Analysis of Brownfields Cleanup Alternatives

CONCORD CHEMICAL SITE
Block 1186, Lot 25
CAMDEN, NJ 08104

Prepared by BRS, Inc. for the

New Jersey Economic Development Authority
36 West State Street
Trenton, New Jersey

on behalf of

The City of Camden
520 Market Street
City Hall
Camden, New Jersey

January 6, 2023

739 Stokes Road, Units A & B, Medford, NJ 08055 • PO Box 2293, Medford Lakes, NJ 08055
t (856) 964-6456 • f (732) 782-0404 • www.BRSinc.com

CONTENTS

ATTACHMENTS

1 INTRODUCTION & BACKGROUND

The former Concord Chemical site is located near the Marlton neighborhood and the Conrail railroad switching station at 1650 Federal Street in Camden, New Jersey. The site consists of a rectangular parcel approximately 1.38 acres in size. The property is owned by the City of Camden.

The New Jersey Economic Development Authority (NJEDA) on behalf of the City of Camden Redevelopment Agency (CRA) has contracted Brownfield Redevelopment Solutions, Inc. (BRS), to prepare this Analysis of Brownfields Cleanup Alternatives (ABCA) in support of EPA grant funding. The purpose of the ABCA is to:

- Identify reasonable brownfields cleanup alternatives considered for addressing the contamination identified at the site;
- Analyze the various factors influencing the selection of a preferred cleanup method, including effectiveness, implementability, costs, and sustainability;
- Select the preferred cleanup method, based on the analyses performed; and
- Provide community outreach and solicit public participation and comment on the remedial selection process prior to the final decision.

The CRA on behalf of the City will promote and facilitate community involvement with the environmental cleanup and site redevelopment project with the activities itemized below.

- The CRA will perform targeted outreach to notify communities of the availability of this ABCA. This includes fulfillment of the New Jersey Department of Environmental Protection (NJDEP) community notification requirements (N.J.A.C. 7:26E-1.4). The CRA will publish a notice of availability of the draft ABCA in the local newspapers with general circulation in the target community.
- The CRA will continue to provide an opportunity for members of the public to comment on the ABCA in a public meeting. Additional details regarding the public notification process will be presented in a *Community Relations Plan* for the site.
- The CRA will prepare written responses to the public comments received and document any changes made to the cleanup plans and to the ABCA as a result of the comments.

A Brownfields Cleanup Decision Memo will be prepared at the end of the public comment process, which will describe the cleanup options selected for the site. The ABCA and the Decision Memo will be included with the Administrative Record. The Administrative Record repository is available on the CRA website (http://camdenredevelopment.org).

The expected outcome of the site is Restricted Use.

1.1 Site Description and Previous Uses

The site is currently an active case with the New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) with Program Interest (PI) No. 002734. The current owner of the site is City of Camden as of June 2018, with prior ownership listed since 1969 as Concord Chemical Company, Inc. Historic ownership as provided by NJDEP in their 2004 Site Investigation report is below.

Owner/Operator History:

NAME	OPERATOR/ OWNER	DATES	
		FROM	TO
Concord Chemical Company	Owner/Operator	Sept. 9, 1969	Present
Harley Chemical Company	Owner	April 1, 1965	Sept. 9, 1969
Harley Chemical Company	Operator	May 16, 1951	Sept. 9, 1969
Phillips & Jacobs, Incorporated	Owner	May 22, 1952	April 1, 1965
Lavan Reality	Owner	May 16, 1951	May 22, 1952
Iowa Soap Company, Corp. of Delaware	Owner/Operator	June 27, 1934	May 16, 1951
Iowa Soap Company, Corp. of Iowa	Owner/Operator	April 11, 1934	June 27, 1934
Dobbins Soap Manufacturer	Owner/Operator	Nov. 12, 1892	April 11, 1934
Charles J. Gragin etc. & Francis (wife)	Owner/Operator	unknown	Nov. 12, 1892

Concord Chemical Company operated from 1969 through at least 2004 and likely through 2009 as a soap manufacturing facility but abandoned the property in 2010. Various records of historic spills of oil and hazardous materials are on file and many spills were discharged to the municipal storm sewer system. Multiple prior environmental assessments have been conducted. Remedial Investigation and Remedial Action work plans dated September 2015 have been approved by NJDEP and that work was being publicly funded. According to NJDEP case files, no Licensed Site Remediation Professional (LSRP) is currently retained on this site.

