

Analysis of Brownfield Cleanup Alternatives

**Former Detroit Gas Stations
Petroleum Brownfield Cleanup Project
3445 West Warren Avenue and
665 East Philadelphia Street**

Funded by a U.S. EPA
Brownfield Cleanup Grant
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TABLE 2	Soil Analytical Results from 2007 BFRA Report for John's Tire Repair, 665 E. Philadelphia Street, Detroit, Michigan, dated September 13, 2007

FIGURES- Refer to Brownfield Redevelopment Assessment Reports

FIGURE 1	Soil Sampling Locations from BFRA for Former Detroit Gas Station
FIGURE 2	Soil Sampling Locations 2007 BFRA for John's Tire Repair

I. INTRODUCTION

This Analysis of Brownfield Cleanup Alternatives (ABCA) was developed by the Michigan Department Environmental Quality (DEQ) Remediation and Redevelopment Division (RRD). The ABCA is required as part of the Cooperative Agreement between the DEQ and the United States Environmental Protection Agency (USEPA) as part of the 2008 Brownfield Cleanup Grant, which the DEQ entered into on January 21, 2009.

The DEQ's cleanup grant was awarded for two properties located in Detroit, Michigan. The first property is known as the Samuel B. Jolly former service station, 3445 West Warren Avenue and the second property as the John's Tire former service station located at 665 East Philadelphia Street. Both sites have individual work plans associated with them, however, the cleanup project will have many related work items that need to be completed at both sites. Historic uses of the properties include service/gas stations and automotive repair. The DEQ-RRD completed a Brownfield Redevelopment Assessment (BFRA) at 3445 West Warren in 2005 and at 665 East Philadelphia in 2007. The BFRAs are available to the public on the DEQ's website at: www.michigan.gov/deq and copies are in the Administrative Record. The BFRAs documented soil and ground water contamination on both sites that exceed Michigan's risk-based Part 201¹ Generic Cleanup Criteria and both properties are listed on the Storage Tank Information Database as leaking underground storage tank (LUST) sites.

1. Site Descriptions

Both properties are located in the City of Detroit. *3445 West Warren Avenue* is located in a mixed residential and commercial area, located on the southeast corner of Warren and 24th Street. The property to the east is a multifamily residential structure and the property to the south is a two-story house. The front half of the property is covered with a concrete pad, which overlies the three underground storage tanks. Some posts and barriers are located along the borders of the property and the former pump island is located toward Warren. The back portion of the property is grass covered. An electromagnetic survey conducted by a DEQ geologist confirmed the presence of three USTs.

665 East Philadelphia Street on the northwest corner of Oakland Street, is located in a multi-family area, with some neighborhood commercial uses nearby. The lot to the west of the site was a former apartment building which has been demolished and cleared. The lot to north is a vacant set of commercial buildings. There is a small neighborhood park just to the east across

¹ Part 201 of the Natural Resources and Environmental Protection Act, PA 451 of 1994, as amended.

Oakland. The property is currently vacant, having had surface structures removed and a soil cover placed over the entire site. Much of the subsurface soil is fill with varying amounts of concrete debris, stones, and glass, underlain by a hard clay soil. There are at least two underground storage tanks still in place with all of the piping runs intact. Another waste oil tank and possibly two hoist pits are still located at the property. It is unknown how much of the former concrete foundation and parking areas are left.

2. Site History

3445 West Warren

This property is a former gas and service station located in the City of Detroit. The property has been tax reverted to the State of Michigan since the early 1990s and title is currently held by the Michigan Land Bank. Uses of the property began prior to the turn of the century and have included a delivery service, dwelling, furniture store, and a gas station. It has been abandoned since the 1980s.

665 East Philadelphia

The property is a former gasoline station located in the City of Detroit. Historical information indicates that the property was used as a filling station and repair garage. The property tax reverted to the State of Michigan in May 2000, and the Michigan Land Bank became the custodian in December 2004.

3. Previous Environmental Investigations

The specific environmental investigations and field sampling that have been conducted at the sites include:

September 7, 2005- DEQ Brownfield Redevelopment Assessment for the former Samuel B. Jolly Service Station.

April 12, 2007- DEQ Brownfield Redevelopment Assessment for the former John's Tire.

4. Current Environmental Concerns

3445 West Warren

The surficial soil and subsurface soil are impacted with contamination resulting from petroleum products. The concentration of contamination at the site exceeds generic soil residential and commercial 1 drinking water criteria. Three substandard USTs are still in the ground. Contents of the USTs have not been sampled but may contain some liquids.

665 East Philadelphia

The subsurface soils are impacted with contamination resulting from petroleum products. The concentration of contamination at the site exceeds generic soil residential and commercial 1 drinking water criteria. Two or more substandard USTs, a used oil tank, and hoist pits are still in the ground. The tanks have not been sampled but may contain some liquids.

