HALEY ALDRICH

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REPORT ON

FORMER NUHART PLASTIC MANUFACTURING SITE
65 DUPONT STREET
BROOKLYN, NEW YORK
NYSDEC SITE NO. 224136

by
H & A of New York Engineering and Geology, LLP
New York, New York

for
Dupont Street Owner LLC
New York, New York

File No. 0203497
Febraury 2025

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28 February 2025
File No. 0203497

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 2
47-40 21st Street
Long Island City, New York 11101

Attention: Ms. Jennifer Gonzalez

Subject: Former NuHart West Site
New York State Department of Environmental Conservation Site No. 224136
OU-2 Tier 2 LNAPL Recovery System Design

Dear Ms. Gonzalez:

H & A of New York Engineering and Geology, LLP (Haley & Aldrich of New York), on behalf of Dupont Street Owner LLC, is submitting for review the revised Tier 2 light non-aqueous phase liquid (LNAPL) recovery system design associated with the Former NuHart Plastic Manufacturing Site located at 65 Dupont Street in the Greenpoint neighborhood of Brooklyn, New York (the NuHart West Site, or the Site).

The Final 100% Remedial Design, dated 05 May 2023 and approved by the New York State Department of Environmental Conservation (NYSDEC) on 16 May 2023, included the provisions for a full-scale operable unit (OU)-2 LNAPL demonstration test, which was intended to take three months to complete, from which a final LNAPL recovery system design would be developed. The LNAPL demonstration test had been completed and based on the results, the LNAPL recovery approach in OU-2 was divided into two tiers:

- Tier 1 consists of active LNAPL recovery from 18 recovery wells installed in the sidewalk areas adjacent to OU-1 on Franklin and Dupont Street.
- Tier 2 consists of LNAPL recovery through the placement of oil-absorbent socks in all other wells containing measurable LNAPL not included in Tier 1, as well as periodic vacuum enhanced fluid recovery through use of vacuum trucks.

The OU-2 Active (i.e., Tier 1) LNAPL Recovery System Design was submitted under a separate cover letter to the NYSDEC on 13 September 2024 and approved by the NYSDEC on September 18, 2024. The draft OU-2 Tier 2 LNAPL Recovery System Design was submitted to the NYSDEC on 22 November 2024 and comments on the design were provided by the NYSDEC on 16 January 2025. The revised OU-2 Tier 2 LNAPL Recovery System Design addressing those comments is presented in this report.

Should there be any questions regarding this design, please do not hesitate to contact us.

Sincerely yours,
H & A OF NEW YORK ENGINEERING AND GEOLOGY, LLP

Michael J. Boland, E.I.T.
Assistant Project Manager

Sarah A. Commisso, G.I.T.
Assistant Project Manager

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Andrea Obligado, NYSDEC
Scarlett McLaughlin, NYSDOH
Stephen Lawrence, NYSDOH
Zach Kadden, Dupont Street Owner LLC
Shalom Silverman, Dupont Street Owner LLC
Victoria Della Salla, Dupont Street Owner LLC

Enclosures

https://haleyaldrich.sharepoint.com/sites/MadisonRealtyCapital/Shared Documents/0203497.NuHart West/Deliverables/39. OU-2 Tier 2 LNAPL Recovery System Design Letter/2025-0228_HANY-NuHart OU-2 Tier 2 LNAPL Recovery System Design_F.docx

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List of Design Drawings

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C-200	As-Built LNAPL System Recovery Approach – Rev 3

List of Attachments

Attachment	Title
A	Record of Decision Amendment
B	LNAPL VEFR Procedure & Spill Mitigation Measures
C	LNAPL VEFR Demonstration Tests Photo Log
D	Absorbent Sock Product Specifications

Certification

I, Scott Underhill, certify that I am currently a NYS registered professional engineer and that this OU-2 Tier 2 LNAPL Recovery System Design was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Respectfully submitted,

28 February 2025

Scott Underhill
Registered Professional Engineer
New York License No. 075332

Date

HALEY ALDRICH

1. Introduction

This Light Non-Aqueous Phase Liquid (LNAPL) Recovery System Design describes the proposed Tier 2 LNAPL Recovery System for the Former NuHart Plastic Manufacturing Site (the NuHart West Site, or the "Site") located in Brooklyn, Kings County, New York. This design project has been developed in accordance with the New York State Department of Environmental Conservation (NYSDEC)-issued Record of Decision (ROD) for the Site dated March 2019 and the ROD Amendment dated July 2024 (Attachment A).

The Site components are explained in this Design Document and include the LNAPL Recovery (Operable Unit [OU]-2) contained in amended ROD Element 6:

- *Installation and operation of a network of recovery wells and/or trenches located off-site to recover mobile LNAPL from the subsurface. The number, depth, type and spacing of the recovery wells and/or trenches will be determined during the design phase of the remedy. LNAPL will be collected periodically from each well; however, if wells are determined by the [NYSDEC] to accumulate large quantities of LNAPL over extended time periods, they can be converted to automated collection. Enhancement of recovery via surfactant injection to increase mobility of the LNAPL may also be considered. A monitoring program will be implemented for groundwater and LNAPL to monitor the effectiveness of the LNAPL recovery effort*.

1.1 SITE LOCATION AND DESCRIPTION

Location: The site is located at 65 Dupont Street in the Greenpoint section of Brooklyn, Kings County, NY. The 1.18-acre site is identified on the tax map as Block 2487, portion of Lot 17. The site is bordered immediately to the north by Clay Street followed by commercial/industrial buildings, to the east by the Brownfield Cleanup Program (BCP) Site Former NuHart East (ID: C224287), to the south by Dupont Street followed by multi-family residential structures, and to the west by Franklin Street followed by a New York City playground.

Features: The dimensions of the Site are approximately 240 feet (ft) by 200 ft. The Site is currently undergoing redevelopment.

Current Zoning: The Site is zoned M1-2/R6, which designates the Site as manufacturing with a residential overlay.

Operable Units: An OU represents a portion of the Site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release, or exposure pathway resulting from the Site contamination. The Site consists of two OUs; OU-1 is the on-site source area and associated contamination, and OU-2 consists of the off-site groundwater, LNAPL, and soil vapor plumes.

Site Geology and Hydrogeology: Soil at the Site consists of a layer of urban fill extending from the surface to about 8 ft below the OU-1 slab, underlain by sand, silty sand, and/or sandy silt. An underlying clay/silt layer is encountered at 23 to 25 ft below grade. Groundwater is encountered at a depth of approximately 10 to 15 ft below ground surface (bgs) and flows generally in a westerly to northwesterly direction toward the East River.

1.2 SITE HISTORY

The Site was developed in the 1800s and was used for manufacturing purposes until circa 1950, for various industries including metal-working and manufacturing of light fixtures, soap, and water-proofing materials. From 1950 until 2004, the Site and associated manufacturing buildings to the east were used for production, storage, and shipping of plastic and vinyl products. Operations ceased in 2004, and the Site buildings have not been used since that time. Redevelopment of the Site is ongoing and includes restricted residential and/or commercial uses.

1.3 SITE STATUS

Resource Conservation and Recovery Act (RCRA) Closure Activities were conducted at the Property from January 2022 through May 2022. The RCRA Closure Report summarizing the closure of the above-grade structures was submitted in June 2022 and approved on 13 July 2022. Demolition of the Property began in June 2022 and was completed in November 2022. The 100% Remedial Design was submitted in April 2023 and was approved on 16 May 2023. Implementation of the remedial action began in November 2022 and is currently ongoing. A ROD Amendment Letter was submitted on 26 February 2024 to include the use of In-Situ Solidification (ISS) to treat residual elevated concentrations of bis(2-ethylhexyl) phthalate unable to be removed from the Site. The ROD Amendment was approved on July 8, 2024.