1.2 Surrounding Land Use

The site is located in an area that includes industrial uses and some residential housing within the city of Camden, New Jersey. The property is bounded to the north by Federal Street, to the east by South 17th Street, to the south by Carman Street, and to the west by a former railroad spur and commercial lot.

1.3 Project Goal (Reuse Plan)

Ultimately, the City intends to remediate the site in accordance with NJDEP requirements and to conduct long-term monitoring of on-site and off-site impacts, allowing for potential restricted future commercial/industrial use, or open space. Before any site work can be done, an LSRP will need to be retained for the site.

1.4 Summary of Environmental Conditions

According to a review of Sanborn Fire Insurance Maps during NJDEP's completion of a Preliminary Assessment and Site Investigation (SI) at the site, various commercial soap-manufacturing companies have operated on the current Concord Chemical property since at least 1891. I.L. Gragin & Company began operations as a soap manufacturer with a main manufacturing building, two sheds, and a coal storage area. In November 1892, Dobbin Soap Manufacturer took over the property and the soap manufacturing business. In April 1934, Dobbin Soap Manufacturer changed owners and was known as the Iowa Soap Company. Two real estate companies owned the property between 1951 and 1965 while Harley Chemical operated as an industrial and commercial soap manufacturer. In April 1965, Harley Chemical Company purchased the property and ultimately became partners with Concord Chemical until Harley Chemical was bought out by Concord Chemical in 1969. Concord Chemical Company & the Harley Chemical Division manufactured industrial and commercial cleaners on the property. Throughout the ownership history, the facility utilized fuel oil, gasoline, power steam, and coal for daily use.

In 1978 a stormwater sample was collected from the Federal Street pumping station located near the site and high concentrations of tetrachloroethylene (PCE) were detected in the sample. In 1980, the NJDEP sampled the production well at the facility as part their investigation into the Harrison landfill site and detected trichloroethylene (TCE), PCE, 1,1, dichloroethylene and 1,2 dichloroethane at concentrations that exceeded the Groundwater Quality Standards in effect at that time.

In response to contamination identified in 2004 at the Parkside Wellsite, located approximately 3,000 feet south of Concord Chemical, NJDEP completed a Preliminary Assessment and Site Investigation (SI) at the site that indicated the presence of TCE, PCE and additional hazardous substances in groundwater above the Groundwater Remediation Standards. NJDEP identified 10 Areas of Concern (AOC) at the site. Concord Chemical did not respond to multiple directives and notices from NJDEP requiring remedial action at the site between 2004 and 2012.

The site was abandoned sometime in early 2010 as determined by an inspection performed by City of Camden Public Works officials. In 2010, NJDEP was granted access to the site through a court order to conduct Remedial Investigation/ Remedial Action activities. NJDEP requested that the United States Environmental Protection Agency (EPA) perform a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) removal action to provide security at the site; identify, segregate and remove all hazardous materials including the removal of presumed asbestos containing material; and coordinate the transportation and off-site disposal of all wastes generated from within the building during the removal action. EPA completed removal actions in March 2011. The work was estimated to cost $1,970,000.00.

Three residential lots are located across Carman Street to the south of the site and elevated levels of chlorinated Volatile Organic Compounds (VOCs) were detected in ground water samples collected in 2010 by NJDEP near the corner of Carman Street and S 17th Street. In

2010 EPA conducted sub-slab soil gas sampling at the residential lots. Analytical results from this vapor investigation detected PCE in the sub-slab soil gas as high as 8.8 micrograms per cubic meter (µg/m3) and TCE as high as 21µg/m3. Both concentrations are below their respective Soil Gas Screening Levels per the May 2021 NJDEP Vapor Intrusion Technical Guidance.

