



January 15, 2016

Ms. Shelly Lam, LPG  
On-Scene Coordinator  
United States Environmental Protection Agency, Region 5  
Emergency Response Branch #1  
2525 N. Shadeland Avenue, Suite 100  
Indianapolis, IN 46219

**RE: Groundwater Investigation Work Plan  
Dixon Road Site  
U.S. EPA Site Spill ID #C5M5  
1110 ½ - 1112 and 1114 South Dixon Road  
Kokomo, Howard County, Indiana 46901  
SESCO Project #4276**

Dear Ms. Lam:

SESCO is pleased to submit this Groundwater Investigation Work Plan for your review for the above-referenced facility (hereafter referred to as the "Site"). The purpose of the plan is to provide specific details on the installation and sampling of groundwater monitoring wells, pursuant to our phone call with you conducted on December 9, 2015.

### **Background**

SESCO completed a Site investigation on September 15-18, 2015, including the advancement of 20 soil borings throughout Phase 1 (western portion) of the Site at depths ranging from 14.5 to 24 feet below ground surface (bgs). One (1) soil boring showed evidence of saturated soil and a temporary piezometer was installed and allowed to remain for three (3) days. Despite the presence of a thin saturated layer, the lithology did not produce any groundwater to collect a sample.

### **Groundwater Investigation**

Discussion with the United States Environmental Protection Agency (U.S. EPA) On-Scene Coordinator (OSC) indicated that additional attempts to sample and characterize groundwater conditions are needed in order to evaluate the potential environmental threat to Wildcat Creek. SESCO proposes to install six (6) groundwater monitoring wells near the creekbank, as shown on **Figure 1**.

Prior to performing subsurface investigation activities, public and private utilities will be located. It is anticipated the monitoring wells will be installed to approximately 25-30 feet bgs, which is estimated to be the bedrock interface. The soil borings/monitoring wells will

---

#### **SESCO Group**

1426 West 29<sup>th</sup> Street • Indianapolis, IN 46208  
317-347-9590 • 888-872-1307 • 317-347-9591 F • [www.sescogroup.com](http://www.sescogroup.com)

be advanced using a Geoprobe® Model 8140DT roto-sonic drilling rig equipped with six (6)-inch diameter override casings and a 4.5-inch diameter inner core barrel. During the first step of the sonic drilling process, the core barrel will be advanced into the subsurface, typically 10-feet. Then the override casing will be advanced to the same depth as the core barrel to ensure that downhole mixing does not occur. During the next step, the core barrel will be removed from the ground and the soil sample will be extruded. Then another 10-foot core barrel extension will be added to the drill string and advanced beyond the override casing. Another 10-foot extension will then added to the override casing and will be advanced to case the borehole and the next sample will be obtained. This process will be repeated until the soil boring terminus.

Soils will be logged continuously throughout the depth of each soil boring. Soil samples will be collected from the three (3) soil borings located in Phase 2 of the Site in accordance with SESCO SOP #WP-01, Surface & Shallow Sub-Surface Sampling SOP and SESCO SOP #WP-04, Subsurface Soil Sampling SOP, which were included in the approved Work Plan. The three (3) soil borings on the east side will be field screened from surface to terminal depth using a photoionization detector (PID), flame ionization detector (FID), and X-ray Fluorescence (XRF) detector.

A surface soil sample will be collected from each soil boring located in Phase 2. One (1) soil sample will be collected at either the base of the fill material or the bottom of each boring if no indicators are encountered via field and visual screening. If elevated field screening readings are encountered, at least two (2) samples will be collected, with at least one being collected from the interval displaying the highest field screening readings. Field screenings will be considered elevated if the PID or FID reading exceeds 10 parts per million vapor (ppmv) above background levels, or the XRF exceeds 90 percent of the Indiana Department of Environmental Management (IDEM) Remediation Closure Guide (RCG) Soil Migration to Groundwater (MTG) Screening Levels.

