

Executive Summary

The subject property comprises two parcels totaling 0.28 acre at addresses 562, 564, 566, and 568 South Main Street in Memphis, Shelby County, Tennessee. The subject property is currently vacant, partially fenced, and unused; no buildings or equipment remain onsite. Four groundwater monitoring wells were the only improvements observed on the property.

Site History

The subject property was developed prior to 1888 and has been the site of multiple commercial related businesses. Information discovered during the Phase I Environmental Site Assessment (ESA) indicates Mr. John E. Little reportedly began operations on the south parcel in 1946. Mr. Little operated the National Paper and Chemical Company from 1958 to the mid-1970s and Evans Enterprises from 1972 to 1984. Both operations reportedly stored chemicals and detergents in 55-gallon drums and numerous smaller containers. In the mid-1980s, the building fell into disrepair and appeared abandoned. Chemical spills reportedly occurred in the building due to vandalism and lack of maintenance during this period.

In 1986, the Tennessee Department of Environment and Conservation (TDEC) and Memphis Fire Department personnel inspected the property in response to a complaint regarding numerous containers of chemicals stored in an abandoned building at 564 South Main Street. Multiple notices of violation (NOVs) were issued to Mr. Little for failing to comply with the requirements of the Tennessee Hazardous Waste Management Act (HWMA). In August 1987, TDEC followed the third NOV with a notice of enforcement and an emergency cleanup was completed by TDEC's contractor O and H Materials. The building was demolished later in 1987 and the property has remained vacant since. Following the cleanup, Mr. Little was issued multiple notices of lien under the HWMA applied to the southern parcel (002113 00011) for failure to reimburse the TDEC Division of Super Fund (DSF). The lien was perfected May 16, 2006.

Previous Investigations

TDEC conducted a limited surface soil sampling investigation in July 1993 that indicated the presence of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, and metal contaminants. In 1995, TDEC DSF issued a *Potential Hazardous Waste Site Preliminary Assessment* report to the U.S. Environmental Protection Agency (USEPA) summarizing inspections, investigations, and removals conducted at the property, and requested "that an investigation be performed at the John Little Drum site in order to better characterize hazardous substances and evaluate the potential threat posed by these substances to human health and the environment."

TDEC conducted an additional site investigation in 1999 installing three shallow (45 feet below ground surface [bgs]) and one deep (95 feet bgs) monitoring wells and collecting groundwater samples and additional soil samples. Results of the 1999 TDEC investigation indicated groundwater contamination in which concentrations of trichloroethene, tetrachloroethene and lead exceeded the USEPA preliminary remedial goals current at the time.

Previous Soil Sampling Results

As part of this Phase II ESA, historical soil results were compared to the May 2012 USEPA residential and industrial regional screening levels (RSLs). The screening comparison indicates residential RSLs were exceeded by seven SVOCs, 4,4'-DDE, and arsenic and industrial RSLs were exceeded by six SVOCs and arsenic. Arsenic levels are below the background concentration for residential properties in Shelby County. In an April 2012 meeting, TDEC stated that if the property was redeveloped as a paved parking lot (covered with asphalt or concrete) then no further action was necessary to address soil contamination.

Current and Historical Groundwater Results

Current and historical groundwater sampling and analysis have identified five VOCs present in shallow groundwater above the May 2012 tap water RSLs and three VOCs present above USEPA Maximum Contaminant Levels (MCLs) for drinking water. No contaminants were detected in the deep groundwater. The most significant groundwater contamination was identified in monitoring well MW03, at the northeast corner of the southern parcel, and monitoring well MW02, in the central portion of the southern parcel. PCE exceeded its MCL at monitoring well MW02 and cis-1,2-dichloroethene, PCE, and trichloroethene exceeded their MCLs in monitoring well MW03. Potentiometric data and analytical results indicate the shallow groundwater plume may extend offsite to the northeast.

Groundwater from the alluvium aquifer is not used as a drinking water source or for industrial water use in the area, based on information reviewed during the Phase I ESA (EnSafe 2012). As such, direct exposure to contaminants detected in the shallow groundwater at the site is not expected to occur.

Sub-Slab Vapor Evaluation

Analysis of sub-slab soil-gas collected beneath the building at 574 South Main identified three VOCs exceeding their industrial adjusted ambient air RSLs. The concrete floor of the building (where visible) appeared in good condition with no significant cracks, joints, etc. If present, such conditions may provide a pathway for the soil-gas vapors to enter the building and impact indoor air quality and/or resulting in exposure to the building users. However, the pathway for impact to indoor air should be assumed to be complete.

Recommendations

Recommendations for additional assessment are based on the planned reuse of the subject property as a paved parking lot and the use of the office/warehouse at 574 South Main as a commercial building for uses other than day care or operations where children will be routinely present.

574 South Main Street

The exposure pathway of volatile vapors associated with groundwater contamination at the John Little Drum site is presumed to be complete for occupants of the building at 574 South Main and additional assessment in the building is warranted. During a meeting on September 12, 2012, between representatives of TDEC, Shelby County, USEPA, and EnSafe, the TDEC expressed concern regarding potential vapor exposure to occupants in the building at 574 South Main Street. TDEC met with the building owner and TDEC has proposed conducting indoor air sampling and analysis to evaluate the presence of vapors present in the building. The data collected by TDEC will aid in an evaluation of the necessity for vapor mitigation in the building.

Remedial Options Plan (Construction Management and Vapor Mitigation Options Evaluation) — \$6,500

EnSafe recommends a Remedial Options Plan be prepared to include best management practices for the redevelopment and construction of the subject property as a parking lot (based on discussions at the April 2012 meeting with TDEC). The Remedial Options Plan will address the following elements:

- Procedures and estimated costs for proper closure of the existing groundwater monitoring wells before beginning construction.
- Procedures and estimated costs for installation of replacement groundwater monitoring wells, if required by TDEC.
- Procedures for managing and disposing of clearing and grubbing debris during parking lot construction.
- Contingencies for identifying, responding, and managing potential soil or other contamination discovered during construction.

- Evaluation of vapor management options for a parking lot reuse, such as passive or active systems, and estimated costs for the design and installation during site fill and surface construction.
- Requirements and estimated costs for an annual inspection and maintenance plan to ensure the pavement surface remains intact, groundwater monitoring wells are maintained, and the vapor management system, if installed, is maintained.