In June 2011, a fire heavily damaged the manufacturing building and in 2012 the majority of the manufacturing building was demolished, with the exception of two wings which include the kettle room, transformer room and cresylic acid filling room. The source of the groundwater plumes from hazardous substances, including methylene chloride, chlorobenzene and benzene, is believed to be located beneath the floor of the kettle room. The remaining buildings were scheduled for demolition circa the fall of 2016. Google Maps© Street View imagery dated September 2016 shows all the buildings as demolished with only the ground floor of the kettle room and the associated basement remaining.

EPA and the NJDEP have overseen the investigation and remedial actions at the site to date. Kleinfelder was apparently retained by the NJDEP to complete additional Remedial Investigation (RI) activities at the site. Kleinfelder appears to have identified 19 AOCs at the site as outlined in the table below.

Table 1. Concord Chemical AOCs

AOC #	Name
AOC-1	Former Chemical Sotrage Area
AOC-2	Former Loading Docks
AOC-3	Former Drum Storage Area
AOC-4	Former 20,000-Gal #4 HO UST
AOC-5	Former 20,000-Gal Tall Oil UST
AOC-6	Former Drum Cluster
AOC-7	Railroad Siding and Related ASTs
AOC-8	Elevated Tank Pad and Related ASTs
AOC-9	Stormwater Collection System
AOC-10	Former Tank Farm
AOC-11	Former Dumpster
AOC-12	Former Transformer Room
AOC-13	Former Main Building Interior
AOC-14	Former Boiler Room
AOC-15	Kettle Room
AOC-16	Creosylic Acid Filling Room and Related ASTs
AOC-17	Former Overhead Piping
AOC-18	Groundwater
AOC-19	Former Production Wells/Deep Groundwater

Total costs for this proposed work including remedial actions were estimated at $634,920.90. A September 2015 Kleinfelder work plan included the following activities:

- on-site soil and groundwater sampling;
- investigation of the area beneath the former building basement;
- on-site permanent groundwater well installation and sampling;
- evaluate for the presence of dense non-aqueous phase liquid (DNAPL) at depth;
- assess the subsurface lithology beneath the site to aid in selecting appropriate groundwater sample depth intervals;
- on-site sediment, stormwater and aquifer sampling;
- off-site groundwater sampling; and
- off-site soil gas and vapor intrusion investigation.

The next step in the process for this site will involve delineation of impacts to soil and groundwater since the 2015 proposed work did not occur. This Remedial Investigation work will be followed by remediation of the impacted materials and associated contaminants through installation of engineering and institutional controls and/or the excavation of the impacted material, as discussed in the remaining sections of this document.

1.5 Physical Setting

The site is flat. The elevation at the subject property is approximately 16 feet above mean sea level, according to the United States Geological Survey (USGS) 2014 Camden, NJ 7.5 Minute topographic quadrangle map. Soils at the subject site are identified as urban land. The parent material for soils at the subject site consist of surface covered by pavement, concrete, buildings and other structures underlain by disturbed and natural soil material.

The site is located within the Coastal Plain physiographic province of New Jersey. The dominant formation in this province is the Potomac Formation, which consists of fine to coarse grained sand, interbedded with white, red or yellow clay. According to NJ-GeoWeb, surficial geology consists of salt-marsh and estuarine deposits, as well as Cape May formation. Surficial geology generally consists of sand, silt, peat clay cobble gravel and pebble gravel.

NJ-GeoWeb identifies the subject property as underlain by the Potomac-Raritan-Magothy aquifer system. Groundwater is expected to be tidally influenced and flow towards the Cooper River.

1.6 Exposure Pathways

In order for contaminants from a site to pose a human health or environmental risk, one or more completed exposure pathways must link the contaminant to a receptor (human or ecological). A completed exposure pathway consists of four elements:

- A source and mechanism of substance release;
- A transport medium;

- A point of potential human or ecological contact with the substance ("exposure point"); and
- An "exposure route", such as dermal contact, ingestion, etc.