To date, the OU-1 and OU-2 groundwater cut-off walls have been completed, excavation under a negative pressure enclosure has been completed across the entire site, the composite cover system has been completely installed, zero-valent iron (ZVI) bucket mixing to treat chlorinated volatile organic compound (CVOC)-impacted soil within the OU-1 trichloroethylene (TCE) plume area has been implemented, ZVI injections to treat OU-2 groundwater impacted with CVOCs has been implemented, the soil vapor extraction (SVE) pilot test has been conducted, the LNAPL recovery pilot test was conducted in OU-2 from October 2023 to January 2024. The Tier 1 (i.e., permanent active) LNAPL recovery system was installed in September to November 2024 and is operational. The remaining elements of the remedy to be completed at the Site include the design and installation of the Tier 2 (i.e., absorbent sock and vacuum truck extraction) LNAPL recovery system (the subject of this document) and the installation of the SVE system.

2. Demonstration Tests

2.1 FULL-SCALE DEMONSTRATION TEST – OIL ABSORBENT SOCKS

On 8 May 2023, absorbent socks were installed in two monitoring wells, MW-24, and MW-45, located outside the construction fencing and having measurable product thicknesses of over 0.1 ft. The 17-ounce absorbent socks were 1.5 in. in diameter and 18 in. in length and comprised of a recycled polypropylene filler. Each absorbent sock is suspended by a rope tied to the plug at the top of the well's PVC riser. On 24 October 2023, absorbent socks were installed in four more wells – MW-20, MW-25, MW-26, and RW-51 – also located outside the construction fencing and with measurable product thicknesses. The absorbent socks in these six wells were inspected monthly during the full-scale demonstration test. If an absorbent sock was found to be at least 10 percent saturated with LNAPL, the sock was replaced. After the full-scale demonstration test formally concluded on 10 January 2024, 16 sock replacements had occurred. The average LNAPL absorption noted during each removal was 32 percent. With an absorption capacity of 17 ounces, the approximate amount of LNAPL removed from these wells at the conclusion of the full-scale demonstration was 87 ounces (0.68 gallons).

2.2 VEFR DEMONSTRATION TESTS – VACUUM TRUCK

On 12 August 2024, a LNAPL vacuum enhanced fluid recovery (VEFR) demonstration test was conducted in the presence of the NYSDEC at recovery well (RW-25) located within the construction fencing for the Site. The test was proposed to the NYSDEC and described in an email dated 6 August 2024 and included the following steps:

1. Air monitoring was conducted using one station positioned downwind of VEFR operations in accordance with the approved Community Air Monitoring Plan (CAMP). The downwind CAMP station was equipped with a TSI DustTrak and MiniRae PID to measure airborne particulate matter and VOC concentrations. Action levels and corrective measures were those described in the approved CAMP for the Site.
2. Oil absorbent booms were placed along the inside of the construction fencing surrounding the LNAPL recovery area to ensure that the work activities did not spread impacted soil and wastes outside the Site. Odor suppressant foam was available for use in the event that VEFR operations generated odors. A containment set up consisting of a standard woven poly tarp or black poly sheeting with a hole cut out in the center was placed over the recovery well to mitigate any potential recovery equipment leaks prior to commencing VEFR operations. Four sections of 2-inch by 4-inch lumber were inserted underneath the poly tarp/sheeting to create an elevated containment perimeter surrounding the recovery well and additional oil absorbent booms lined the outside of the lumber containment perimeter. A universal spill kit consisting of oil-sorbent pads, nitrile gloves, plastic disposal bags and a plastic bucket was available as well.
3. The well vault cover and locking J-plug was temporarily removed from the top of the recovery well riser pipe and placed to the side of the containment area. The depth to LNAPL and the depth to groundwater in each recovery well to have LNAPL extracted was gauged using a Solinst oil-water interface meter.
4. A vacuum truck operated by a licensed environmental contractor entered the Site via the northwest construction gate on the corner of Clay & Franklin Street or the southwest

construction gate on the corner of Dupont & Franklin Street. The vacuum truck was positioned in the northbound Franklin Street lane closure, adjacent to the recovery well.

5. A stinger tube comprised of a 15 ft long section of solid PVC pipe was inserted into recovery well RW-25. The vacuum truck's flexible hose was attached to the top end of the stinger tube using a quick connect coupler fitting. VEFR operations were then initiated and continued for approximately 5 minutes to remove LNAPL and water from the well.
6. Once VEFR was completed and the vacuum shut off, the vacuum truck flex hose was disconnected from the stinger tube as low to the ground containment as possible to prevent residual LNAPL from leaking onto the sidewalk area. The open end of the vacuum truck flex hose was immediately plugged prior to coiling the hose back onto the truck. The stinger tube was removed from the recovery well and oil spill pads were used to wipe off residual LNAPL on the outside of the tube back down into the recovery well. The stinger tube was cut down to three foot sections inside a containment set up and placed in a 55-gallon steel drum stored on Site.
7. The recovery well was gauged again using a Solinst oil-water interface meter. The well vault cover and locking J-plug were then re-secured over the top of the recovery well riser pipe. Incidental waste such as LNAPL-contaminated personal protective equipment (PPE) and containment materials were transferred into a 55-gallon steel drum stored on Site.
8. The vacuum truck exited the Site and transport recovered LNAPL to be treated/disposed of at the Cycle Chem, Inc. disposal facility as a U028 and U107 listed waste under Profile No. 178765 / USEPA ID No. NYD001468354. Executed waste manifests will be provided by the environmental contractor responsible for operating the vacuum truck.

On 14 August 2024 another VEFR demonstration test was conducted in the presence of the NYSDEC, NYCOER, elected officials and community representatives at recovery well MW-26 located outside the Site construction fencing on the southeast corner of Dupont Steet and Franklin Street. This subsequent VEFR demonstration test followed the same procedure as described above, with the following exceptions:

- A flexible hose connected to the vacuum truck was inserted into the well instead of a rigid PVC stinger tube.
- Traffic cones and extendable connector bars were placed around the spill containment system to delineate any pedestrian traffic around the VEFR operation.
- Oil-absorbent booms, approximately 4-inch in diameter, were placed underneath the black poly sheeting to create an elevated containment perimeter instead of the 2-inch by 4-inch lumber sections.
- A transparent pipe section of the hose was incorporated to visually determine when the LNAPL extraction had been completed.

A photo log showing pictures taken during both VEFR demonstration tests is included as Attachment C.

3. Remedial Design

3.1 OU-2 LNAPL RECOVERY APPROACH

A tiered approach was proposed for the recovery of LNAPL in OU-2 based on proximity to OU-1 and where LNAPL was deemed recoverable based on the full-scale demonstration test. Tier 1 consists of an active LNAPL recovery system consisting of 18 recovery wells installed in the sidewalk areas adjacent to OU-1 on Franklin and Dupont Street. Tier 2 consists of LNAPL recovery through the placement of oil-absorbent socks in all other wells containing measurable LNAPL, as well as periodic VEFR through use of a vacuum truck at certain wells where the measured thickness of LNAPL is greater than 0.5 ft. The OU-2 Active (i.e., Tier 1) LNAPL Recovery System Design was submitted under a separate cover letter to the NYSDEC on 13 September 2024 and approved by the NYSDEC on September 18, 2024. The Tier 2 LNAPL Recovery System Design is discussed below.

