

**PHASE II ENVIRONMENTAL  
SITE ASSESSMENT REPORT**

**TAX PARCELS 005018 00012 AND 00013  
EAST BUTLER AVENUE AND SOUTH THIRD STREET  
MEMPHIS, TENNESSEE 38108**

**EnSafe Project Number:  
0888810687/PH24.P and PH24.H**

**Prepared for:**

**Wolf River Brownfield Assessment Project  
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**February 22, 2013**

## Executive Summary

In support of the Wolf River Brownfields Assessment Project, EnSafe conducted a Phase II Environmental Site Assessment (ESA) of tax parcels 005018 00012 and 00013 consisting of 234 East Butler Avenue (005018 0012) and 410 South Third Street (005018 00013) in Memphis, Shelby County, Tennessee (subject property). In 2012, EnSafe Inc. conducted a Phase I ESA of tax parcels 005018 00011 to 00014. Based on the findings and recommendations of the Phase I ESA, tax parcels 005018 00012 and 005018 00013 were selected for a Phase II ESA. This document presents the results and recommendations of the Phase II ESA.

### Site Description

The current property owner is Inner Vision Development Company dba Inner Vision Memphis (Inner Vision). The 1.23-acre subject property includes four parcels; two were residential developments that are now vacant, and two were commercial developments. The two residential parcels (005018 00011 [0 Abel Street] and 005018 00014 [400 South Third]) are vacant, grassy lots. The parcel at 410 South Third Street currently includes a single story building that is vacant and in disrepair. The parcel at 234 East Butler Avenue is currently vacant, but remnants of the formerly building are apparent, including the concrete floor slab.

### Site History

The subject property was first developed for residential use, but by the early to mid-1920s, the south parcels were redeveloped commercially with a filling station at 410 South Third Street and Lummus Cotton Gin at 234 East Butler Avenue.

The 410 South Third Street parcel changed ownership and occupancy/use (vehicle maintenance and repair, radio and electronics repair, printing, offices) in the early 1960s, after several additions had been constructed.

Lummus Cotton Gin manufactured gin machines through the mid-1970s, with several building expansions during that time. A fuel oil tank was in the open portion of the property formed by the L-shaped building. Subsequent businesses that owned and/or operated at this parcel included Horn & Gladden Lint Cleaner Company (1977 to 1979) then Air Compressors Sales and Service of Tennessee (from 1979 to 2006), which manufactured industrial equipment and textile machines and parts, and repaired air and gas compressors.

The residences on Parcels 005018 00011 and 005018 00014 were razed in the early 1970s and 2004, respectively. Inner Vision purchased the four parcels between June and September 2007, and razed the commercial building at 234 East Butler Avenue in late 2008.

### Previous Investigations

EnSafe conducted a Phase I ESA of the subject property in 2012 and identified *recognized environmental conditions* and *business environmental risks* as described below. EnSafe reviewed Phase I ESAs of each parcel conducted by Fisher & Arnold, Inc. (FA) prior to Inner Vision's purchase of the subject property.

The FA Phase I ESA for Parcels 005018 00011 and 00012 included photographs of the 234 East Butler Avenue building that showed the brick building exterior, a hazardous material placard, roof vents, a coal bin, paint booth, metal equipment cleaning area with staining, a drum, and a floor drain. The FA Phase I ESAs identified *recognized environmental conditions* associated with underground storage tanks (USTs) and/or historical gas station uses at 410 South Third Street (Parcel 005018 00013); and historical operations involving the use of hazardous substances, a paint booth, and metal degreasing, and tank closure in accordance with older guidelines at 234 East Butler (Parcel 005018 00012). The Phase I ESA for 410 South Third Street also recommended an asbestos survey prior to demolition activities, based on the age of the building. Three USTs closed in place at 410 South Third Street were also identified by the FA Phase I ESA.