Preliminary evaluation indicates the following potentially completed exposure pathways related to the site in its current condition (i.e., pre-remediation):

- **Direct contact with Soil**. Soil across the site might be handled by children, nearby residents, occasional on-site construction workers or trespassers. This exposure pathway will be mitigated immediately by implementation of the proposed cleanup activities, which include excavation and offsite disposal of certain contaminated soils as well as in-situ groundwater treatment, as necessary. Residual risk related to this pathway will be eliminated with engineering and institutional controls.
- **Direct contact with surface water**. Based on hydraulic conductivity work completed by NJDEP for the site, groundwater beneath the site ultimately drains to the aquifer 100 feet below grade rather than flowing into the Cooper River. Further, dissolved VOCs appear to be migrating north, away from the Cooper River. There is no surface water at the Site.
- **Direct Contact with, or Ingestion of, Groundwater.** Releases of PCE and other VOCs may have occurred via discharge from subsurface drainage features or via direct surficial discharges to soil. Dissolved VOCs from the site generally appear to be migrating north. There are no current or anticipated future uses of onsite groundwater. However, off-site contamination was identified at the Parkside Wellsite to the south in 2004 by NJDEP. Thereafter, NJDEP identified the presence of TCE, PCE and additional hazardous substances in groundwater at the Concord Chemical site and identified it as a source of the Wellsite impacts.
- **Vapor Intrusion Risk**. Vapor intrusion risk is possible given the residential lots located across Carman Street to the south and to the northwest across Federal Street. Elevated levels of chlorinated compounds were detected in ground water samples collected near the corner of Carman Street and S 17th Street and along Federal Street. Low level VOC contaminants were detected beneath the slab of the residential buildings to the south but not at levels high enough to exhibit a potential for the presence of VOCs in the indoor air at concentrations that would pose an unacceptable health threat at that time. To date, there has not been a trigger for a vapor intrusion investigation. However, further investigation may be required to determine the level of risk and associated mitigation requirements based on a proposed site reuse.

2 APPLICABLE LAWS AND CLEANUP STANDARDS

All site remediation to be performed under this grant would be conducted in accordance with the New Jersey Site Remediation Reform Act, N.J.S.A. 58:10C-1 et seq.; the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12 and implementing regulations in the

Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C; and the Technical Requirements for Site Remediation, N.J.A.C. 7:26E. The most current versions of the NJDEP Technical Guidance documents will be referenced, including:

- *Soil SI/RI/RA*
- *Ground Water SI/RI/RA*
- *Vapor Intrusion Technical Guidance*
- *Capping of Sites Undergoing Remediation*
- *Presumptive and Alternate Remedy*
- *NJDEP Monitored Natural Attenuation*

The reference remediation standards for soil will be NJDEP's published numeric values for NJDEP's Residential Ingestion/Dermal Soil Remedial Standard (RIDSRS), Non-Residential Ingestion/Dermal Soil Remedial Standard (NRIDSRS), Residential Inhalation Soil Remediation Standards (RISRS), Non-Residential Inhalation Soil Remediation Standards (NRISRS), and Migration to Groundwater Soil Remediation Standard (MGWSRS).

The reference remediation standards for groundwater will be the current version of Class II-A Groundwater Quality Criteria (GWQC) published in *Groundwater Quality Standards* (N.J.A.C 7:9C).

The effective implementation of the applicable laws and guidance will be managed and overseen by a LSRP to be retained for the site. Any Response Action Outcome (RAO, i.e., NFA-equivalent) for the site will be issued by the LSRP. Project reports, RAOs, etc. will be submitted on behalf of the City to the NJDEP, which retains the authority to audit the project and/or review and potentially reject any documents submitted.

3 EVALUATION OF CLEANUP ALTERNATIVES

This section identifies various reasonable remediation alternatives that were considered in response to the environmental contamination issues at the site. The following potential remedial alternatives were considered:

Alternative No. 1) No action

Alternative No. 2) Monitored Natural Attenuation (MNA), and

Alternative No. 3) Enhanced Natural Attenuation (ENA).

The following evaluation criteria were considered in comparing the remedial alternatives.

A. Effectiveness in providing compliance with NJDEP regulations and increased protectiveness to public health and the environment;

B. Implementability of the considered alternative;

C. Cost of the considered alternative; and

D. Sustainability and resilience considerations.

3.1 Alternative No. 1 - No Action

If no environmental cleanup remedy were performed at this site:

- The site would remain out of compliance with NJDEP's regulations;
- The intended reuse of the site as open space and commercial/industrial use would not be possible.