3.2 TIER 2 LNAPL RECOVERY

The Tier 2 LNAPL recovery effort will expand upon the utilization of absorbent socks in recovery and monitoring wells that contain a measurable product thickness of at least 0.1 ft. Seven wells (i.e., MW-14, MW-20, MW-24, MW-25, MW-26, MW-45, and RW-51) currently have absorbent socks installed within them. Fifteen additional wells (i.e., MW-6, MW-7, RW-13, RW-15, RW-17, RW-39, RW-41, RW-43, RW-45, RW-46, RW-47, RW-49, RW-50, RW-52, and RW-53) will have absorbent socks installed within them for a total of 22 wells. If a recovery well is found to have a measurable product thickness, the well will be added to the list of Tier 2 wells and will have an absorbent sock added. Design Drawing C-200 shows the limits of both the Tier 1 and Tier 2 recovery areas and associated recovery wells.

Absorbent socks, capable of absorbing 17 ounces of product, will be suspended by a rope tied to the plug at the top of the PVC riser in each well. The socks will be pulled out from the LNAPL-groundwater interface inside of the well and visually inspected monthly. If the absorbent sock is found to be at least 50 percent saturated with LNAPL, the sock will be removed and replaced with a new one. Absorbent socks that are removed will be placed in a heavy-duty plastic contractor bag that will then be stored in a 55-gallon drum located in the LNAPL recovery room in the basement of the building. The 55-gallon drums will be removed from the building and disposed of as hazardous waste at the Cycle Chem, Inc. facility in Elizabeth, New Jersey, or an alternative approved facility. The product data sheet for the absorbent socks that were used to recover LNAPL during the full-scale demonstration test is included as Attachment D.

In addition to the monthly absorbent sock inspections, six of the Tier 2 recovery wells (i.e., MW-20, MW-25, MW-26, RW-39, RW-41, and RW-43) will undergo quarterly vacuum-enhanced fluid recovery (VEFR) events by means of a vacuum truck operated by a licensed environmental contractor and waste hauler. These six Tier 2 wells have a measured LNAPL thickness greater than 0.5 ft. The vacuum truck will be able to insert a flexible suction hose or stinger tube component directly into the recovery wells PVC casing. Prior to the vacuum truck extracting the fluids from a recovery well, the absorbent sock will be pulled out of the well and a spill containment assembly will be set up on the sidewalk. The spill containment system will consist of a standard woven poly tarp or black poly sheeting with a hole cut out in the center that will be placed over the recovery well to mitigate any potential recovery equipment leaks prior to commencing VEFR operations. Four sections of 2-inch by 4-inch lumber or oil absorbent booms will be inserted underneath the poly tarp/sheeting to create an elevated containment perimeter

surrounding the recovery well and additional oil absorbent booms will line the outside of the lumber containment perimeter. Traffic cones and extendable connector bars will also be placed around the spill containment system to delineate any pedestrian traffic around the VEFR operation. A universal spill kit consisting of oil-sorbent pads, nitrile gloves, plastic disposal bags and a plastic bucket will be readily available as well.

A transparent section of the hose will be included and used to visually determine that all LNAPL has been extracted from the well. Once VEFR has been completed, the existing absorbent sock will either be reinserted into the well or replaced with a new one depending on whether the LNAPL saturation in the existing sock is greater than or less than 50%. Regardless of the LNAPL saturation, the absorbent sock will be placed in a heavy-duty plastic contractor bag or sealable bucket during vacuum truck VEFR operation.

The vacuum truck will incorporate a centrifugal air filtration component that serves to filter airborne particulate matter out of the air being drawn into the vacuum truck. Airborne particulate matter is collected by the centrifugal filter and can be emptied with the rest of the load. The vacuum truck system exhaust will be connected to a vapor phase activated carbon drum via a flex hose with a camlock coupler fitting. From the carbon drum, the post-treated port pipe will extend 4 ft above the top of the drum to allow effluent air to escape above the breathing zone. The carbon drum will be positioned adjacent to the vacuum truck within the pedestrian traffic exclusion zone during VEFR operation.

The quarterly VEFR events will be scheduled to take place on weekdays between the hours of 10 am and 2 pm. The duration for a VEFR event at one recovery well, including setup and breakdown of the containment area, is estimated to be approximately 15 minutes; LNAPL extraction is approximately 5 minutes. The procedure and spill mitigation measures to be followed during each VEFR event is included as Attachment B.

3.3 EFFECTIVENESS MONITORING PROGRAM

A Site Management Plan will be submitted detailing the manner in which effectiveness of the remedial design will be monitored. Elements to be included are:

- Monitoring Plan (e.g., LNAPL/water level monitoring, groundwater) to assess the performance and effectiveness of the remedy. This plan may include, but not be limited to, the following:
  - Monitoring of LNAPL, and groundwater to assess the performance and effectiveness of the Tier 2 LNAPL recovery remedy;
  - The requirements for adding or removing recovery wells from the Tier 2 LNAPL recovery remedy depending on the presence of LNAPL observed during monitoring assessments; and,
  - A schedule of monitoring and frequency of submittals to the NYSDEC.
- Operations and Maintenance (O&M) Plan (e.g., LNAPL recovery) to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan may include, but not be limited to:
  - Procedures for operating and maintaining the OU-2 Tier 2 LNAPL recovery remedy;
  - Compliance monitoring to ensure proper O&M as well as providing the data for any necessary permit or permit-equivalent reporting;
  - Maintaining site access controls and NYSDEC notification; and,
  - Providing NYSDEC access to the Site and O&M records.
- Engineer's Certification.

4. Documentation of Site Activities

4.1 PERIODIC PROGRESS REPORTS

Periodic progress reports will be submitted to NYSDEC on a frequency to be determined in the forthcoming Site Management Plan.

5. Permitting and Regulatory Requirements

5.1 PERMITTING

The appropriate permits shall be obtained by the remediation contractor prior to initiation of any work at the Site, and the substantive requirements of these permits shall be met during all project activities.

5.2 REGULATORY REQUIREMENTS

Environmental regulations regarding hazardous and non-hazardous waste management apply to this work and will be implemented accordingly. These include provisions for the containment and cleanup of spills and other standard provisions that will be included in the Specifications.

Regulations promulgated by OSHA specify safety and health requirements for work procedures at all workplaces and specifically at construction sites and hazardous waste sites. Industry standards for work at hazardous waste sites presented in 29 Code of Federal Regulation (CFR) 1910.120 describe specific requirements, including the following:

- Preparation of a project HASP;
- Training and medical monitoring of personnel who may be exposed to hazardous substances; and,
- Air monitoring, respiratory protection, and PPE.

6. Waste Management

United States Environmental Protection Agency (USEPA) generator identification numbers are assigned to a facility and include all contiguous properties owned and operated as part of the facility, as defined in 6 New York Codes, Rules and Regulations (NYCRR) Part 370.2. The Former NuHart Site, under USEPA ID No. NYD001468354, includes the NuHart West Site. Several potential waste streams have been identified that may be generated during the remedial actions:

1. LNAPL absorbent socks and personal protective equipment (PPE) used during LNAPL recovery will be stored in 55-gallon drums staged in the LNAPL storage room located in the cellar of the building and will be disposed of as hazardous waste off-Site at the Cycle Chem, Inc. facility in Elizabeth, New Jersey, or an alternative approved facility.

2. LNAPL recovered during VEFR events will be collected in the vacuum truck and transported off-Site to be disposed of as hazardous waste at the Cycle Chem, Inc. facility in Elizabeth, New Jersey, or an alternative approved facility.

6.1 TREATMENT/DISPOSAL OF RECOVERED LNAPL

All accumulated LNAPL and LNAPL-impacted waste will be sent off-Site to be treated/disposed of at the Cycle Chem, Inc. disposal facility, or another approved facility, as a U028 and U107 listed waste under Profile No. 178765.