Soil samples will be placed into laboratory-supplied sample containers. The samples will be packed in an iced cooler, maintained at a maximum of 4°C, and submitted, with appropriate chain-of-custody documentation, to Pace Analytical Services, Inc. (Pace) for analysis of the following constituents:

- Volatile Organic Compounds (VOCs) using U.S. EPA method 8260 (collected via U.S. EPA Method 5035A);
- Resource Conservation & Recovery Act (RCRA) 8 metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver) using U.S. EPA Methods 6010 and 7470;
- Hexavalent Chromium using U.S. EPA method 7196;
- Semi-Volatile Organic Compounds (SVOCs) using U.S. EPA method 8270;
- PCBs using U.S. EPA Method 8082; and,
- 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) using U.S. EPA Method 8290.

Following receipt of results of the RCRA 8 metals, any samples that contain a concentration of any metal greater than 20 times its respective Toxicity Characteristic Leaching Procedure (TCLP) limit, will be analyzed for the following:

- TCLP metals using U.S. EPA Methods 6010 and 7470.

Samples will be delivered to the laboratory by SESCO personnel or by a Pace courier following proper chain-of-custody procedures in accordance with SESCO SOP #WP-02, which was included in the approved Work Plan.

Following advancement of the soil borings, the soil borings will be converted into monitoring wells. The monitoring wells will be constructed of 2-inch diameter, flush-threaded, schedule 40 polyvinyl chloride (PVC) riser pipe attached to 5-feet of 0.010-inch slotted well screen. Once the drill casing is advanced to the desired depth, the well screen and riser pipe will be lowered inside the casing. A #4 quartz sand pack will be placed around the well screen. The sand pack will then be placed from the bottom of the well screen to approximately one (1) foot above the top of the screen. A hydrated bentonite grout seal will then be placed directly above the sand pack, and each well will be completed with a riser pipe protruding approximately 3.5 feet above grade. The wells will be fitted with a locking cap and protected by a 4-inch X 4-inch stick up steel casing, set in concrete. Soil cuttings generated during monitoring well installation will be placed in 55-gallon drums and properly disposed.

Following installation, the monitoring wells will be developed in an attempt to remove sediments and establish communication between the monitoring well and the surrounding aquifer. The development pump (or surge block) will be decontaminated after developing each monitoring well. Decontamination of equipment will include an Alconox<sup>®</sup> wash and water rinse. Purge water will be placed in a 55-gallon drum and properly disposed.

The top of casing (TOC) elevations and the ground surface elevations of the monitoring wells and soil borings will be surveyed and referenced to the actual feet above mean sea level.

### **Groundwater Sampling**

Following installation and development, the monitoring wells will be sampled using low-flow sampling techniques. Low-flow sampling will be completed in accordance with the U.S. EPA Low-Flow (minimal drawdown) groundwater sampling procedure (U.S. EPA/540/S-95/504, April 1996) and the IDEM guidance dated November 3, 2009. The procedure involves groundwater purging rates between 0.1 and 0.5 liter per minute while maintaining minimal drawdowns, typically less than 0.1 meter.

SESCO will employ a positive displacement submersible bladder pump to evacuate water from the screened portion of the well to the surface apparatus. The pump is enabled by intermittent positive air pressure produced by a small compressor and transmitted via 0.25-inch poly tubing. The air pressure powers a plastic bladder and water is pushed through

0.25-inch poly tubing to a clear plastic cylindrical flow through cell. The flow through cell is fitted with both input water fittings and output fittings. Externally, hoses are attached to both fittings. Located at the top of the flow cell is the multi-probe. The multi-probe measures groundwater quality parameters (pH, oxidation-reduction potential (ORP), specific conductivity, temperature, turbidity, and dissolved oxygen (DO)). Water quality parameters are monitored throughout purging to verify stabilization prior to groundwater sample collection. Samples will be collected once stabilization is reached and turbidity is less than 10.0 Nephelometric Turbidity Units (NTU). For all metals samples with turbidity readings above 10.0 NTU, a 10 micron filter will be placed on the tubing before sample collection.