3.1.1 Effectiveness

The "no action" alternative is not effective in that it does not provide for compliance with NJDEP regulations and it fails to provide for the beneficial reuse of the site.

3.1.2 Sustainability and Resilience

The "no action" approach would not meet project remediation goals because the contamination would remain in place, untreated, and without a barrier. As such, the "no action" approach would present a continuing risk to the public. Based on this, evaluation of the approach with regards to other sustainability criteria is not relevant.

3.1.3 Implementability

The "no action" alternative is technically feasible, although the presence of untreated soil and groundwater contaminants would not be in compliance with NJDEP regulations.

3.1.4 Operation and Maintenance

Because there is no remedy implemented, there would also be no operation and maintenance requirements at the site.

3.1.5 Institutional Controls

As no action is taking place under this alternative, no institutional controls are proposed.

3.1.6 Cost

There would be no costs associated with this alternative.

3.2 Alternative No. 2 – Monitored Natural Attenuation (MNA)

The MNA alternative assumes no additional efforts are made to remediate Site groundwater, and it is left in its current condition, to attenuate naturally. MNA may be combined with other remediation strategies, particularly source area groundwater remediation. Under this alternative, groundwater monitoring would proceed as described in NJDEP's MNA Technical Guidance with on-going groundwater sampling at frequencies determined by the subsequent recording of a groundwater classification exemption area (CEA).

Under this alternative, the remedial action will include routine groundwater monitoring, as well as subsequent recording of deed notices and submittal of a CEA as Institutional Controls.

Selection of this alternative alone will result in restricted future use of the site as soils in the source area will not be directly remediated.

3.2.1 Effectiveness

Site conditions do not preclude MNA as a remedial option, though the potential presence of residual DNAPL in the source area would make it ineffective in terms of achieving remedial standards in a reasonable timeframe in the source area. The MNA and Institutional Controls approach does not physically remove all site soil and groundwater contaminants. Source control measures, which typically include removal, treatment, or containment are not explored in this alternative. Contaminants in soil and ground water that are not adequately addressed by source controls may complicate a successful MNA long-term cleanup strategy. Residual contamination in soil could continue to leach into ground water and might exceed the rate at which natural processes can attenuate the ground water contamination.

3.2.2 Sustainability and Resilience

This criterion evaluates the degree to which the remedial alternative may reduce greenhouse gas discharges, reduce energy use, employ alternative energy sources, reduce volume of wastewater to be disposed, reduce volume of materials to be taken to a landfill, and/or allow for the reuse or recycling of materials during cleanup is considered, where applicable.

This alternative does not include excavation and transport of site soil, thereby reducing the fossil fuel energy use, and associated greenhouse gas discharges associated with that task.

3.2.3 Implementability

MNA is a passive remedial technology that relies on naturally occurring processes such as volatilization, adsorption, dilution, oxidation, reduction, and biotic and abiotic degradation to reduce the mass, concentration, and/or toxicity of VOCs. Biodegradation, the transformation of organic compounds by microorganisms, is commonly the dominant natural attenuation process for organic pollutants in groundwater. The rate and progress of natural attenuation is assessed by routine groundwater monitoring.

MNA is a conventional means of addressing this type of contamination and this type of remedy is a widely used and accepted practice for remediating organic compounds in groundwater.

The City and/or its consultant will retain a contractor that is licensed, qualified, and OSHA-certified to perform work on hazardous materials sites. The deed notice and CEA, prepared in accordance with NJDEP guidance and template, are relatively routine administrative submissions.

3.2.4 Operation and Maintenance

Operation and Maintenance for MNA should include the following:

- Routine groundwater monitoring;
- Vegetation maintenance (grass mowing and weed control); and
- Written O&M Plan that includes a discussion including but, not limited to: CEA activities, soil cover maintenance, reporting, a utility plan should future utilities or buildings be proposed at the site, and fence maintenance (if applicable).

3.2.5 Institutional Controls

This alternative will require the following Institutional Controls:

- A Deed Notice is required because contaminants above the New Jersey remediation standards are expected to remain for years under MNA. A Deed Notice is required to document the extent of contamination and the notice will be issued pursuant to N.J.A.C 7:26E-6.1(B).
- All required NJDEP permits, reporting, and inspection requirements.
- A CEA for groundwater.