DESIGN DRAWINGS

LEGEND

- PROPERTY BOUNDARY
- AS-BUILT LNAPL BARRIER WALL (SEE NOTE 4 AND 5)
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- MW-1 — EXISTING GROUNDWATER MONITORING WELL
- RW-45 — EXISTING LNAPL RECOVERY WELL LOCATION (4" DIAMETER WITH 0.01 SLOT SIZE)
- RW-46 — EXISTING LNAPL RECOVERY WELL LOCATION (2" DIAMETER WITH 0.01 SLOT SIZE)
- RW-47 — EXISTING LNAPL RECOVERY WELL LOCATION (4" DIAMETER WITH 0.02 SLOT SIZE)
- RW-48 — EXISTING LNAPL RECOVERY WELL LOCATION (2" DIAMETER WITH 0.02 SLOT SIZE)
- EXTENT OF LNAPL IN GROUNDWATER (THE MEASURED THICKNESS OF LNAPL >0.5')
- TIER 1 ACTIVE RECOVERY AREA
- TIER 2 SOCK / VAC TRUCK RECOVERY AREA

NOTES

1. LOCATIONS OF EXISTING MONITORING WELLS, PRODUCT RECOVERY WELLS, EXTENT OF LNAPL IN GROUNDWATER, ARE APPROXIMATE AND REFERENCED FROM ALTERNATIVE WELL LAYOUT FIGURES PREPARED BY GZA GEOENVIRONMENTAL, INC. DATED AUGUST 2016.
2. EXISTING UNDERGROUND UTILITIES SHOWN WERE FROM AN ELECTRONIC CAD FILE ENTITLED "ARCHITECTURAL SURVEY OF DESCRIBED PROPERTY" DATED 2 SEPTEMBER 2021 BY LEONARD J. STRANDBERG AND ASSOCIATES, OF FREEPORT, NEW YORK.
3. LOCATION OF ALL EXISTING FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE.
4. OU-1 LNAPL BARRIER WALL IS STEEL SHEET PILE; EASTERN PERIMETER AND CENTER DIVIDER SECTIONS OF OU-1 STEEL SHEET PILE WALL HAVE BEEN CUT DOWN TO EXIST BELOW THE BOTTOM OF DEVELOPMENT.
5. OU-2 LNAPL BARRIER WALL IS A SECANT PILE WALL.

ABBREVIATIONS

APPROX. = APPROXIMATELY
BGS = BELOW GROUND SURFACE
EL. = ELEVATION
FT = FEET
LNAPL = LIGHT NON-AQUEOUS PHASE LIQUID
VOC = VOLATILE ORGANIC COMPOUNDS

N

0 30 60 90 120
SCALE IN FEET

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RECORD DRAWINGS

Project No.:	0203497-000
Scale:	AS SHOWN
Date:	NOVEMBER 7, 2022
Drawn By:	KFP
Designed By:	MB/ZS
Checked By:	SAU
Approved By:	JMB

Stamp:

STATE OF NEW YORK
SCOTT A. UNDERHILL
075332
LICENSED PROFESSIONAL ENGINEER
2/18/25

Rev.	Description	By	Date
3	RECORD DRAWINGS	SAU	1/30/25
2	ADDED TIER 2	SAU	11/14/24
1	REMOVED TIER 2	SAU	8/8/24

LNAPL DESIGN
FORMER NUHART PLASTIC MANUFACTURING SITE
STATE SUPERFUND PROJECT
BROOKLYN, NEW YORK

AS-BUILT LNAPL SYSTEM RECOVERY APPROACH

C-200

Sheet: 3 of 6

POSTOLOWSKI, KEVIN Printed: 2/13/2025 2:27 PM Layout: C-200
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ATTACHMENT A
Record of Decision Amendment

RECORD OF DECISION AMENDMENT
FORMER NUHART PLASTIC MANUFACTURING

Brooklyn / Kings County / Registry No. 224136 July 2024

Prepared by the New York State Department of Environmental Conservation
Division of Environmental Remediation

STATEMENT OF PURPOSE AND BASIS

This document presents the amended remedy for the Former NuHart Plastic Manufacturing site, a Class 2 inactive hazardous waste disposal site. The amended remedy was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375 and is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Former NuHart Plastic Manufacturing site and the public's input to the proposed remedy presented by NYSDEC. A Responsiveness Summary including all comments received from the public is included as Appendix A of the Record of Decision (ROD) Amendment. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD Amendment.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The amended remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This amended remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

July 8, 2024
Date

Andrew Guglielmi
Andrew O. Guglielmi, Director
Division of Environmental Remediation

SECTION 1: PURPOSE AND SUMMARY OF THE RECORD OF DECISION AMENDMENT

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), is issuing an amendment to the Record of Decision (ROD) for the above referenced site. The disposal of hazardous wastes at this site, as more fully described in the original ROD document and Section 6 of this document, has caused the contamination of various environmental media. The amendment is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This amendment identifies the new information which has led to this amendment and discusses the reasons for the preferred remedy.

NYSDEC has issued this document in accordance with the requirements of New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375 Environmental Remediation Programs. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

On March 27, 2019, the NYSDEC issued a Record of Decision (ROD) which selected a remedy for the Former NuHart Plastics Manufacturing Site. A minor modification of the ROD was issued on November 28, 2022, the details of which are noted in Section 7.1 below.

The ROD required excavation and off-site disposal of all "grossly contaminated soil" as that term is defined in 6NYCRR Part 375-1.2(u), specifically: "…soil, sediment, surface water or groundwater which contains sources or substantial quantities of mobile contamination in the form of NAPL…"

The amendment will add a new ROD Element 2A, In-Situ Solidification for certain soils containing bis(2-ethylhexyl)phthalate at concentrations exceeding 10,000 parts per million (ppm) as established in DER-10 Section 2.1(f). This is the concentration at which non-aqueous phase liquid (NAPL) would be expected to be present. The amendment will also modify ROD Element 2, Excavation, Sub-Bullet 1 as follows: "Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u) *to the extent feasible*."

New ROD Element 2A would read as follows: "Soils containing bis(2-ethylhexyl)phthalate in the form of NAPL that cannot be feasibly excavated will be treated via In Situ Solidification (ISS) up to a maximum depth of 25 feet below grade surface."

SECTION 2: CITIZEN PARTICIPATION

NYSDEC seeks input from the community on this ROD Amendment. A public comment period was held, during which the public was encouraged to submit comment on the remedy. All comments on the remedy received during the comment period were considered by NYSDEC in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

DECinfo Locator: Project documents may be accessed electronically at
https://extapps.dec.ny.gov/data/DecDocs/224136

Brooklyn Public Library – Greenpoint Branch

107 Norman Avenue
Brooklyn, NY 11222
(718) 389-4394

Brooklyn Public Library – Williamsburg Branch
240 Division Avenue
Brooklyn, NY 11211
(718) 486-6006

Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY 11211
(718) 389-0009
Bk01@cb.nyc.gov

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) were presented along with a summary of the remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the remedy.

Comments on the remedy received during the comment period are summarized and addressed in the Responsiveness Summary (Appendix A of the AROD).

Receive Site Citizen Participation Information By Email
Please note that NYSDEC's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html.

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:
The site is located at 65 Dupont Street in the Greenpoint section of Brooklyn, Kings County, NY. The 1.18-acre site is identified on the tax map as Block 2487, portion of Lot 17. The site is bordered immediately to the north by Clay Street followed by commercial/industrial buildings, to the east by the Brownfield Cleanup Program (BCP) Site Former NuHart East (ID: C224287), to the south by Dupont Street followed by multi-family residential structures, and to the west by Franklin Street followed by a New York City playground.

Site Features:
The dimensions of the site are approximately 200 feet by 245 feet. The site is currently under construction.

Current Zoning and Land Use:
The site is zoned M1-2/R6, which designates the site as manufacturing with a residential overlay. The site is currently being redeveloped for residential use. Future use of the site is consistent with current zoning.

