

Phase 2 Environmental Site Assessment

3429 E. Chestnut Expressway (Hickory Hills School Site)

Date of Report: January 11, 2011

Assessment Funding: EPA Brownfields Assessment Grant

Acres: approximately 42

Site Background

Seagull Environmental Technologies Inc. conducted a Phase II Brownfields Assessment of the Hickory Hills School site located in Springfield, Missouri. The subject property, which is approximately 42 acres in size, is located at the northeast corner of the Highway 65 and East Chestnut Expressway intersection, near the eastern edge of Springfield. Three separate properties comprise the site:



1. the Hickory Hills School property (owned by Springfield Public Schools)
2. High Street Baptist Church property (owned by the High Street Baptist Church)
3. the Lohmeyer property (owned by the Lohmeyer family).

The Hickory Hills School property contains the school building, two parking lots, a blacktop playground, and a recreational track. The original school building was built in 1951, and several building additions were completed since that time. There are no improvements to the High Street Baptist Church or Lohmeyer properties, excluding a gravel road on the west side of the High Street Baptist Church property.

Phase II Brownfields Assessment activities were conducted at the site on December 13 through 15, 2010. The purpose of the Phase II Brownfields Assessment was to determine whether past site operations have resulted in releases of hazardous contaminants to the soil and groundwater. In addition, the scope of the Phase II Brownfields Assessment included an inspection of on-site structures for the presence of asbestos-containing building materials (ACM) and lead-based paint (LBP). Suspected ACM was sampled to quantify the material. Paint-covered surfaces were screened with an x-ray fluorescence spectrometer (XRF) to determine the presence and quantity of LBP. Additionally, a survey to quantify household hazardous waste and other items potentially containing hazardous materials was completed.

Phase II Brownfields Assessment activities included the collection of five subsurface soil samples for laboratory analysis of site-related contaminants (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]). For evaluation purposes, soil sample results were compared to their respective Missouri Risk-Based Corrective Action (MRBCA) soil standards as established by the Missouri Department of Natural Resources

(MDNR). It should be noted that attempts to collect groundwater samples at the site during the field activities were unsuccessful. For the asbestos inspection, 240 samples were collected from structural materials associated with the former school building. A summary of the Phase II Brownfields Assessment sample results (soil and asbestos samples), LBP inspection, and hazardous material inventory follows.

Findings

Soil

Soil samples collected from the site contained VOCs and RCRA metals.

- Three VOCs were detected in the soil samples. Those VOCs – acetone, methyl ethyl ketone and toluene – were detected at concentrations that ranged from 0.0012 J to 0.136 milligrams per kilogram (mg/kg). No VOCs were detected at concentrations above their respective MRBCA soil standards.
- All five of the soil samples contained the RCRA metals arsenic, barium, chromium, lead, mercury, and selenium. All five of the samples contained levels of arsenic and lead above their respective MRBCA Default Target Levels (DTL) of 3.89 and 3.74 mg/kg, respectively. Concentrations of arsenic ranged from 16.9 to 22.8 mg/kg. Currently, there are no MRBCA Tier 1 Risk-Based Target Levels (RBTL) established for arsenic in subsurface soil. For reference, the average concentration for arsenic in Greene County is 8.13 mg/kg. Concentrations of lead ranged from 31.4 to 44.5 mg/kg. 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. For reference, the average concentration for lead in Greene County is 61.46 mg/kg. It is likely the detected concentrations of both arsenic and lead are naturally occurring. No other metals were detected at concentrations that exceeded their established MRBCA standards.

Based on the Phase II Brownfields Assessment sample results, arsenic and lead were determined to be present in site soil above their respective MRBCA DTLs. However, neither of those metals was detected above their respective MRBCA Tier 1 RBTLs (for residential and non-residential subsurface soil). In addition, it is likely the detected concentrations of those metals are likely naturally occurring. Based on the findings from this Phase II Brownfields Assessment, it does not appear that contamination as a result of past site operations is present at levels that pose a threat to human health or limit future site development.

Asbestos

Thirty-five different materials were determined to contain detectable concentrations of asbestos. Materials associated with the former school building that were determined to contain asbestos included vinyl floor tile, sheet flooring, dry wall, TSI, cement board, caulk, roof caulk, window caulk, cove base mastic, and a coating on the concrete ceiling in the southern boiler room. In those materials asbestos (both chrysotile and amosite asbestos) was detected at concentrations that ranged from 0.25 to 40%. EPA defines ACM as any material containing asbestos at a concentration above 1%. The majority of the materials containing asbestos were 9-inch by 9-inch

vinyl tiles (various colors) and associated mastic that were located throughout the building. Future demolition or renovations (including abatement and disposal activities) that could disturb the ACM should be conducted in accordance with applicable state and federal regulations.

Lead-Based Paint

LBP was identified on several components associated with the former school building, which included metal beams and wall paint. XRF readings from those components ranged from 1.0 to 2.07 milligrams per square centimeter (mg/cm²). Specifically, the metal ceiling beams located throughout the H-2 portion of the building contained LBP as indicated by XRF screening. In addition, wall paint in several rooms was also indicated to contain LBP. Future demolition or renovations (including abatement and disposal activities) that could disturb the LBP should be conducted in accordance with applicable state and federal regulations.

Hazardous Materials

A hazardous materials survey completed throughout the former school building identified numerous materials that remain. Prior to any future redevelopment/demolition, the identified materials/items should be removed and properly used, recycled, or disposed of.