



## **Seagull Environmental Technologies, Inc.**

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### **PHASE II ENVIRONMENTAL SITE ASSESSMENT**

#### **524 West College Avenue Site**

**Date of Report:** July 15, 2016

#### **SITE BACKGROUND**

Seagull Environmental Technologies, Inc. (Seagull) was tasked by the City of Springfield – Planning and Development Department to conduct a Phase II Environmental Site Assessment (ESA) of the 524 West (W.) College Street site in Springfield, Missouri. The site contains three buildings and an asphalt-paved parking lot on a 1.6081-acre property. The subject property is currently owned by Mr. George Templeton; future plans for the site are unknown. Phase II ESA activities at the site were conducted on June 21 and 22, 2016. The primary purpose of the Phase II ESA was to confirm or eliminate recognized environmental conditions (REC) specified in the Phase I ESA report for the site, determine the nature and extent of any soil or groundwater contamination, and assess threats to human health and the environment posed by any contamination in soil and groundwater. In addition, the Phase II ESA would identify and quantify asbestos-containing materials (ACM) and lead-based paint (LBP) in the site buildings.

The Phase II ESA included the collection of five soil samples (including one duplicate sample). The soil samples were submitted for laboratory analysis of volatile organic compounds (VOC), total petroleum hydrocarbons (TPH)–gasoline range organics (GRO)/diesel range organics (DRO)/oil range organics (ORO), polynuclear aromatic hydrocarbons (PAH), and metals regulated under the Resource Conservation and Recovery Act (RCRA). For evaluation purposes, soil sample results were compared to their respective Missouri Risk-Based Corrective Action (MRBCA) standards established by the Missouri Department of Natural Resources (MDNR). Attempts to collect groundwater samples as part of the Phase II ESA were unsuccessful. For the asbestos inspection, suspected ACM was sampled to quantify asbestos in the material. Paint-covered surfaces were screened with an x-ray fluorescence (XRF) spectrometer to

determine the presence and quantity of LBP. Findings and recommendations from the Phase II ESA were as follows:

### Soil

Soil samples collected from the site contained low levels of contaminants. Specifically, the soil samples contained VOCs, PAHs, and RCRA metals. Three VOCs were detected in the samples at concentrations that ranged from 0.00026 J to 0.0047 J milligrams per kilogram (mg/kg). J-coded values indicate the results were estimated. The detected VOCs were acetone, methylene chloride, and toluene. All of the detected concentrations of VOCs were well below their respective MRBCA standards.

Numerous PAHs were detected in the samples. The following PAHs and their concentrations are as followed: anthracene (0.025 mg/kg), benzo(a)anthracene (0.16 and 0.035 mg/kg), benzo(a)pyrene (0.15, 0.015 J, and 0.031 mg/kg), benzo(b)fluoranthene (0.23 and 0.036 mg/kg), benzo(g,h,i)perylene (0.15 and 0.018 J mg/kg), benzo(k)fluoranthene (0.21 and 0.022 mg/kg), chrysene (0.20 and 0.036 mg/kg), fluoranthene (0.018 J to 0.4 mg/kg), indeno(1,2,3-cd)pyrene (0.17 and 0.022 mg/kg), phenanthrene (0.14, 0.010 J, and 0.037 mg/kg), and pyrene (0.28, 0.014 J, and 0.048 mg/kg). None of these detected concentrations of PAHs exceeded any of their respective MRBCA Default Target Levels (DTL).

All five soil samples (including the duplicate sample) contained detectable concentrations of the eight RCRA metals. Three RCRA metals — arsenic, lead, and selenium — were detected at concentrations that exceeded their respective MRBCA DTLs. All samples contained arsenic above its MRBCA DTL of 3.89 mg/kg, ranging from 5.6 J mg/kg at SB-4 (from 6 to 8 feet below ground surface [bgs]) to 9.2 mg/kg from SB-2 (from 7 to 9 feet bgs). Additionally, three detected concentration of arsenic in samples collected at SB-1 (6-8 feet bgs), SB-2 (7-9 feet bgs), and SB-3 (8-10 feet bgs) were above the USGS average for arsenic in Greene County, Missouri, soils, which is 8.13 mg/kg. Two samples contained selenium above its MRBCA DTL of 6.27 mg/kg. Selenium was detected in the sample collected from SB-4 (from 6 to 8 feet bgs) and a field duplicate from that location at 38 and 50 mg/kg, respectively. Also, all detected concentration of selenium were above the USGS average for selenium in Greene County, Missouri, soils, which is 0.29 mg/kg. It should be noted that the arsenic and selenium Tier 1 RBTLs have not been established for residential or non-residential subsurface soil. All samples contained lead above its MRBCA DTL of 3.74 mg/kg. Lead was detected between 19 mg/kg at SB-1 (from 6 to 8 feet bgs) and 90 mg/kg at SB-2 (from 7 to 9 feet bgs). None of the lead concentrations exceeded its MRBCA Tier 1 RBTLs established for residential and non-residential subsurface soil, which are 260 and 660 mg/kg, respectively. Additionally, one detected concentration of lead in sample collected at SB-2 (7-9 feet bgs)

was above the USGS average for lead in Greene County, Missouri, soils, which is 61.55 mg/kg. No other metals were detected at concentrations that exceeded their established MRBCA standards.

The detected concentrations of VOCs, PAHs, and RCRA metals do not pose a risk to future use and/or redevelopment of the site.

#### Asbestos-Containing Materials

Thirteen bulk material samples were submitted to Quantem for analysis of asbestos. The EPA defines ACM as any material containing asbestos at a concentration above 1 percent (%). None of the materials associated with the building were determined to contain asbestos.

#### Lead-Based Paint

LBP was identified on several interior components associated with the site buildings. Specifically, LBP was identified on the door and wood door frame to entry of the breakroom and bathroom, and entry to the warehouse at the rear of the business showroom. XRF readings from those components ranged from 3.90 to > 5.0 milligrams per square centimeter (mg/cm<sup>2</sup>). Paint-covered surfaces indicated by the XRF to contain lead at a concentration equal to or greater than ( $\geq$ ) 1.0 mg/cm<sup>2</sup> were considered LBP. The identified LBP was found to be in good (intact) condition. Future demolition or renovations (including abatement and disposal activities) that could disturb the LBP should be conducted in accordance with applicable local, state, and federal regulations.