II. EXPOSURE PATHWAYS ANALYSIS

5. Potential Exposure Pathways

The following potential exposure pathways exist for the hazardous materials present at the properties based on the BFRA reports. See pages 13-14 of the BFRA Former Detroit Gas Station 3445 W. Warren Avenue, Detroit, Michigan, dated December 20, 2005 BFRA and pages 17-19 of the BFRA John's Tire Repair, 665 E. Philadelphia Street, Detroit, Michigan, dated September 13, 2007 for detailed information regarding the contaminants and pathways. Groundwater was determined to not be a relevant pathway with regard to either of these properties, due to the fact that the City of Detroit is served by a public water system.

Risks due to soil contamination:

- Particulate soil inhalation by site visitors or employees;
- Direct contact with subsurface soil by construction workers;
- Direct contact with surficial soil by site visitors or employees;
- Soil protective of ground water-surface water interface;
- Soil protective of drinking water;
- Soil protective of contact with groundwater

6. Observed Site Soil Conditions

Soil conditions are unchanged since the assessment was conducted at *3445 West Warren Avenue*. See pages 8-12 of the BFRA Report for the detailed analysis of soil conditions.

Soil conditions for subsurface soils at *665 East Philadelphia* are expected to be unchanged since the assessment was conducted, however, surficial soil conditions may be altered due to the demolition of the building and debris clearing. A new layer of dirt was placed over the site after this work was completed in the fall of 2007, however, it is unknown if any of the previously existing surficial soils were removed as part of the clearance activities or if they were merely covered. See pages 6-15 of the BFRA for the detailed analysis of soil conditions.

III. PROPOSED CLEANUP OBJECTIVES

7. Cleanup Objectives

The acute risks posed by the presence of the substandard USTs at both properties need to be mitigated to enhance their marketability for sale and redevelopment from the Michigan Land Bank. The mitigation goal should be consistent with Class 3 of the cleanup classification system for Leaking Underground Storage Tanks. The objectives of the project are to remove the USTs, underground piping, pits, other underground appurtenances that are necessary to address the contamination, and all visibly contaminated soils at the site, as allowed for by the budget.

8. Potential Cleanup Alternatives and Evaluation of Effectiveness

The following cleanup alternatives were evaluated for each site, based on the data contained in the BRAs.

Option 1: No Further Action

3445 West Warren

665 East Philadelphia

The no further action (NFA) alternative would involve no further remedial activities at the Samuel B. Jolly site or the John's Tire site. Evaluation of this alternative is a required element of the 2008 Brownfields Grant. This alternative would not provide for mitigation of the risks posed by the contamination at either of the properties and would not be protective of public health, safety and the environment. This alternative does not support the objective of removing subsurface obstacles and would therefore not promote redevelopment of the properties. This alternative does not meet the objectives of the grant and will therefore not be the selected alternative.

Option 2: Tanks Closed in Place with In-Situ Soil Remediation

3445 West Warren

665 East Philadelphia

The underground storage tanks could be closed in place and any contaminated soils could be allowed to bio-remediate with monitored natural attenuation or utilizing an appropriate method of in-situ treatment, such as oxygen releasing compound or an air-sparge system. Closing the tanks in place will not prepare the sites for redevelopment with minimal due care obligations by prospective purchasers. Any redevelopment of the properties would be contingent upon

eventual removal of the tanks, and would potentially be more expensive if they are filled with an inert material. Utilizing an appropriate in-situ remediation would require additional costs to design the system, bid the work for constructing the system, and potentially operate a treatment system. Additionally, some in-situ treatments may take a long period of time and not have the desired effects. This option may eventually meet the cleanup objectives, but the anticipated additional time and costs make this alternative infeasible.

Option 3: Tanks Removed with Contaminated Soil Removal and Disposal Off-Site

3445 West Warren

665 East Philadelphia

Option #3 will remove all of the underground storage tanks, associated piping, and other underground appurtenances which are impacted by petroleum. This option will also remove the petroleum impacted soil up to the point where they meet the selected closure criteria. The impacted soil will be analyzed and hauled off-site to a landfill for disposal. Clean backfill will be placed in the excavated areas, and the sites leveled. This alternative will prepare the sites for redevelopment with minimal due care obligations by prospective purchasers. Option #3 would meet cleanup objectives and eliminate the exposure pathways, protecting the public health, safety, welfare, the environment, and future users of the property.

9. Selected Alternative and Cleanup Plan

Option #3 is the selected alternative at the sites because it will meet the cleanup objectives of mitigating risks posed by contaminated soil at a lower cost and with more certainty of closure than Option #2. Option #3 will also be a more effective and reliable means to eliminate the exposure pathways at the site by removing the underground storage tanks allowing for contaminated soils under and around the tanks to be removed. Remediation by Option #3 will be complete by the fall of 2009, whereas remediation by Option #2 will likely take more than a year to complete.