Past Use of the Site:
The site has been in use for various manufacturing and commercial purposes since 1887. It has been used for manufacturing, as an office, for storage, and for shipping and receiving. Prior to the late 1940s, the site and the surrounding lots were used as a boiler shop for Logan Ironworks, two stables, a gas and light fixture factory, a sheet metal works, a soap factory, a waterproofing factory, and a scrap metal facility. The subject property was developed for plastic manufacturing purposes in the late 1940s to early 1950s and has remained relatively unchanged since that time. From 1983 to 2004, NuHart and Company made vinyl siding and sheeting at the site. After 2004, NuHart vacated the on-site buildings.

A total of 12 underground storage tanks (USTs) were located at the site prior to demolition of the on-site buildings. According to records, these tanks were emptied and closed. There were also two large aboveground silos on site. The Petroleum Bulk Storage (PBS) facility number is 2-608875, and the Chemical Bulk Storage (CBS) facility number is 2-000444 both of which are closed. Liquid plasticizers stored included bis(2-ethylhexyl)phthalate, bis(2-ethylhexyl)adipate, and palatinol 711P phthalate.

Operable Units:
The site was divided into two operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

Operable unit 1 (OU1) is the on-site source area and associated contamination. OU2 consists of the off-site groundwater and soil vapor contamination associated with the site.

Site Geology and Hydrogeology:
Soil at the site consists of a layer of urban fill extending from the surface to about 8 feet below the original onsite slab, underlain by sand, silty sand and/or sandy silt. Groundwater is encountered at a depth of approximately 10 to 15 feet below grade surface and flows generally westerly to northwesterly towards the East River.

SECTION 4: LAND USE AND PHYSICAL SETTING

NYSDEC may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. The Former NuHart Plastics Manufacturing site is currently zoned M1-2/R6 for manufacturing and residential use and is located in an area of mixed- use manufacturing, commercial and residential.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

NYSDEC and 49 Dupont Realty Corp. entered into a Consent Order on January 18, 2011. The Order was amended on February 7, 2014 to add a new owner (Dupont Street Developers LLC). NYSDEC and the current owner (Dupont Street Owner LLC) entered into a new Consent Order on November 30, 2022. The Consent Order obligates the responsible parties to implement a full remedial program.

SECTION 6: SITE CONTAMINATION

6.1: Summary of Environmental Assessment

Nature and Extent of Contamination:
Soil and groundwater samples from both on-site and off-site were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, pesticides and metals. Based upon previous investigations, the primary contaminants of concern for both OU1 and OU2 include phthalates (specifically bis(2-ethylhexyl) phthalate and di-n-octyl phthalate) and VOCs (specifically trichloroethylene and its decomposition products). The following describes the nature and extent of contamination at the site prior to remediation.

Soil: VOCs in soil were found both on and off-site at levels above unrestricted use soil cleanup objectives (UUSCOs) in a limited area in the northeast portion of the site and extending off-site beneath the sidewalk on the south side of Clay Street. The highest soil contamination concentration of trichloroethylene (TCE) was reported at 14 ppm compared to the UUSCO of 0.47 ppm. Other VOCs detected above the UUSCOs include: cis-1,2-dicholorethene (DCE) with maximum concentration of 2.4 ppm (UUSCO is 0.25 ppm). SVOCs in soil were identified both onsite and off-site above UUSCOs, including bis(2-ethylhexyl) phthalate (DEHP) at a concentration of 59,200 ppm (UUSCO is 50 ppm) and di-n-octyl phthalate (DOP) at a concentration of 3,010 ppm (UUSCO is 100 ppm). The following site-specific chemicals were identified in soil exceeding the restricted residential SCOs: bis(2-ethylhexyl) phthalate, di-n-octyl phthalate, cis-1,2-dichloroethene, and TCE.

Groundwater: Phthalates were present as an LNAPL plume floating on the groundwater surface beneath most of the site and extending off-site to the west and southwest. Dissolved-phase phthalates were detected above NYSDEC groundwater standards in several wells generally located on the periphery of the LNAPL plume. The maximum concentration of DEHP was reported at 1,750 parts per billion (ppb; compared to the groundwater standard of 5 ppb) and DOP at 87.1 ppb (compared to the groundwater standard of 50 ppb). Dissolved phase TCE and its associated breakdown product DCE were found in the northeast portion of the site and extend off-site to the northwest at concentrations exceeding the groundwater standards of 5 ppb. The maximum concentrations of TCE was reported at 33,000 ppb, and DCE at 2,700 ppb.

Soil Vapor: VOCs were detected in on-site sub-slab soil vapor beneath the northeastern portion of the site building with the greatest impacts coinciding with the chlorinated VOC-impacted groundwater in this area. On-site sub-slab vapor contaminant concentrations were detected up to a maximum of 43,000 micrograms per cubic meter (ug/m3) for TCE, 2,500 ug/m3 for PCE, and 3,700 ug/m3 for DCE.

6.2: Interim Remedial Measures

An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

An IRM consisting of LNAPL recovery at the site was initiated under the spill program in November 2006. The IRM consisted of the removal of LNAPL from recovery wells via manual bailing and automated product-seeking equipment. An Operation, Maintenance and Monitoring (OM&M) Plan for the IRM was prepared to describe the implementation, management, and performance evaluation activities under the IRM. IRM activities concluded in February 2022 as part of Resource Conservation and Recovery Act (RCRA) closure activities. Approximately 4,600 gallons of product were recovered and disposed of

offsite.

6.3: Summary of Human Exposure Pathways

Access is restricted by a fence and the site is vacant. People who enter may come into contact with contaminants in soil by walking on the site, digging or otherwise disturbing the soil. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. As the site is vacant, soil vapor intrusion is not a current concern, however the potential exists for soil vapor intrusion in future buildings on-site. Environmental sampling indicates soil vapor intrusion from site contamination is not a concern for off-site buildings.

SECTION 7: SUMMARY OF ORIGINAL REMEDY AND AMENDMENT

7.1 Original Remedy

The elements of the 2019 ROD, as modified in 2022, include:

1. Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation (OU1)
The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for property disposal in order to implement the remedy. Excavation and off-site disposal of contaminant source areas, including:

- Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u);
- Concentrated soil or semi-solid hazardous substance per 6 NYCRR Part 375-1.2(au);

- Non-aqueous phase liquids;
- Soil with visual waste material or non-aqueous phase liquid;
- Soil which exceeds the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in the site groundwater above standards;
- Soil that creates a nuisance condition, as defined in Commissioner Policy CP-51 section G;
- Grossly contaminated soil that may be present in proximity to the Underground Storage Tanks (USTs) and piping trench systems formerly used to store and convey phthalates and lubricating oil during the former plastic manufacturing process;
- VOC-impacted soil that are above the water table in the northeastern corner of the site; and
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

Approximately 22,500 cubic yards of soil will be excavated in total. An estimated 6,600 cubic yards is expected to be disposed off-site as hazardous waste, and the remaining material is anticipated to be non-hazardous historic fill and un-impacted native soil.

3. Backfill (OU-1)
Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and/or to complete backfilling of the excavation and establish the designed grades at the site.

4. LNAPL Physical Barriers (OU-1 and OU-2)
Installation of two physical barriers to support the on-site excavation and prevent further off-site LNAPL migration.

- Shoring will be installed as a physical barrier around the entire perimeter of the on-site excavation area down to about 30 feet below grade;
- Installation of a physical barrier to prevent LNAPL migration onto the off-site property located to the southwest of the site.

