

**DECISION DOCUMENT  
FORMER ALEXANDER CLEANERS SITE**

HILLSDALE BOROUGH, BERGEN COUNTY

JUNE 2018

**I. PURPOSE OF THE DECISION DOCUMENT**

This Decision Document identifies the remedial alternative selected by the New Jersey Department of Environmental Protections (NJDEP) to address contamination found at the Former Alexander Cleaners site located in Hillsdale Borough, Bergen County, New Jersey.

The selected remedy for the Former Alexander Cleaners site will be implemented in phases which will include: 1) Demolition of the existing building and basement, 2) Focused Pre-design investigation and characterization of the free phase source area located beneath the basement floor slab of the building, 3) Excavation and off-site disposal of the free product source area; and 4) evaluation of a monitored natural attenuation remedy for the residual (dissolved) groundwater contamination. The estimated cost of the preferred remedy is approximately \$1.9 million.

The NJDEP is issuing this Decision Document as part of its authority under the Department's Technical Requirements for Site Remediation, N.J.A.C. 7:26E; Spill Compensation and Control Act, N.J. S.A. 58:10-23.a *et. seq.*, (Spill Act). N.J.S.A. 58:10B, P.L. 1997 c.278, and the regulations promulgated under each of these acts. This document summarizes information that can be found in greater detail in the Remedial Investigation Report dated July 2016 and Remedial Alternative Selection and Evaluation Report dated February 2017 (Revised September 2017), both reports prepared by H2M Associates (NJDEP's RI/RD/RA Term Contractor).

**II. COMMUNITY ROLE IN THE SELECTION PROCESS**

A Proposed Plan, made available for public comment on February 23, 2018, summarized the results of NJDEP work to date at the site and presented descriptions of remedial alternatives considered by the Department to address contamination remaining on-site. The Proposed Plan also recommended NJDEP's preferred remedial alternative to be implemented. A display ad announcing the Public Comment period was published in "The Record" on February 23, 2018. The Borough of Hillsdale provided links to the Proposed Plan on the Borough's web page. A public repository was established at the Borough Municipal Building, including relevant documents available for review by local officials and residents.

The Public Comment period closed on March 23, 2018. Written comments were received from the Hillsdale Borough Administrator, the Hillsdale Borough Environmental Commission, Bergen Save the Watershed Action Network (SWAN), the Bank of America, and two Borough residents. The comments, summarized and grouped by relevant topics, and responses are provided in the Responsiveness Summary section of this document. All comments summarized in this document have been considered in NJDEP's final decision for the selection of remedial activities for the site.

### III. SITE BACKGROUND

The former Alexander Cleaners Site (Site) is located at 137 Broadway in Hillsdale Borough, Bergen County, New Jersey. The property is identified as Block 1102, Lot 4, and is approximately 0.1928 acres in size. Broadway fronts the property to the east and Orchard Street abuts the property to the north. A commercial property, occupied by the Bank of America, borders the property to the south and west. Beyond the Bank of America property are the New Jersey Transit rail lines, and a municipal park (Veterans Park).

The subject property is developed with a two-story commercial building which is surrounded by a paved parking lot on the eastern, northern and western sides. Alexander Cleaners, a former dry-cleaning establishment with an on-site dry-cleaning plant, operated at this location from sometime between the late 1960's and early to mid-1970's, until 1996.

A tenant, Sotheby's International Realty, last occupied the first floor of the property building and used the space as a real estate sales office. The basement was used for storage of the real estate office's unused furniture and archived files.

A subsurface depressurization system/soil vapor extraction (SVE) system was installed in the basement of the building in 2002, and augmented in 2003. The system is maintained by NJDEP to mitigate indoor air concerns. In addition, the basement walls were sealed in 2004 to reduce vapor intrusion into the basement.

Contaminants of concern (COCs) associated with this Site consist predominantly of tetrachloroethylene (also known as perchloroethylene [PCE]), which is attributed to the former dry-cleaning operations conducted onsite, and degradation products of PCE, including trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), and vinyl chloride (VC). These compounds have been detected in both soil and groundwater at the Site.

