



Seagull Environmental Technologies, Inc.

121 NE 72nd Street
Gladstone, Missouri 64118
www.seagullenvirotech.com

PHASE II ENVIRONMENTAL SITE ASSESSMENT

224 North Stewart Avenue Site, Springfield, Missouri

Date of Report: March 23, 2020

Acres: Approximately 1.77 acres

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 224 North (N.) Stewart Avenue site in Springfield, Missouri. The subject property encompasses 1.77 acres and contains a one-story building, a concrete slab where an outbuilding/shed was previously located, an asphalt parking lot, and a grassy area. The subject property is currently vacant.

Phase II ESA activities at the site were conducted on February 26, 2020. 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, groundwater, sub-slab vapor, or indoor air contamination, and assess threats to human health and the environment posed by any contamination in those media. In addition, the purpose of the Phase II ESA was to identify and quantify asbestos-containing materials (ACM) and lead-based paint (LBP) in the site building, and to identify any other potentially hazardous materials at the subject property.

The Phase II ESA included collection of four soil samples (including one field duplicate). The soil samples were submitted for laboratory analysis of volatile organic compounds (VOC), polynuclear aromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPH)–gasoline range organics (GRO)/diesel range organics (DRO)/oil range organics (ORO), and metals regulated under the Resource Conservation and Recovery Act (RCRA). Attempts to collect groundwater samples as part of the Phase II ESA were unsuccessful. Two sub-slab vapor samples and one indoor air sample were also collected for analysis for VOCs to assess threat of exposure to workers via inhalation. For evaluation purposes, soil, sub-slab vapor, and indoor air sample results were compared to their respective Missouri Risk-Based Corrective Action (MRBCA) standards established by the Missouri Department of Natural Resources

(MDNR). Sub-slab vapor results were also compared to U.S. Environmental Protection Agency (EPA) Vapor Intrusion Screening Levels (VISL). 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. In addition, an inventory of other potentially hazardous materials on the property was compiled based on observations by the inspection team. 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, TPH-GRO/DRO/ORO, and RCRA metals. Five VOCs were detected in the samples at concentrations that ranged from 0.013J to 0.14 milligrams per kilogram (mg/kg) — all below MRBCA standards. The detected VOCs were acetone; 1,1-dichloroethane (DCA); ethylbenzene; isopropylbenzene; and o-xylene. Fourteen PAHs were detected in the soil samples at concentrations between 3.6J and 64 micrograms per kilogram ($\mu\text{g}/\text{kg}$) — all well below MRBCA standards. TPH-GRO was detected in two samples (at 56 and 4.8J mg/kg), TPH-DRO was detected in one sample (at 2.3 mg/kg), and TPH-ORO was detected in two samples (at 24 and 13 mg/kg). All detected concentrations of TPH were below their respective MRBCA standards. Each of the soil samples contained detectable concentrations of at least four RCRA metals. Two RCRA metals — arsenic and lead — were detected at concentrations that exceeded their respective MRBCA Default Target Levels (DTL). However, neither of the metals were detected above their respective Tier 1 Risk-Based Target Levels (RBTL) established for non-residential subsurface soil (if established). The detected concentrations of VOCs, PAHs, TPH-GRO/DRO/ORO, and RCRA metals do not pose a risk to future use and/or redevelopment of the site.

Sub-Slab Vapor and Indoor Air

Fourteen VOCs were detected in the two sub-slab vapor samples. Highest concentrations were reported for a sub-slab vapor sample collected beneath the outdoor concrete slab. In that sample, concentrations were detected at up to 720 milligrams per cubic meter (mg/m^3). None of those concentrations exceeded MRBCA Tier 1 RBTLs for soil vapor; however, five compounds — 1,1-DCA; 1,2,4-trimethylbenzene; ethylbenzene; m,p-xylene; and o-xylene — exceeded EPA VISL Target Sub-Slab and Exterior Soil Gas values. In the other sub-slab vapor sample, collected beneath the building's floor, concentrations were detected at up to 0.268 mg/m^3 . None of those concentrations exceeded MRBCA Tier 1 RBTLs for soil vapor; however, two compounds — chloroform and trichloroethene (TCE) — exceeded EPA VISL Target Sub-Slab and Exterior Soil Gas values. Two VOCs were detected in the indoor air sample — acetone and chloromethane — at concentrations well below MRBCA Tier 1 RBTLs for indoor air.

If a structure is built on the concrete slab east of the existing building that will be routinely occupied during business activities (i.e., for other than storage of equipment, supplies, etc.), additional sampling and/or mitigation procedures may be warranted to ensure inhalation threat to workers is limited.

Likewise, because two compounds exceeded EPA VISL values in the sub-slab vapor sample collected beneath the existing building, consideration for additional sampling and/or mitigation procedures may also be warranted for that structure.

Asbestos-Containing Materials

Three materials associated with the building were determined to contain asbestos. Specifically, the materials determined to contain asbestos were: wallboard, 9- by 9-inch vinyl floor tile and its associated mastic, and roof flashing. The wallboard (grey, not painted) was sampled in a utility room (with furnace and water heater). It should be noted that the wallboard was also observed in other nearby areas; however, the wallboard had been painted in those areas and was difficult to distinguish from other types of wall materials. The 9- by 9-inch vinyl floor tiles (light brown) were in a room in the north-central portion of the building, and the roof flashing surrounded a chimney and other vents on the roof. Those three materials contained asbestos (chrysotile) at concentrations ranging from 5 to 25 percent (%). EPA defines ACM as any material containing asbestos at a concentration above 1%. Future renovations (including abatement and disposal activities) that could disturb the ACM should be conducted in accordance with applicable local, state, and federal regulations.

Lead-Based Paint

LBP was identified on only one interior component associated with the building. Specifically, LBP was identified on a wood door frame in the north-central portion of the building. The XRF reading for lead from that component was 1.16 milligrams per square centimeter (mg/cm²). Concentrations equal to or greater than (\geq) 1.0 mg/cm² are 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.

Other Hazardous Materials

Only one container of paint (no other chemical items [cleaners, adhesives, lubricants, etc.]) was identified inside the building. Two unlabeled, partially full, 30-gallon poly drums were observed along the south side of the building's exterior; no leaking from either of those drums was observed. Other items potentially containing hazardous materials, particularly fluorescent bulbs and associated electrical lighting ballasts, were identified throughout the site building. Any of those materials that cannot be reused as intended should be disposed of appropriately during renovation activities.