In August 2008, FA sampled suspect asbestos-containing material (ACM) from buildings at 410 South Third Street and 234 East Butler Avenue. Asbestos was not detected in samples collected from 410 South Third Street. Several types of ACM were identified and subsequently abated at 234 East Butler Avenue prior to demolition; however, some floor tile and mastic were left in place on the concrete floor slab and have become deteriorated and friable.

### ***Recognized Environmental Conditions***

EnSafe's Phase I ESA identified *recognized environmental conditions*, *historical recognized environmental conditions*, and *business environmental risks* in connection with the subject property.

The *historical recognized environmental conditions* identified in the 2007 Phase I ESAs remain *recognized environmental conditions* in the absence of additional (subsurface) investigation. EnSafe's Phase I ESA identified additional *recognized environmental conditions* associated with the sump/drain and staining in the garage portion of the 410 South Third Street building, and "disposal" of the asbestos-containing floor tile at the 234 East Butler Avenue. EnSafe recommended a Phase II ESA of the subject property, primarily focusing on subsurface soil and groundwater conditions at 410 South Third and 234 East Butler Avenue.

*Business environmental risks* related to costs and potential liability remain associated with noncompliance with Shelby County Health Department (SCHD) asbestos regulations at 234 East Butler Avenue and noncompliance at 410 South Third Street with Memphis Fire Department and/or Tennessee Department of Environment and Conservation (TDEC) UST closure regulations and characterizing and disposing of the contents of the sump/drain at 410 South Third.

### **Phase II ESA Results and Recommendations**

The Phase II ESA field investigation was performed January 10 — 11, 2013. Soil samples were collected from 13 soil borings across the site consisting of five soil borings at 410 South Third Street and eight borings at 234 East Butler Avenue. Below are recommendations for each area of assessment conducted at 410 South Third Street and 234 East Butler Avenue.

### **410 South Third Street**

The Phase II ESA at 410 South Third Street focused on the three USTs abandoned in place and the blind sump in the garage for potential releases of hazardous materials and/or petroleum to the subject property. Additional assessment evaluated the potential for ACM in roofing material and the potential presence of lead-based paint (LBP) on painted surfaces in the building. Assessment results for each element are discussed below.

***Underground Storage Tanks Abandoned In Place:*** Three soil borings were installed adjacent to the three USTs left in place in the garage bay and one temporary monitoring well was installed along the suspected product line on the west side of the building. Soil and groundwater samples were analyzed for volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs), and soil samples were also analyzed for the Resource Conservation and Recovery Act (RCRA) 8 metals.

Seventeen VOCs were detected in soil, but all were at concentrations well below screening criteria. Twelve PAHs were detected in soil samples and four exceeded screening criteria. PAHs were evaluated as benzo(a)pyrene equivalent (BEQ) because of similar toxicity characteristics. The BEQ results were below the Shelby County urban background value of 1 milligram per kilogram (mg/kg). Arsenic was also detected in soil samples, but was at concentrations below the Shelby County residential background concentration of 22 mg/kg (EnSafe 2010).

Three VOCs and one PAH were detected in groundwater collected from the temporary monitoring well. Vinyl chloride exceeded its U.S. Environmental Protection Agency tap water regional screening value (RSL, November 2012), but was below its maximum contaminant level (MCL). 1,1-dichloroethene exceeded its MCL, but was below its tap water RSL. 1,1-dichloroethane and phenanthrene were detected below their tap water RSLs; neither have MCLs. 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.

Soil and groundwater data indicate solvents and petroleum contaminants are present in soil and groundwater adjacent to the USTs; however, none of the detected concentrations warrant additional assessment.

The property owner has reported to EnSafe that the building at 410 South Third Street will be demolished in the near future and a new structure will be constructed on the site. According to the EnSafe Phase I ESA (EnSafe 2012), the three USTs are still in place. Therefore, EnSafe recommends that once the existing building has been removed, the three USTs should be removed in accordance with current Tennessee Department of Underground Storage Tank (TDUST) guidance and regulations and the UST removal should be reported to TDUST with the request, as appropriate, for clean closure acceptance.