### IV REMEDIAL INVESTIGATION SUMMARY

Previous Site Investigation (SI) and Remedial Investigation (RI) activities conducted by the then property owner and the NJDEP indicated that a chlorinated volatile organic compound (CVOC) plume was emanating from the former Alexander Cleaners property. In November 1995, sampling of onsite monitor wells revealed PCE, TCE, cis-1-2-DCE and vinyl chloride was present in groundwater at concentrations above the NJDEP Ground Water Quality Standards (GWQS).

In 1998, three shallow monitor wells, and one deep monitor well were installed. A complete round of groundwater sampling was conducted on all newly installed and existing monitoring wells both on- and off- site. Free-phase product was reportedly observed in the onsite basement monitor well, MW-5. Additionally, all onsite monitoring wells except for the deep monitoring wells MW-1D and MW-7D, installed during this time period, exhibited concentrations of PCE and TCE.

Based on these sampling results, the NJDEP engaged an Emergency Services Contractor to install a subsurface depressurization system/SVE system to mitigate PCE in the indoor air. Subsequent

indoor air monitoring indicated that PCE concentrations in the building interior air samples were still exceeding the NJDEP Indoor Air Screening Levels. The SVE system was modified by adding an additional extraction point, in addition to improvements made to the original SVE system. The updated SVE system continues to be in operation, and is monitored and maintained by a contractor under contract with the NJDEP.

#### On-Site Remedial Investigation

In 2015, H2M was contracted by the NJDEP to expand on the previous investigations and further delineate the PCE plume, as well as to evaluate remedial alternatives for the source area beneath the basement floor of the building.

For the RI, additional monitoring wells and soil borings were installed and sampled both on-site, and off-site. Based on the findings of H2M's 2015-2016 RI, as well as results from prior investigations, free phase PCE product is likely to be present beneath the western part of the building. Significantly elevated concentrations of PCE were confirmed to be present in soil at a concentration as high as 510,000 milligrams per kilogram (mg/kg), at a depth of 8-8.5 feet beneath the basement slab (Non-Residential Direct Contact Soil Remediation Standard for PCE is 5 mg/kg). The contaminated, saturated soils beneath the building are acting as a continuing source of the PCE/TCE (solvents) contamination impacting groundwater and affecting vapor intrusion inside the on-site building. The vertical extent of solvents in soil beneath the basement has not been delineated due to inaccessibility. During the RI, sampling could not be performed to depths deeper than 10 feet inside the building because of limitations in the type of drilling equipment that could be used in the basement and due to low ceiling height and restrictions on vertical clearance. Therefore, to accurately estimate the size, dimensions or volume of the "PCE source area", additional investigation under the basement of the building is needed.

Groundwater sampling conducted below the western portion of the site building contained elevated levels of PCE at 210,000 micrograms per liter ( $\mu\text{g/L}$ ) (NJDEP Class IIA GWQS for PCE is 1.0  $\mu\text{g/L}$ ). Additional nearby groundwater samples from below the western portion of the site building also contained significantly elevated PCE concentrations at 130,000  $\mu\text{g/L}$  and 180,000  $\mu\text{g/L}$ . These concentrations approach the pure-phase solubility of PCE which is 200,000  $\mu\text{g/L}$ . Additionally, groundwater samples collected from an outdoor monitoring well on the western portion of the property, which was installed at a depth of approximately 8 feet below the basement floor slab, contained PCE at 7,600  $\mu\text{g/L}$ . Accordingly, the on-site "PCE source area" has not been fully delineated.

#### Off-Site Remedial Investigations

As part of past remedial investigation efforts, additional monitoring wells and soil borings were installed off-site at the Bank of America property and at the Borough's Memorial Park. The dissolved CVOC groundwater contaminant plume extends off-site to the Bank of America property within the shallow groundwater zone, but was not observed in the deeper groundwater flow zone. PCE and TCE are present at concentrations above the NJDEP Class II-A GWQS. PCE and TCE are also present in a monitoring well located in the parking lot of the Bank of America property south of Alexander Cleaners Site at concentrations above the NJDEP GWQS and above

the Vapor Intrusion Groundwater Screening Level (VI-GWSL). A vapor intrusion investigation of the Bank building was conducted and no adverse impact to indoor air in the Bank building was found.

More detailed findings from the RI are discussed in the Remedial Investigation Report (RIR) prepared by H2M in August 2016.