5. Cover System (OU-1)
A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

6. LNAPL Recovery (OU-2)
Installation and operation of a network of recovery wells and/or trenches located off-site to recover mobile LNAPL from the subsurface. The number, depth, type and spacing of the recovery wells and/or trenches will be determined during the design phase of the remedy. LNAPL will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of LNAPL over extended time periods, they can be converted to automated collection. Enhancement of the recovery

via surfactant injection to increase the mobility of the LNAPL may also be considered. A monitoring program will be implemented for groundwater and LNAPL to monitor the effectiveness of the LNAPL recovery effort.

7. Air Sparging/ Soil Vapor Extraction (OU-1 and OU-2)
Air sparging will be implemented to address the groundwater plume contaminated by volatile organic compounds (VOCs) identified in the northeast portion of the site and in the downgradient vicinity of the site. VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. The injected air rising through the groundwater will volatilize and transfer the VOCs from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system, designed to remove the injected air, will be installed. The SVE system will apply a vacuum to wells that have been installed into the vadose zone to remove the volatile organic compounds (VOCs) along with the air introduced by the sparging process. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere.

The number, depth, type and spacing of the AS/SVE wells will be determined during the design phase of the remedy.

[Note: During the Remedial Design phase, the Remedial Party's consultant determined that AS/SVE was infeasible due to the presence of clay and silt lenses beneath the site, and the In-Situ Chemical Reduction utilizing zero-valent iron (ZVI) to treat chlorinated VOCs (CVOCs) in groundwater was substituted for AS/SVE as documented in the 2022 minor ROD modification.]

8. Vapor Mitigation (OU-1 and OU-2)
Any on-site and off-site buildings impacted by the contaminants migrating from the site will be required to have a sub-slab depressurization system, or other acceptable measure, to mitigate the migration of vapors into the building from soil or groundwater. The sub-slab depressurization system will be installed in the on-site buildings to be constructed at the site. An evaluation will be conducted, as discussed in paragraph 11 below, to determine whether sub-slab depressurization systems are necessary in off-site properties north of Clay Street pending site access from the owner(s).

[Note: During the Remedial Design phase, the foundation design of the proposed buildings was modified such that the entire foundation will be below the water table. Therefore, NYSDEC and NYSDOH concurred that active vapor mitigation for the on-site (OU-1) building was not required, as documented in the 2022 minor ROD modification.]

9. Treatment Remedy Shutdown
The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

10. Institutional Controls (OU-1)
Imposition of an institutional control in the form of an environmental easement for the controlled property that will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);

- allow the use and development of the controlled property for restricted residential, commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYCDOHMH; and
- require compliance with the Department-approved Site Management Plan.

11. Site Management Plan (OU-1 and OU-2)

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
   - Institutional Controls: The Environmental Easement discussed in paragraph 10 above.
   - Engineering Controls: The migration barriers, site cover, LNAPL recovery, AS/SVE, and vapor mitigation systems discussed in paragraphs 4 through 8 above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - a provision for evaluation of the potential for soil vapor intrusion for buildings in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
   - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in paragraph 8 above will be place in any area where the upper two fee of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
   - provisions for the management and inspection of the identified engineering controls;
   - maintaining site access controls and Department notification; and
   - the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of LNAPL, groundwater and soil vapor to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

7.2 Elements of the Remedy Already Performed

To date, the following remedial activities have been performed:

Eastern half of OU-1

- Excavation to a maximum depth of 19 feet below grade surface (bgs); approximately 17,500 tons of material have been excavated and removed.
- Twenty-seven endpoint samples were collected to document the effectiveness of the remedy.
- ZVI was mixed in remaining soils at the northeastern portion of the site to treat saturated soil and groundwater contaminated with CVOCs.
- End point soil sample results identified a maximum concentration of bis(2-ethylhexyl)phthalate of 7,700 ppm in remaining soil. The pre-remedial maximum concentration of bis(2-ethylhexyl)phthalate in the eastern portion was 59,000 ppm. The remaining soil concentrations did not exceed 10,000 ppm per DER-10 Section 2.1(f). NYSDEC therefore concurred that the remedial action objective for source removal had been achieved and excavation was complete.

Western half of OU-1

- Excavation to depths ranging from 18.5 to 21 feet bgs; approximately 21,000 tons of material have been excavated and removed.
- Field confirmation of the absence of visual NAPL through shaker tests.
- Twenty-eight endpoint samples were collected to document remaining contamination in on-site soils.

OU-2

- Installation of a drilled cut-off wall around the downgradient property located southwest of the site.
- Continued monthly gauging of off-site monitoring wells.
- Recovery wells have been installed along the downgradient offsite portion of the site along Franklin Street and Clay Street and an LNAPL recovery pilot test was completed between October 2023 and January 2024
- ZVI injections began in February 2024 in the northeast portion of OU-2 along Clay Street.

7.3 New Information

On January 3, 2024 the owner's consultant submitted the "Completion of OU-1 Western Excavation Remedial Element" letter to NYSDEC. This letter documented remaining concentrations of bis(2-ethylhexyl)phthalate at up to 26,000 ppm, which exceeds the 10,000 ppm NAPL concentration. The location of endpoint samples with exceedances were located along the western and southern perimeter. NYSDEC requested vertical delineation of contamination along the western and southern perimeter to better understand extent of remaining contamination. Vertical delineation of contamination confirmed the bulk of remaining contamination extends approximately 4 feet below base of excavation at a maximum depth of 25 feet bgs. This was documented in the February 5, 2024 "Proposed Amendment to the Record of Decision" letter submitted by the owner's consultant.

Further excavation to remove the remaining contaminated soil is deemed infeasible due to:

- The existing support of excavation (sheet pile cutoff wall, Remedy Element 4 of the original ROD) was installed to 34 feet bgs and is designed for a maximum excavation depth of 19 feet bgs. Any deeper excavation would undermine the SOE and could cause failure of the sheet pile wall.
- Structural stability of the negative pressure enclosure (tent) would be compromised.
- Deeper excavation would require further dewatering, which would require redesign and re-permitting of the existing dewatering system.
- Further dewatering needed to accomplish additional excavation may induce off-site drawdown, raising settling issues for on-site foundations and neighboring buildings.

7.4 Summary of Changes to the Original Remedy

A summary of the changes to the original ROD as outlined in this document are shown in the following Table:

SUMMARY OF REMEDY CHANGES
Former NuHart Plastics Manufacturing Site (No. 224136) Record of Decision Amendment

Media:	2019 ROD	Amended ROD
Soil	Excavation and off-site disposal of contaminant source areas, including: (1) Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u); (2) Concentrated soil or semi-solid hazardous substance per 6 NYCRR Part 375-1.2(au); (3) Non-aqueous phase liquids; (4) Soil with visual waste material or non-aqueous phase liquid; (5) Soil which exceeds the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in the site groundwater above standards; (6) Soil that creates a nuisance condition, as defined in Commissioner Policy CP-51 section G; (7) Grossly contaminated soil that may be present in proximity to the Underground Storage Tanks (USTs) and piping trench systems formerly used to store and convey phthalates and lubricating oil during the former plastic manufacturing process;	(1) Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u) *to the extent feasible*. New Remedy Element 2A: *In-situ solidification (ISS) will be implemented to remediate soils containing bis(2-ethylhexyl)phthalate in the form of NAPL, or exceeding 10,000 ppm, that cannot be feasibly excavated up to a maximum depth of 25 feet below grade surface. ISS is a process that binds the soil particles in place creating a low permeability mass. The contaminated soil will be mixed in place together with solidifying reagents or other binding reagents using an excavator or augers. The soil and binding reagents are mixed to produce a solidified mass resulting in a low permeability monolith.* *The solidified mass will then be covered with a cover system as described in Remedy Element 5 to prevent direct exposure to the solidified mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination.*

	(8) VOC-impacted soil that are above the water table in the northeastern corner of the site; and (9) Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.	