3.2.6 Cost

The costs for completing remediation under this approach were estimated using the following elements and assumptions:

1) Retain environmental engineering firm and LSRP;
2) LSRP review of previous reporting;
3) Project and Grant Management tasks, including public notification;
4) Prepare Remedial Action Workplan;
5) Prepare project specifications and bid documents;
6) Conduct procurement process;
7) Sampling of 8 monitoring wells over 8 sampling events for VOCs
8) Prepare Groundwater Remediation Permit;
9) Establish deed notices and CEA;
10) Prepare Remedial Action Report and other regulatory reporting requirements;
11) Prepare Quality Assurance, and Health and Safety deliverables.

The estimated cost for this cleanup alternative is approximately $159,600.00.

3.3 Alternative No. 3 – Enhanced Natural Attenuation (ENA)

Under this alternative, remedial activities will include excavation of impacted source area soils, DNAPL removal via passive or active extraction (if necessary), strategic in-situ installation of an activated carbon (AC) barrier and application of contaminant degradation additives. Subsequent routine groundwater monitoring will be required per NJDEP MNA Technical Guidance. Finally, subsequent recording of deed notices and submittal of a

groundwater classification exemption area (CEA) for VOCs will be prepared as Institutional Controls.

MNA of chlorinated VOCs can be enhanced by concentrating VOCs in-situ on an activated carbon (AC) barrier, which can retard VOC migration and improve contact between VOCs and dechlorinating bacteria growing in biofilms on the AC surfaces. Electron door additives such as organic carbon, zero-valent iron (ZVI), and AC can be delivered to the subsurface by direct push injection, injection wells, trenching, or in-situ mixing (ISM).

Approximately 1,400 tons of impacted source area and injection zone soils will be removed, disposed of off-site and replaced with clean fill. It is currently unknown if any DNAPL will be found and require extraction. The total treatment area for the Enhanced Natural Attenuation via In-Situ Reductive Dechlorination with EZVI is expected to be approximately 2,500 square feet of primary treatment and approximately 5,400 square feet of secondary treatment.

Selection of this alternative will result, upon final remediation, in restricted future use of the site as non-residential given the expectation of required deed restrictions and institutional controls. This combination of remedies will remove hot spots, prevent migration of VOCs off-site, and prevent exposure to residual site contaminants.

Further details of the remediation plan would include:

- Geophysical screening & post-demo site evaluation
- Detailed source area evaluation & remediation design including soil/ DNAPL/ groundwater characterization and pilot studies for final remedial design
- Groundwater samples will be analyzed for VOCs and Semi-Volatile Organic Compounds (SVOCs). Up to 25% of samples will be analyzed for Total target analyte metals, hexavalent chromium; TCL pesticides, Polychlorinated biphenyl (PCBs); Total cyanide; Alcohols and glycols; Ammonia, and; Extractable petroleum hydrocarbons (EPH)
- Hydraulic Conductivity Testing
- Develop Remedial Action Workplan (RAW)
- Develop Bid Specification for Remediation Contractors
- Permitting
- Construction Coordination & Planning
- Excavation of source area (hot spot) soils and restoration of site
- DNAPL removal via passive or active extraction (if necessary)
- Excavation and preparation of injection well area via removal of two feet of soil
- Enhanced Natural Attenuation via In-Situ Reductive Dechlorination with EZVI via 40 injection points installed over 15 days

- Sampling of 8 monitoring wells over 8 sampling events for VOCs and other contaminants listed above, as needed
- Preparation of deed restriction, CEA, and Remedial Action Report

3.3.1 Effectiveness

Selection of this alternative will result, upon final remediation, in restricted future use of the site as non-residential given the expectation of required deed restrictions and institutional controls. This combination of remedies will remove hot spots, prevent migration of VOCs off-site, and prevent exposure to residual site contaminants. This alternative would achieve project remediation goals by completing source removal, providing a groundwater treatment and containment area, and providing notice of site environmental conditions to future site owners, occupants, and the general public by means of the Deed Notice.