## V. SUMMARY OF REMEDIAL ALTERNATIVES

This section describes the remedial action technologies and process options that were evaluated by NJDEP to address the “PCE source area” or hotspot at the Alexander Cleaners Site. As described above, the area of highest contamination is concentrated beneath the basement area of the former Alexander Cleaner building. Lower level dissolved groundwater contamination is migrating away from the building foot-print in the shallow groundwater flow zone, but has not impacted any other off-site receptors at this time. The current focus is to remediate the “source area” and then continue to monitor the dissolved groundwater contamination.

The remedial action alternatives evaluated are listed below:

- Alternative No. 1 No Action
- Alternative No. 2 Limited Action Alternative
- Alternative No. 3A Vacuum-Enhanced Fluid Recovery, Soil Excavation, Transport & Disposal
- Alternative No. 3B Demolition, Soil Excavation, Transport and Disposal
- Alternative No. 3C Demolition, Large Diameter Auger (LDA) Soil Excavation, Transport and Disposal
- Alternative No. 4 Soil Vapor Extraction
- Alternative No. 5 In-Situ Enhanced Bioremediation
- Alternative No. 6 In-Situ Chemical Oxidation (ISCO)
- Alternative No. 7 In-Situ Chemical Reduction using Zero Valance Iron Metals
- Alternative No. 8 In-Situ Thermal Remediation

Each remedial action option has been evaluated relative to the following criteria: (1) Effectiveness of the remedial technology to achieve the remedial action objectives; (2) Ability to reduce toxicity, contaminant mobility or volume; (3) Risk minimization; (4) Ease of implementation; (5) Potential to impact receptors; and (6) the relative cost of the response action.

The detailed evaluation is presented in the Remedial Alternatives Selection and Evaluation (RASE) Report, dated September 2017.

## SELECTED REMEDY

Based on the evaluation described above, NJDEP has selected Remedial Alternative No. 3C: Demolition, Large Diameter Auger (LDA) Soil Excavation, Transport, and Disposal to address PCE source area remediation at the former Alexander Cleaners site. In conjunction with this

source area remediation, long-term ground water monitoring of the dissolved ground water contamination will be implemented.

Alternative No. 3C - Demolition, LDA Soil Excavation, Transport and Disposal

This remedial action involves demolishing the existing structure on the property which will allow access to the "PCE source area" or hotspot to complete an alternative form of excavation using large diameter augers. Demolition activities include building demolition, offsite disposal of debris, and removal and offsite disposal of the slab, footings, and foundation in the western portion of the building. All applicable state and local permits will be obtained before starting work. Upon completion of the building demolition, further source area characterization, delineation and soil excavation activities will be performed.

Source area characterization and delineation is needed to confirm the vertical and horizontal extent of the free phase product. This information will assist in implementing the soil removal and in determining how best to dispose of the material off-site. This work will also help determine quantities of backfill needed to restore the site.

Groundwater in the area to be excavated was encountered during the RI at approximately 10 feet below the exterior site grade (or approximately 2 feet below the basement slab elevation). To perform LDA excavation with a shallow groundwater table, a slightly larger steel casing will be advanced along with the auger to maintain the excavation sidewalls from collapse and control groundwater infiltration. To achieve complete coverage of the excavation area using the LDA method, auger holes will have an overlap of 17% with adjacent holes. Once all contaminated material is removed each auger hole will be backfilled with flowable fill such as cement-like slurry.

The excavation is expected to reach a depth of at least 28 feet below surface grade. Soil from the source area would be excavated and stockpiled in a lined temporary staging area, the material would be allowed to drain excess water into a contained area. The water would then be pumped into a vacuum truck where it would be taken to a disposal facility licensed to accept the water. Subsequently, the soil would then be loaded onto trucks and hauled to an acceptable disposal facility. If the material is still too wet for shipment, the material will be amended with Portland cement or kiln dust to meet transportation and facility acceptance criteria.

Upon completion of soil excavation, the area will be backfilled to match existing site grade using certified clean fill. The area will then be paved with asphalt. Additionally, post-remediation groundwater monitoring will be implemented.

