

**Draft Analysis of Brownfields Cleanup Alternatives
Former National Malleable Castings Company Works Property
530 N. Holmes Avenue (formerly 2732 West Michigan Street)
Indianapolis, IN 46222
Indiana Brownfield ID Number: 4060030**

In accordance with the FY12 Guidelines for Brownfield Cleanup Grants, this document satisfies the requirements for an Analysis of Brownfields Cleanup Alternatives (ABCA). This document summarizes the pertinent site information (including a brief summary of the historical environmental investigation results), identifies the applicable regulations and cleanup standards, and provides an evaluation of the available cleanup alternatives.

I. Site Background Information

a. Site Name and Location:

Former National Malleable Castings Company Works Property
530 N. Holmes Avenue (formerly 2732 West Michigan Street)
Indianapolis, IN 46222

b. Previous Site Uses & Cleanup Activities:

Based on all available literature reviews, the Indianapolis Malleable Iron Works Company (i.e. iron works foundry) was established on the Site in 1875. The iron works foundry originally encompassed the adjacent land to the north to Walnut Street; south to W. Michigan Street and the adjoining railroads; and generally further west. In the mid 1880's, the iron works foundry operations grew and the name of the facility changed to The National Malleable Castings Company Works. The iron works foundry operated until 1962 when the facility closed. In 1963, the iron works foundry buildings were demolished. The Site has remained idle and vacant since that time period. However, the portions of the National Malleable Castings Company Works property that were located west and north of the Site have already been redeveloped into residential use (north and west) and a light commercial building (Wishard Westside Health Center complex) has been constructed south of the Site.

A total of 1,896 tons of polychlorinated biphenyls (PCBs) impacted soil was excavated from the surface and shallow subsurface (to depths approximating 2 feet below land surface (BLS)) of the Site in August 2011. Additionally, in preparation of future site development activities, the invasive trees located throughout the Site were removed and portions of the Site were graded/excavated. The Site grubbing and grading/excavation activities were completed between July and September 2011 and primarily concentrated on lower the elevation of the central portion of the Site and removing the historical concrete and limestone footers that were left in place when the historical foundry buildings were razed in the 1960's. Additional PCB impacted soil and



concrete/limestone footers remain the subsurface of the Site but the funds were not available to complete the additional work activities.

c. Site Assessment Findings & Potential Exposure Pathways:

The Site consists of an approximately 2.86 acre unoccupied lot. Since January 1996, three Phase I Environmental Site Assessments (ESAs) and four (4) Phase II ESAs (1996, 2000, 2005, & 2011) have been completed at the Site. It was noted by the onsite environmental consulting that several feet (~3-5 feet) of additional soil (fill material) appears to have been placed onto the Site between the 1996 and 2000 investigations. The fill material consisted of soil, brick, concrete, and limestone and was predominantly located along the central portion of the Site. The City of Indianapolis did not import this fill material and it is not known who placed the fill material onto the Site.

Based on analytical data obtained from historical Site investigations, the adsorbed constituents of concern (COCs) detected in the surface (0-0.5 feet BLS) and shallow subsurface (0.5 – 4.0 feet BLS) at the Site are: Arsenic, PCB-1254, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, and Dibenzo(a,h) anthracene. To date, the adsorbed PCB-1254 has only been detected on the eastern and central portions of the Site.

Groundwater has been eliminated as an exposure pathway; the area is serviced by municipal water. Additionally, the depth to groundwater is approximately 25 feet BLS and the two groundwater samples obtained at the Site in 2005 did not exhibit any dissolved COCs above the corresponding RISC Residential Default Closure Levels (RDCLs). Therefore, groundwater has been eliminated as an exposure pathway. Since groundwater has been eliminated as a potential exposure pathway, the RISC default residential and industrial closure levels (based on leaching to groundwater) are also not applicable for the Site.

The COCs detected at the Site are not volatile and thus do not pose a threat for vapor intrusion. Therefore, vapor intrusion can also be eliminated as a potential exposure pathway.

Since the adsorbed COCs have predominantly been detected in soil samples obtained from the surface (0-0.5 feet BLS) or shallow subsurface (0.5 – 4 feet BLS), direct contact or ingestion by occupants of the Site or future construction workers are the only potential exposure pathways which may be viable, thus further evaluation is needed. At this time, the future redevelopment plans indicate that the Site will be developed into a mixed use commercial/residential facility. Therefore, the most applicable regulatory action levels are RISC Residential Direct Contact Levels and RISC Construction Worker Levels.

d. Project Goals:

Currently the Site is vacant and has remained vacant since the 1960's. The objective of the cleanup activities is to expeditiously minimize and/or eliminate the risk of exposure to the general public and future occupants or construction workers at the Site. The redevelopment objective is to transform the Site from a vacant, contaminated property into a 75 unit therapeutic community that provides a flexible continuum of housing and supportive services to Veterans who are disabled, homeless, or at risk of homelessness. Specifically, the proposed facility will include 25 studio and 50 one-bedroom low rent units located in a three story common corridor building.

The redevelopment project was developed in response to the need to provide housing for disabled and homeless veterans, as documented by the locally based Richard L. Roudebush VA Medical Center. The facility will also provide onsite social support services for the Veterans, is located within 1-mile of the Roudebush VA Medical Center, and within one block of a bus line, providing easy access to the VA Medical Center and downtown Indianapolis.