SECTION 8: EVALUATION OF CHANGES

8.1 Remedial Action Objectives

Remedial action objectives (RAOs) for the cleanup of the site were established in the original ROD. The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

For OU 01:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

For OU 02:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

8.2 Evaluation Criteria

The criteria used to compare the remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided. A detailed discussion of the evaluation criteria and comparative analysis is contained in the original Feasibility Study.

The first two evaluation criteria are called threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Public Health and the Environment. This criterion is an overall evaluation of each alternatives ability to protect public health and the environment.

The original remedy would satisfy this criterion by removing the on-site contaminated soils, removing on-site and off-site LNAPL, treating any on-site groundwater contamination, thereby preventing the further migration of the groundwater plume, and managing remaining contamination to prevent human exposures. The on-site and off-site physical barrier will prevent further migration of the LNAPL plume both on and off-site.

The amended remedy will equally comply with this criterion with the addition of ISS to immobilize LNAPL source material remaining post-excavation.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which NYSDEC has determined to be applicable on a case-specific basis.

The original remedy complies with SCGs on-site, and to the extent practicable off-site. For the on-site source, would achieve compliance by fully excavating the on-site LNAPL and VOC contaminated source areas.

The amended remedy would achieve the SCGs on-site and off-site to the extent practicable. For the on-site source, the remedy will achieve compliance by fully excavating the on-site VOC contaminated source areas and LNAPL contaminated source areas to the extent practicable. Remaining LNAPL source area material would be immobilized via ISS.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Long-term effectiveness is equally accomplished by the original remedy and amended remedy as both provide a significant reduction the volume of the LNAPL source and VOC impacted soil contamination, which would in turn reduce both the potential for soil vapor intrusion and off-site migration of the VOC plume.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Both the original remedy and the amended remedy quickly and permanently remove on-site LNAPL contamination and provide a reduction in toxicity, mobility and volume. The removal of the source area contamination will also significantly limit the continued source area contribution to the off-site plume and reduce the potential for VOC soil vapor intrusion.

The remedy amendment will provide additional reduction in mobility by solidifying remaining contamination in soil, which would also reduce contaminant loading to downgradient groundwater.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Both the original remedy and the amended remedy would be expected to have some short-term impacts associated with their activities. Both remedies involve some degree of intrusive activities which may temporarily disrupt the surrounding residential community via noise, odor, and increased truck traffic. These impacts may be minimized with careful coordination with the municipality and surrounding

landowners during remedial design. A community air monitoring plan (CAMP) and health and safety plan (HASP) would be required during remediation activities for each of the alternatives presented.

The time needed to achieve the remediation goals would be significantly longer for the original remedy in comparison to the amendment, since the additional excavation would require a wholesale redesign and installation of both deeper support of excavation and dewatering system(s).

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Both the original remedy and the remedy amendment are considered implementable from a technical standpoint, since both use proven technologies for treating contamination. However, to implement deeper excavation to satisfy requirements of the original remedy (to a depth of 25 feet) would require the design and installation of a new, deeper cutoff wall/support of excavation, which would require destruction of existing foundations on the eastern portion of the site. The cost and significant delay needed to procure materials and implement additional excavation to achieve the original remedy (a minimum of 5 months) is considered administratively infeasible. The remedy amendment will take less time to implement (estimated 60 to 90 days), would not require significant changes to the support of excavation, and would use easily procured materials, in particular, Type III Portland Cement and on-site grout mixing plants.

Both remedies have similar off-site implementability by use of similar technologies (i.e., off-site barrier, groundwater treatment via zero-valent iron injections, LNAPL extraction via recovery wells) for remediating groundwater, LNAPL, and soil vapor identified off-site.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The relative costs of the original remedy and remedy amendment vary significantly. The capital costs of the remedy amendment would be significantly less than the original remedy. As stated in the previous subsection, it is administratively infeasible to implement the original remedy. The estimated cost of the additional excavation to comply with the original remedy would be approximately $75,000,000 in addition to the $40,200,000 already incurred through current remediation efforts.

Annual maintenance cost for both remedies is the same.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The site is currently vacant; however, the anticipated future use of the site is commercial and residential.

It is expected that both the original remedy and the remedy amendment would provide an acceptable level of cleanup for future site redevelopment. The amendment is slightly less desirable because some NAPL

source material will remain on-site, however, it will be immobile and inaccessible in the ISS monolith. The original remedy would permanently remove or treat the entire on-site source area but may take significantly longer to implement. Both remedies will require that remaining contamination be monitored and controlled with a site management plan, and institutional and engineering controls.

This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the proposed ROD amendment have been received.

9. Community Acceptance. Concerns of the community regarding the proposed changes are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which NYSDEC will address the concerns raised. If the final remedy differs significantly from the proposed remedy amendment, notices to the public will be issued describing the differences and reasons for the changes.

The remedy amendment is being selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

SECTION 9: AMENDED REMEDY

NYSDEC is amending the Record of Decision (ROD) for the Former NuHart Plastics Manufacturing Site. The changes to the selected remedy are summarized in Section 7.3 above.

The total estimated cost ("Present Worth") to implement the remedy as outlined in the ROD was $30,700,000. To date, the actual incurred costs have been approximately $40,200,000, and the estimated additional cost to complete the original remedy (including redesign and installation of new SOE, replacement of existing foundation and building elements on eastern half of the site, and redesign and installation of the dewatering system in order to remove 4 feet of soil) is $55,000,000. The estimated additional cost to implement the amended remedy is $1,400,000.

The elements of the amended remedy listed below are identified as *unchanged, amended or new* when compared to the 2019 ROD/2022 amended remedy:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy
- stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would
- otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance

- ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and
- sustainable re-development.

Unchanged

2. Excavation (OU1)

The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for property disposal in order to implement the remedy. Excavation and off-site disposal of contaminant source areas, including:

- Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u) *to the extent feasible*;
- Concentrated soil or semi-solid hazardous substance per 6 NYCRR Part 375-1.2(au);
- Non-aqueous phase liquids;
- Soil with visual waste material or non-aqueous phase liquid;
- Soil which exceeds the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in the site groundwater above standards. Soil that creates a nuisance condition, as defined in Commissioner Policy CP-51 section G;
- Grossly contaminated soil that may be present in proximity to the Underground Storage Tanks (USTs) and piping trench systems formerly used to store and convey phthalates and lubricating oil during the former plastic manufacturing process;
- VOC-impacted soil that are above the water table in the northeastern corner of the site; and
- Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

Approximately 22,500 cubic yards of soil will be excavated in total. An estimated 6,600 cubic yards is expected to be disposed off-site as hazardous waste, and the remaining material is anticipated to be non-hazardous historic fill and un-impacted native soil.

Amended

2.A In-Situ Solidification

For areas where source material cannot not be excavated (below 19.5 ft), in-situ solidification (ISS) will be implemented. The area to be solidified is shown on Figure 2. ISS is a process that binds the soil particles in place creating a low permeability mass. The residual contaminated soil from 19.5 ft to 24.5 ft will be mixed in place together with Type III Portland Cement using an excavator or augers. The soil and cement are mixed to produce a solidified mass resulting in a low permeability monolith.

The design requirements are that the solidified mass will produce a hydraulic conductivity (K) of 1.0 X 10^{-6} cm/sec or less and would also result in an unconfined compressive strength of 50 psi. The solidified mass will then be covered with a cover system as described in Element 5 to prevent direct exposure to the solidified mass. The resulting solid matrix reduces or eliminates mobility of contamination and reduces or eliminates the matrix as a source of groundwater contamination.

New

3. Backfill (OU-1)

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and/or to complete backfilling of the excavation and establish the designed grades at the site.