The estimated cost to implement this remedial action is currently estimated at \$1,710,384. A breakdown of the costs associated with the various tasks to implement Remedial Alternative No. 3C is provided in Table 1 (RASE Report and Proposed Plan). The costs for performing the groundwater monitoring are detailed in Table 2 (RASE Report and Proposed Plan). The total, current estimate of the remedial action implementation (including the groundwater monitoring) is \$1,880,059.

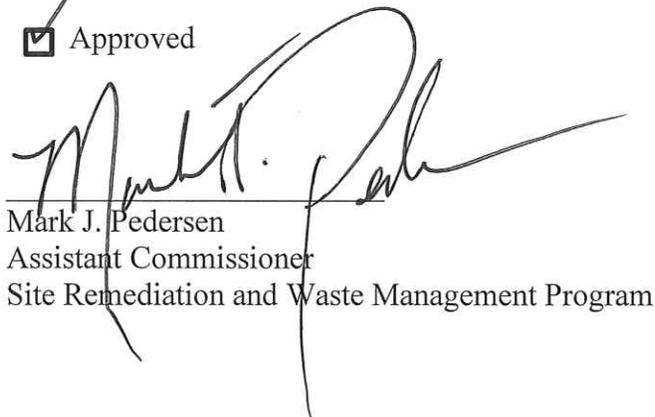
## PUBLIC COMMENT

The public comment period for this remedy as from February 23, 2018 to March 23, 2018. There were no changes need to the proposed remedy in response to the public comment. A full responsiveness summary is provided in Appendix A.

## CONCLUSION

Demolition, soil excavation using large diameter augers, and transportation with off-site disposal of contaminated soil is a viable and effective method of source area remediation for the Alexander Cleaners Site. This remedial alternative is readily implementable, and can be accomplished using demonstrated construction methods to achieve a reduction in toxicity and volume of contaminant mass within a relatively brief period. Alternative No. 3C has multiple advantages compared to other remediation alternatives as described in the RASE and previous Proposed Plan. Specifically, standard excavation techniques would require lowering the water table and require pumping out large quantities of contaminated water in order to dewater the excavation area. The small, 0.2-acre site is adjacent to an active commercial property and residential properties and does not allow for such extensive dewatering process. Additionally, there is limited space for standard excavation techniques, thus vertical auger excavation is more practical within the limited property size and does not require lowering of the water table. Remedial Alternative 3C provides long term protection to human health and the environment, and there are no impacts to ecological receptors or human population.

Approved



Mark J. Pedersen  
Assistant Commissioner  
Site Remediation and Waste Management Program

6-19-18  
Date

APPENDIX A  
RESPONSES TO COMMENTS ON THE PROPOSED PLAN

Written comments were received from the Hillsdale Borough Administrator, the Hillsdale Borough Environmental Commission, Bergen Save the Watershed Action Network (SWAN), the Bank of America, and two Borough residents. The comments are summarized and grouped by relevant topics.

Comment:

Several questions revolved around the ground water contamination, including clarification of the direction and extent of the contamination, whether potable wells are impacted, whether well owners were notified, and whether the plume is migrating to the Pascaack Brook and potentially migrating within the Brook to the Oradell Reservoir, which is a primary drinking water supply for the region.

Response:

NJDEP has installed ground water monitoring wells to help with defining and characterizing the extent of contamination migrating in ground water from the former Alexander Cleaners Site. To date, NJDEP has not identified any potential for the contaminant plume impacting any off-site human or ecological receptors, other than ground water, or threatening any private potable wells. NJDEP intends to continue evaluating and monitoring the extent of ground water contamination associated with the Alexander Cleaners Site during and after the planned work to attempt to remove continuing source of this ground water contamination. Future site work may include the installation of additional monitoring wells, both on-site and off-site, contingent upon the success of the source remediation work.

Because of the limited off-site impact, NJDEP has not notified other possible private well owners. Should future work at this site indicate that any nearby receptors are potentially impacted by contamination associated with this site, NJDEP would investigate impact on those receptors. NJDEP recommends that all private potable well owners should routinely check the quality of their well water and notify the local health department should they discover any contamination.

Comment:

A question was asked about how long the ground water is expected to remain contaminated and whether other remedial alternatives to attenuate the ground water contamination were considered.