Once the groundwater quality parameters have stabilized, it is assumed that the groundwater being collected is representative of the formation and not associated with stagnant water in the well or sand-pack pore water. This task is completed with minimal disturbance to the aquifer, limiting VOC volatilization and sediment turbidity which can introduce adsorbed compounds causing false positives in groundwater analyses. Groundwater will be discharged directly into properly preserved laboratory-provided containers. The groundwater samples collected will be analyzed for the following:

- VOCs using U.S. EPA method 8260;
- RCRA 8 metals (arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver) using U.S. EPA Methods 6010 and 7470;
- Hexavalent Chromium using U.S. EPA method 218.6;
- SVOCs using U.S. EPA method 8270;
- PCBs using U.S. EPA Method 8082; and,
- 2,3,7,8-TCDD using U.S. EPA Method 8290.

All dissolved hexavalent chromium samples will be field-filtered using a 0.45 micron filter with an added ammonium sulfate buffer solution, which will adjust the pH of the samples to the prescribed range of 9.0-9.5 in order to increase the holding times.

In the event the monitoring wells do not produce sufficient water for low-flow sampling, an attempt will be made to use bailers to collect samples. If bailers are unsuccessful, a peristaltic pump will be utilized to collect the samples. In the event limited groundwater is available to sample, the OSC will be contacted to discuss the priority given to each constituent. The groundwater samples will be labeled, logged on the chain-of-custody, and placed on ice in an insulated cooler, at or below 4°C, for delivery to Pace. Purge water will be containerized on-Site in 55-gallon steel drums for proper disposal.

Upon receipt of laboratory analytical results, data will be evaluated and provided to the U.S. EPA for review. In addition, the laboratory data will undergo third party data validation.

If you have any questions regarding this Groundwater Investigation Work Plan, please contact any of the following at (317) 347-9590.