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility:

The City of Indianapolis, Department of Metropolitan Development (City of Indy, DMD), will work closely with representatives from the Indiana Finance Authority - Indiana Brownfield Program when developing and implementing the remedial activities for this Site. The City of Indy, DMD will also contract with a qualified environmental contractor which employs a licensed professional geologist, licensed professional engineer, or another similar type of qualified professional. The selected contractor will be experienced with respect to remediating these types of properties, understand the requirements of the Indiana Finance Authority - Indiana Brownfield Program, and be familiar with the U.S. EPA Grant program. The selected contractor will be responsible for developing and implementing the appropriate remedial work plan. The City of Indy, DMD will also provide oversight with respect to ensuring that all of the tasks are completed on time and submitted to the appropriate agency.

b. Cleanup Standards:

The major adsorbed contaminants that have been documented at the Site which exceed the corresponding RISC Residential Direct Contact Levels include: PCBs-1254, PAHs (Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, and Dibenzo(a,h)anthracene), and metals (arsenic). Since the Site will be developed for mixed used residential and social services purposes, the cleanup standards for the near subsurface (0-2 feet) and subsurface soil will be the Indiana Department of Environmental Management (IDEM) RISC Residential Direct Contact Levels.



c. Laws and Regulations Applicable to the Cleanup:

The cleanup project will generally follow the guidelines outlined in House Enrolled Act (HEA) 1162, which amended Indiana Code 13-25-5-8.5. HEA 1162 states that IDEM must consider risk-based remediation objectives for hazardous substances and petroleum products that (A) manage risk and (B) control completed or potential exposure pathways. The cleanup project will also incorporate guidelines set forth in IDEM's Non-Rule Policy Document (W-0046) titled Risk Integrated System of Closure (RISC), Technical Guide and User's Guide.

III. Evaluation of Cleanup Alternatives

a. Cleanup Alternatives Considered:

1. No Action
2. Soil Capping
3. Targeted Excavation & Disposal, Engineered Barriers, Phyto-Remediation, Institutional Controls

b. Feasibility and Cost Estimate of Cleanup Alternatives:

The following information briefly summarizes the feasibility of implementing the proposed cleanup alternatives and provides an estimated cost to implement these activities.

No Action: If no action is taken at the Site, the impacted soil will remain on the Site for decades and will not be a developable property. Additionally, if the Site is not secured, it is possible that the general public could come into direct contact with the impacted surface soils, thus creating a potential environmental, health, and welfare liability for the City of Indy, DMD. This option is considered the least environmentally protective and the impacts to the environment will continue for many years to come. The no action alternative does not have an associated cost, is easy to implement and does not require ongoing operation or maintenance costs. There are no required actions or technology necessary to implement this option. The time frame needed for the no action alternative to result in improved environmental conditions at the Site is unknown; however, given the fact that the historical activities that adversely impacted the Site ceased operations decades ago, the amount of time required to significantly reduce concentrations to acceptable levels is expected to be greater than 25 years. This approach would prohibit redevelopment of this Site and the Site will continue to pose an environmental and health risk to the residents of the surrounding neighborhood.

Soil Capping: The advantage of soil capping (importing 2 feet of clean soil) is that it quickly addresses the environmental and health risks associated with direct contact with contaminated surface soil located throughout portions of the Site. However, the contaminants are left in-situ at depths below two feet and future construction or onsite excavation workers at the Site may be exposed to the contaminants left in place when the Site is redeveloped. Additionally, the elevation of the majority of the Site is already higher than the surrounding properties and site development activities indicate that the final site elevation needs to be lower as opposed to higher. Although soil capping is easy to implement and quickly addresses the direct contact issue related to impacted surface soil, this option is not the best option for the Site since the contaminants are left in-situ and the imported soil will raise the elevation of the Site by 2 feet. The estimated cost associated with this work is approximately \$100,000 - \$125,000.

Targeted Excavation & Disposal, Engineered Barriers, Phyto-Remediation, & Institutional Controls: The advantage of the targeted excavation (~3,250 tons) and disposal portion of this option is that it is easy to implement and expeditiously addresses the environmental concerns with respect to the hazardous substances adsorbed to the surface and near surface soil and removes the impacted soil from the Site. The excavation areas can focus on source areas or only areas with the highest contaminant concentrations and alleviates any long term affects with managing direct contact with the surface and near surface soil. The risks associated with the remaining soil can be managed through the use of engineered barriers and institutional controls. The disadvantage of soil excavation is that it does not necessarily remediate the impacted soil since the impacted soil is simply removed from the Site and transported and disposed, untreated, at an offsite landfill.

The proposed engineering controls can include the installation of paved areas (such as pedestrian trails, sidewalks, parking lots, bike racks, rest areas, etc.) above areas with known surface soil contamination. This will minimize the possibility of direct contact with the contaminated surface soil. The institutional controls can consist of prohibiting the installation of a garden in the remaining affected areas and require that any soil excavated from the affected areas be properly characterized prior to leaving the Site or being stockpiled on the Site. The advantages of using the engineered and institutional controls are that they are quick and easy to implement yet they are very effective at controlling the environmental risks of human exposure to the contaminants that remain in-situ. Phyto-remediation activities can be implemented in areas of the Site that are not occupied by the building or paved areas but still have some residual contamination left in-situ. This remedial approach has been proven effective at Sites throughout the world, will provide long term remedial activities at the Site even after the Site development activities have been completed, and provide educational and recreational enjoyment for future occupants of the Site.

The total estimated cost to implement these activities range between \$240,000 and \$260,000.



c. Recommended Cleanup Alternative:

The most feasible and appropriate cleanup alternative is Option #3: Targeted Excavation & Disposal, Engineered Barriers, Phyto-Remediation, & Institutional Controls.