Response:

The duration of the dissolved contaminant plume associated with the former Alexander's Cleaners Site has not been determined. NJDEP intends to address free product source areas first. NJDEP will address the site in a "phased implementation" approach. Accordingly, once the "source area" remediation is complete, NJDEP will be sampling and monitoring the dissolved ground water contamination plume for several years in order to determine whether a Monitored Natural Attenuation remedy will be sufficient to address the contaminant plume associated with this site. That evaluation is expected to determine the duration of the plume. NJDEP evaluated several

remedial action alternatives for addressing ground water contamination at this site in the RASE report that is available for review.

Comment:

Several questions touched on the potential use of the Alexander Cleaners property once the remediation is completed.

Response:

NJDEP does not own the site and will not take ownership of the property now or in the future. NJDEP will likely place a lien on the property to cover all current and future costs incurred by the State of New Jersey. In addition, NJDEP will need continued access to the property to sample existing monitoring wells, potentially to install additional monitor wells, and potentially to conduct additional ground water remediation work in the future on the "dissolved" contamination plume. The duration of this "continued access" is indeterminant and will be for a minimum of five years. Additional institutional controls that could be instituted (such as ground water use and/or deed restrictions) could include additional restrictions. These steps will not be determined until a later date and there will be additional opportunities for public review and comment at that time.

NJDEP cannot address future use of the property, beyond what is noted above, since the State of New Jersey is not the property owner. Certainly, NJDEP's goal is to restore the property to a safe condition for future re-use. However, future uses will be conditioned upon NJDEP's needs for continued access and the effectiveness of the source remediation work that is currently planned.

As noted above, NJDEP cannot specify or establish reliable time-frames or durations for completing remedial work at this site. Continued progress is always contingent on availability of public funds and effectiveness of the various phases of remedial work at the site.

Comment:

A concern was raised regarding an area of concern on the Bank of America property where soil was impacted due to sump water discharges associated with the former Alexander Cleaner building.

Response:

NJDEP appreciates the sharing of information and data regarding possible soil contamination on the Bank property from discharges associated with the former Alexander Cleaner site. NJDEP looks forward to cooperation and coordination with Bank of America, including signed access approval, to investigate, characterize and remediate any soil contamination caused by discharges from the former Alexander Cleaner site. Full access and temporary disruptions to the Bank property will allow NJDEP to better implement the planned building demolition and characterize and remediate all contamination associated with the adjacent former cleaner site, including "free product", dissolved ground water contamination, and any residual soil contamination.

Comment:

Concerns regarding the need for delineation of ground water impacts, including free phase **dense non-aqueous phase liquid** (DNAPL), onto the Bank of America property.

Response:

NJDEP intends to attempt to fully delineate the extent of free phase DNAPL attributed to the former Alexander Cleaners Site. Past efforts at investigation of DNAPL were severely hindered by inability to access the source area beneath the existing building onsite as well as the inability to conduct more comprehensive investigations on the Bank property due to access restrictions. Full access and cooperation in the future to the Bank property will allow for a more thorough investigation of the extent of both DNAPL and dissolved ground water contamination attributed to the former Alexander Cleaner site.

Comment:

A concern was raised about the high level of PCE contamination in ground water close to the Bank of America property, and the need for additional vapor intrusion testing of the Bank building.

Response:

Following the planned remediation work to address the free phase DNAPL source area beneath the former Alexander Cleaner building, NJDEP intends to continue to investigate, evaluate and monitor the dissolved ground water contamination that will remain and will act accordingly to address continued threats to receptors, such as through vapor intrusion.

Comment

A question was raised as to the sorts of safety plans and controls that will be implemented during work conducted by NJDEP.

Response:

NJDEP always requires site-specific safety plans for any work on a contaminated, or potentially contaminated, property. In addition, Contractors implementing NJDEP-approved remediation work onsite are routinely required to implement safe practices and take all necessary precautions and controls to protect adjacent properties and the surrounding community. NJDEP intends to implement the planned work in a safe manner, while trying to minimize disruptions and disturbances to all adjacent properties. NJDEP plans to meet with interested parties before the start of remedial activities to discuss these plans, however, we cannot commit to any specific controls, barriers or mitigation measures at this time