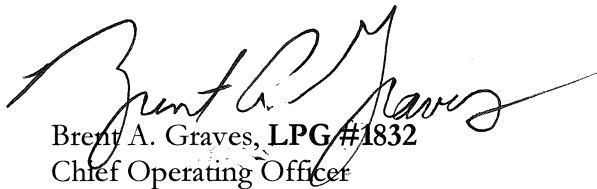
Sincerely,  
**SESCO Group**



Bradley W. Adams, **CHMM #13162**  
Project Manager



William D. Pickard, **LPG #2141**  
Senior Project Manager



Brent A. Graves, **LPG #1832**  
Chief Operating Officer

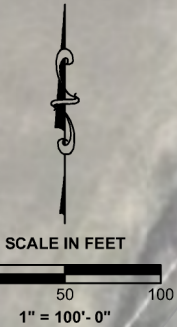
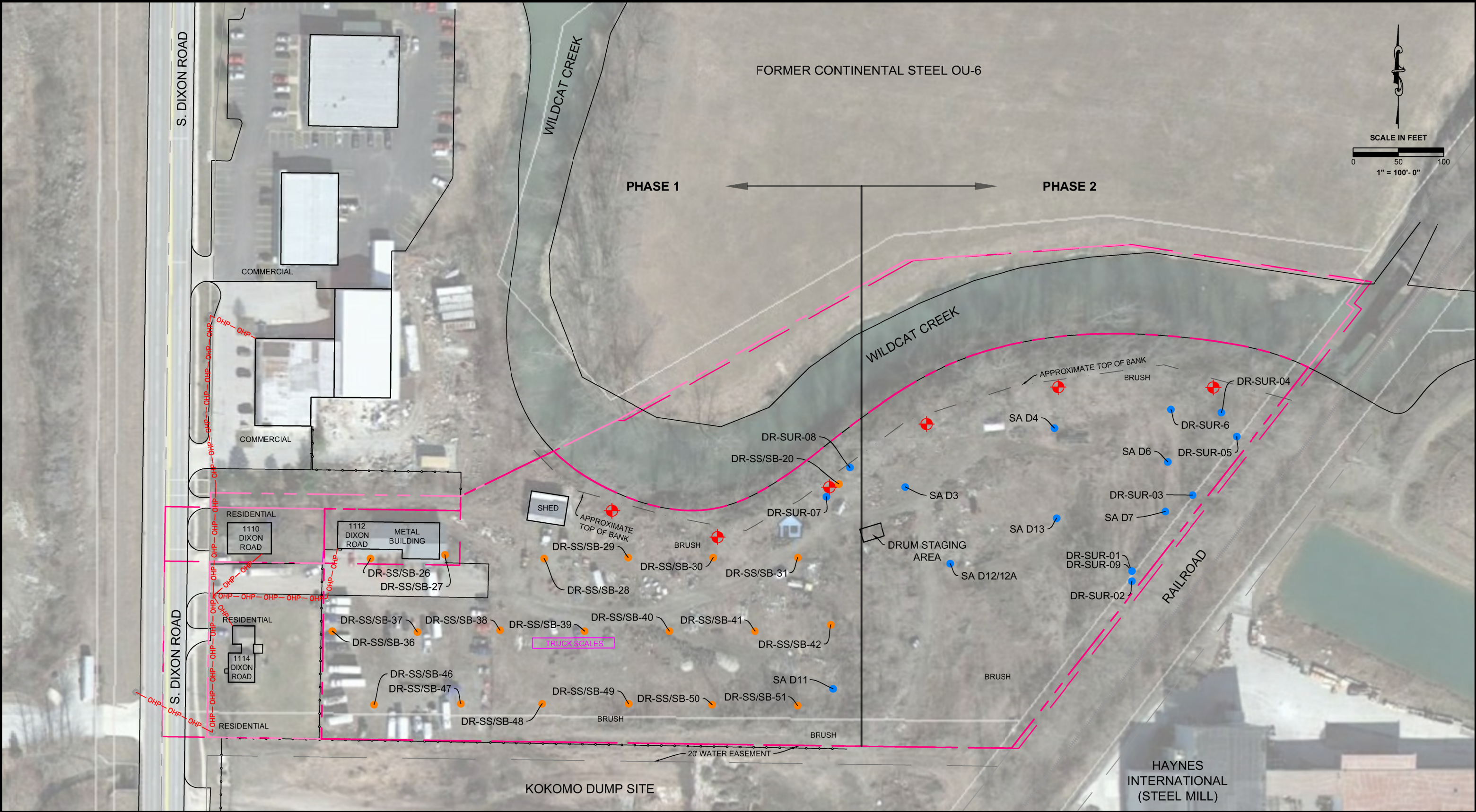
cc: Project File  
Mr. David L. Guevara, Ph.D., Taft Stettinius & Hollister LLP  
Mr. John Moriarty, Plews Shadley Racher & Braun LLP

## **Figure 1**

Proposed Monitoring Well Locations



O:\Consulting\@SESCO Technical Docs\#4276 Dixon Rd Site - Kokomo\Reports\Groundwater Investigation\Figures\PRO MONITING WELL LOC.dwg, 12/30/2015 2:49:13 PM



**LEGEND**

- |  |                                    |  |                             |
|--|------------------------------------|--|-----------------------------|
|  | SOIL BORING - OTIE                 |  | DESIGNATED AREA OF INTEREST |
|  | SURFACE & SUB-SURFACE SOIL SAMPLE  |  | FENCE                       |
|  | PROPOSED MONITORING WELL LOCATIONS |  | RAILROAD                    |
|  |                                    |  | RIGHT OF WAY                |

NOTE: DEBRIS PILES SURVEYED ON 3-18-2015

**PROPOSED MONITORING WELL LOCATIONS**

DIXON ROAD SITE  
1110 ½ - 1112 and 1114 SOUTH DIXON ROAD  
KOKOMO, INDIANA 46901

PROJECT # 4276

FIGURE # 1