Direction::	Start Start	and a deal	New Notense
Photo Date: 9/4/2019		and a	
Comments: KIF-ROC-AREA06-01			