**Garage Blind Sump:** One soil boring was installed adjacent to the blind sump in the garage bay and a soil sample was submitted for VOC and PAH analyses. Four VOCs were detected, but all were well below the RSLs. Arsenic was detected above RSLs, but below the Shelby County background concentration. PAHs were not detected. None of the detected concentrations in the soil sample collected adjacent to the sump warrant additional assessment.

**Asbestos Containing Materials:** No ACMs were identified in the roof material sampled by Nation Econ Corporation during this Phase II ESA. FA sampled suspect ACM from 410 South Third Street in August 2008, but no ACM was identified. Based on these results, no further assessment or action for ACM at 410 South Third is warranted.

**Lead-Based Paint:** Environmental Technical Services/Nation Econ, Inc. conducted an LBP survey of the building at 410 South Third Street and made the recommendations summarized below that are agreed with by EnSafe and assuming the building will be demolished.

Prior to demolition, specifications should be properly modified to incorporate the removal of lead containing material. According to TDEC, any detectable level of lead can result in occupational exposure. Under Section 302 of the Lead-Based Paint Poisoning Prevention Act, lead containing material hazards equal to or greater than 0.5% by weight (5,000 parts per million) or 1.0 milligrams per square centimeter must be abated. Lead-containing material that is intact and not delaminating can be disposed of as construction debris as long as it is attached to its original substrate and within waste characterization protocols. However, appropriate work practices and worker protection must be utilized.

### **234 East Butler Avenue**

The Phase II ESA at 234 East Butler focused on former operation areas and the UST removed from the site, and included additional areas assessed at TDEC's request. Assessment results for each element are discussed below.

**Former Parts Washer and Paint Booth Area:** One soil boring and one temporary monitoring well were installed in the area of the former metal parts washer and two soil borings were installed in the area of the former paint booth. Soil and groundwater samples were analyzed for VOCs, PAHs, and RCRA metals. VOCs were detected in soil, but at concentrations well below screening criteria. An isolated BEQ result exceeded the urban background concentration, but PAHs were not detected in the sample directly below. Arsenic was detected at concentrations exceeding RSLs, but was below the Shelby County residential background concentration. MTBE was detected in the groundwater sample from this area, but was below all screening criteria. None of the detected concentrations in soil or groundwater samples from the former parts washer and paint booth area warrant additional assessment.

**Former Fuel Oil Underground Storage Tank:** One soil boring and one temporary monitoring well were installed adjacent to the former fuel oil UST. Soil and groundwater samples were analyzed for VOCs and PAHs. VOCs were detected in soil, but at concentrations well below screening criteria. BEQ was present in one soil sample, but was below the urban background concentration. Trichloroethene was detected in the groundwater sample collected from MW03, but at a concentration below its MCL. None of the detected concentrations in soil or groundwater samples from the former fuel oil UST area warrant additional assessment.

**Concrete Slab:** One soil boring was installed at the concrete slab as TDEC requested and the soil samples were analyzed for VOCs and PAHs. Three VOCs were detected in soil, but at concentrations well below their RSLs. PAHs were not detected in the soil sample collected adjacent to the slab. None of the detected concentrations in soil samples from the concrete slab area warrant additional assessment.

**Former Warehouse Area:** One soil boring was installed at the southeast portion of former warehouse as TDEC requested and the soil samples were analyzed for VOCs and PAHs. Three VOCs were detected in the soil sample collected from this area, but all were at concentrations well below their RSLs. PAHs were not detected in the soil sample collected adjacent to the slab. None of the detected concentrations in soil samples from the former warehouse area warrant additional assessment.

**Asbestos Floor Tile:** In August 2008, FA sampled suspect ACM from 234 East Butler Avenue. Several types of ACM were identified and subsequently abated prior to demolition of the building; however, some floor tile and mastic were left in place and have become deteriorated and friable. Given the condition of the ACM observed during EnSafe's site visit, the floor tile and possibly mastic may require abatement in accordance with SCHD requirements.