3.3.2 Sustainability and Resilience

The Enhanced Natural Attenuation (ENA) alternative compares unfavorably to Alternative 2 (described in Section 3.2) with regard to sustainability metrics. The ENA approach would result in increased energy use, greenhouse gas emissions, and landfill disposal volume. It is expected to compare favorably to Alternatives 1 and 2 in resilience metrics, such as the continuing protectiveness of the remedy in light of reasonably foreseeable changing climate conditions, due to contaminant source removal efforts.

3.3.3 Implementability

This alternative is feasible and implementable. This approach will involve the work elements described in Section 3.3, including hot spot excavation and ENA activities.

3.3.4 Operation and Maintenance

Operation and Maintenance for ENA should include the following:

- Routine groundwater monitoring;
- DNAPL extraction, as needed;
- Vegetation maintenance (grass mowing and weed control); and
- Written O&M Plan that includes a discussion including but, not limited to: CEA activities, soil cover maintenance, reporting, a utility plan should future utilities or buildings be proposed at the site, and fence maintenance (if applicable).

3.3.5 Institutional Controls

This alternative will require the following Institutional Controls:

- A Deed Notice is required because contaminants above the New Jersey remediation standards are expected to remain for years under MNA. A Deed Notice is required to document the extent of contamination and the notice will be issued pursuant to N.J.A.C 7:26E-6.1(B).

- All required NJDEP permits, reporting, and inspection requirements.
- A CEA for groundwater.

3.3.6 Cost

The costs for completing remediation under this approach were estimated using the following elements and assumptions:

1) Retain environmental engineering firm and LSRP;
2) LSRP review of previous reporting;
3) Project and Grant Management tasks, including public notification;
4) Prepare Remedial Action Workplan;
5) Prepare project specifications and bid documents;
6) Conduct procurement process;
7) Construction Coordination & Planning
8) Removal of approximately 1,400 tons of source area (hot spot) soils and restoration of site;
9) DNAPL removal via passive or active extraction (if necessary)
10) Removal of soil to accommodate the injection well field;
11) Installation of approximately 40 injection points installed over 15 days;
12) Sampling of 8 monitoring wells over 8 sampling events for VOCs, and other contaminants listed above, as needed
13) Procurement and testing of clean fill materials;
14) Placement of approximately 1,580 tons of clean fill, topsoil and seed;
15) Compliance with Davis Bacon Act;
16) Prepare Groundwater Remediation Permit;
17) Establish CEA;
18) Prepare Remedial Action Report and other regulatory reporting requirements;
19) Prepare Quality Assurance, and Health and Safety deliverables.

The estimated cost for this cleanup alternative is approximately $1,450,917.

3.4 Preferred Alternative

The preferred alternative is Alternative No. 3 – Enhanced Natural Attenuation. Hot spot soil excavation and in-situ treatment of groundwater plumes are proven methods, environmentally effective and productive for long term, community-wide use. Equipment is readily available. Soil excavation and in-situ groundwater treatment as proposed eliminates direct contact with contaminants and removes the continuing source of groundwater contamination. Future site owners, occupants, and the general public will be provided notice of site environmental conditions of groundwater by means of the CEA upon completion of remediation activities.

Attachment A

Site Location Map

BRS inc
P.O. Box 2293
Medford Lakes, NJ 08055
T: 856-964-6456 | brsinc.com

Notes:

1) Aerial sourced from Google Earth Pro (8/23/2022)
2) Parcels Included: Block 116, Lot 15; Bock 1181 Lot 1; Block 1182, Lots 5 & 21; Block 1186, Lot 25
3) NJEDA - New Jersey Economic Development Authority

Legend

- Concord Chemical
- Federal Street Parcels

Scale	1:3,000
	0 125 250 500 Feet
Figure Title	**Concord Chemical**
Client	NJEDA
Address	Federal Street Block 1186 Lot 25 Camden, New Jersey
Figure No.	**2**
Print Date	10/31/2022

Document Path: \\milescloud.local\33896\Data\BRS Portal\NJEDA\GIS - NJEDA\01_MXDs\Federal Street Maps\Figure 2_Concord Chemical.mxd

ATTACHMENT B

Summary of Public Comments and Responses