

# DNAPL Stabilization at New Jersey Brownfield Site

## KEY Project Overview

### Highlights

*Stabilization of DNAPL addresses potential source material*



*Former wood treating site remediated in accordance with Industrial Site Recovery Act*



*Remedial Action Selection Report and Remedial Action Workplan prepared per 7:26E*



*Required Coastal and Wetlands Permits obtained prior to implementation*



*Stabilization implemented and Remedial Action Report prepared*



*Remediated site suitable for Brownfield redevelopment*



*Potential source material prior to stabilization.*

Beazer East, Inc. is engaged in the remediation of the Former Koppers Site located in Port Reading, New Jersey. Adding to the regions' economic base, the remediated site will be suitable for Brownfield redevelopment.

On behalf of Beazer, Safety Kleen (SK) and KEY Environmental, Inc. (KEY), are responsible for the design and permitting of the remediation at the 60-acre Former Koppers Site. In accordance with the Technical Requirements for Site Remediation (N.J.A.C. 7:26E) and the Industrial Site

Recovery Act (ISRA), a Remedial Action Selection Report (RASR) and a Remedial Action Work Plan (RAWP) were prepared by SK/KEY and approved by the NJDEP. The RASR selected and the RAWP specified remedial actions to address soil, groundwater, and potential source material at the site.



*Cement-soil mixing operations using the Lang Tool, LTC-290 mixer/blender.*



*Water added as needed during mixing operations to improve homogeneity of cement-soil mixture.*



*Cross-section of stabilized potential source material.*

## Remedial Action Selection

The remedial actions for the site included stabilization of potential source material to minimize its potential migration and dissolution to groundwater, construction of a surface cover to minimize the potential of exposure to site soils exceeding the nonresidential soil clean-up criteria, and monitored groundwater natural attenuation. A Brownfield redevelopment option of using dredge material or recycled soil to construct a portion of the remedial action was incorporated into the RAWP.

As part of the remedial investigation and remedial selection process, approximately 15,000 cubic yards of potential source material (soils containing Dense Non Aqueous Phase Liquid (DNAPL)) were identified and delineated using a laser induced fluorescence (LIF) technique. Following a treatability study conducted as part of the RASR, stabilization of the potential source material was selected and specified for implementation in the RAWP. Alternative remedial technologies, such as extraction/recovery or excavation and disposal, are not as cost-effective as stabilization and could limit the potential redevelopment options for the site.

## Implementation

SK/KEY initiated the implementation of the stabilization by obtaining the necessary permits and authorizations, which included Freehold Soil Conservation District certification of a Soil Erosion and Sediment Control Plan, a Letter of Interpretation/Line Verification, a Freshwater Wetlands Statewide General Permit #4, a Coastal Statewide General Permit #11 and an air permit.

Following successful attainment of the required authorizations, SK initiated the stabilization of the potential source material. The source material was stabilized to a depth of up to 7 feet. In accordance with the treatability study, a specific mass of Portland cement was added to a specific mass of potential source material and blended using proprietary mixing equipment to create a solid, homogeneous stabilized soil-cement mass.

Following stabilization, confirmatory test pits were inspected to verify the effectiveness of the stabilization. The stabilization resulted in a site suitable for Brownfield redevelopment.

## Authorizations Obtained by KEY

- ✓ Remedial Action Selection Report Approval
- ✓ Remedial Action Work Plan Approval
- ✓ Historic Fill Approval
- ✓ General Coastal Permit from Land Use Regulation Program (LURP)
- ✓ LOI/Line Verification and General Wetlands Permit from LURP

## Project Contributors

**Beazer**

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## KEY SERVICES

### Remedial Investigations and Site Assessments

Phase I Assessments  
Geophysical Evaluations  
Hydrogeological/Aquifer Testing  
Soil/Sediment Characterization  
Groundwater Characterization  
Fate & Transport Evaluations  
Risk Assessments  
Natural Attenuation Assessments  
GIS/GPS/Data Management

### Environmental Engineering

Feasibility Studies  
Remedial Design  
Turnkey Projects  
Construction Management  
Construction QA/QC Oversight  
Monitoring/Reporting  
System Operations

### Program Support

Permitting  
Regulatory Support  
Expert Witness and Reports  
Contractor Procurement  
Decommissioning/Demolition

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