Unchanged

4. LNAPL Physical Barriers (OU-1 and OU-2)

Installation of two physical barriers to support the on-site excavation and prevent further off-site LNAPL migration.

- Shoring will be installed as a physical barrier around the entire perimeter of the on-site excavation area down to about 30 feet below grade
- Installation of a physical barrier to prevent LNAPL migration onto the off-site property located to the southwest of the site.

Unchanged

5. Cover System (OU-1)

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

Unchanged

6. LNAPL Recovery (OU-2)

Installation and operation of a network of recovery wells and/or trenches located off-site to recover mobile LNAPL from the subsurface. The number, depth, type and spacing of the recovery wells and/or trenches will be determined during the design phase of the remedy. LNAPL will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of LNAPL over extended time periods, they can be converted to automated collection. Enhancement of the recovery via surfactant injection to increase the mobility of the LNAPL may also be considered. A monitoring program will be implemented for groundwater and LNAPL to monitor the effectiveness of the LNAPL recovery effort.

Unchanged

7. Air Sparging/ Soil Vapor Extraction (OU-1 and OU-2)

Air sparging will be implemented to address the groundwater plume contaminated by volatile organic compounds (VOCs) identified in the northeast portion of the site and in the downgradient vicinity of the site. VOCs will be physically removed from the groundwater and soil below the water table (saturated soil) by injecting air into the subsurface. The injected air rising through the groundwater will volatilize and transfer the VOCs from the groundwater and/or soil into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system, designed to remove the injected air, will be installed. The SVE system will apply a vacuum to wells that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells will be treated as necessary prior to being discharged to the atmosphere.

The number, depth, type and spacing of the AS/SVE wells will be determined during the design phase of the remedy.

[November 2022 Minor Remedy Modification: In situ Chemical Reduction (ISCR) will be implemented to remediate groundwater and saturated soil contaminated by chlorinated volatile organic compounds (CVOCs) in the northeast portion of the site and in the downgradient vicinity of the site. By introducing zero valent iron (ZVI) into the subsurface, CVOCs will be chemically reduced. For the on-site portion of the CVOC contamination, ZVI will be bucket-mixed with soils below the water table to a depth of one foot into the underlying clay layer. For the off-site portion of the CVOC contamination, ZVI will be injected into the groundwater and saturated soil immediately downgradient of the site from approximately from 10 to 20 feet below grade.]
Unchanged

8. Vapor Mitigation (OU-1 and OU-2)

Any on-site and off-site buildings impacted by the contaminants migrating from the site will be required to have a sub-slab depressurization system, or other acceptable measure, to mitigate the migration of vapors into the building from soil or groundwater. The sub-slab depressurization system will be installed in the on-site buildings to be constructed at the site. An evaluation will be conducted, as discussed in paragraph 11 below, to determine whether sub-slab depressurization systems are necessary in off-site properties north of Clay Street pending site access from the owner(s).

[November 2022 Minor Remedy Modification: The planned development includes a full cellar level installed below the water table across the entire footprint of the site. The foundation slab and sidewalls will include a waterproofing/vapor barrier to prevent groundwater and vapor from entering the building. Furthermore, the lowest level of the building will be occupied by a parking garage which must be ventilated per NYC Building Code. The OU-1 soil vapor remedy will therefore consist of a vapor intrusion evaluation conducted post remedy and prior to occupancy.]
Unchanged

9. Treatment Remedy Shutdown

The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.
Unchanged

10. Institutional Controls (OU-1)

Imposition of an institutional control in the form of an environmental easement for the controlled property that will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential, commercial or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYCDOHMH; and
- require compliance with the Department-approved Site Management Plan.

Unchanged

11. Site Management Plan (OU-1 and OU-2)

A Site Management Plan is required, which includes the following:

a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the

following institutional and/or engineering controls remain in place and effective:

- Institutional Controls: The Environmental Easement discussed in paragraph 10 above.
- Engineering Controls: The migration barriers, site cover, LNAPL recovery, ISCR, and vapor mitigation systems discussed in paragraphs 4 through 8 above

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for buildings in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in paragraph 8 above will be place in any area where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b) a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of LNAPL, groundwater and soil vapor to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

c) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- procedures for operating and maintaining the remedy;
- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

Unchanged

SECTION 10: NEXT STEPS

A notice describing NYSDEC's final decision will be sent to all persons on the site mailing list.

If you have questions or need additional information you may contact any of the following:

Project Related Questions
Jennifer Gonzalez
Project Manager
NYSDEC
47-40 21st Street
Long Island City, NY 12233
(718) 482-4508
jennifer.gonzalez@dec.ny.gov

Site-Related Health Questions
Stephen Lawrence
New York State Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza, Corning Tower, Room 1787
Albany, NY 12237
(518) 402-0450
BEEI@health.ny.gov

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former NuHart Plastic Manufacturing
State Superfund Project
Kings County, New York
Site No. 224136

On March 27, 2019, the New York State Department of Environmental Conservation (DEC), in consultation with the New York State Department of Health (DOH), issued a Record of Decision (ROD) which selected a remedy for the Former NuHart Plastics Manufacturing Site. A minor modification of the ROD was issued on November 28, 2022 related to Remedial Element 7: Air Sparging/Soil Vapor Extraction (OU-1 and OU-2). During the Remedial Design phase, the Remedial Party's consultant determined that Air Sparging/Soil Vapor Extraction (AS/SVE) was infeasible due to the presence of clay and silt lenses beneath the site, and In-Situ Chemical Reduction utilizing zero-valent iron (ZVI) to treat chlorinated VOCs (CVOCs) in groundwater was substituted for AS/SVE.

The proposed amendment will add a new ROD Element 2A: In-Situ Solidification for certain soils containing bis(2-ethylhexyl)phthalate at concentrations exceeding 10,000 parts per million (ppm) as established in DER-10 Section 2.1(f). This is the concentration at which non-aqueous phase liquid (NAPL) would be expected to be present. The proposed amendment will also modify ROD Element 2: Excavation, Sub-Bullet 1 as follows: "Grossly contaminated soil as defined in 6NYCRR Part 375-1.2(u) *to the extent feasible*."

A community update meeting was held on February 15, 2024 to informally discuss the need for an additional remedy element. A public meeting was held on April 10, 2024, which included a presentation of the proposed ROD amendment (Element 2A) for the Former NuHart Plastic Manufacturing site as well as a discussion of the proposed additional remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period ended on April 24, 2024.

The following glossary of terms and acronyms is provided to assist the public in reviewing this document.

Term or Acronym	Definition
CAMP	Community Air Monitoring Plan
DOH	New York State Department of Health
DEC	New York State Department of Environmental Conservation
ISS	In-situ solidification
LNAPL	Light, non-aqueous phase liquid. LNAPL at this site is a mixture of phthalates and petroleum that does not readily mix with water and is present on the groundwater.
NYC DOB	New York City Department of Buildings
ROD	Record of Decision

RP	Remedial Party

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with DEC's responses:

Comments Related to Remedy Selection

COMMENT 1: Why weren't the sheet piles extended deeper to allow for deeper excavation rather than implement the ISS solution?

RESPONSE 1: The support of excavation (SOE) was designed and installed for an expected excavation depth of 16 feet below grade surface (bgs) with a maximum allowable excavation of 19 feet bgs. The SOE sheet pile cutoff wall was installed to 34 feet bgs. This was the maximum depth that could be achieved utilizing the approved pile installation mechanism. Current dewatering within the sheet pile cutoff wall has drawn down the on-site water table to approximately 24 feet bgs. Further excavation would require: a) a new sheet pile wall driven to a deeper depth; and b) a redesign of the dewatering system. Additional dewatering may induce off-site drawdown and potential settling issues for on-site foundations and neighboring buildings. In addition, the structural stability of the negative pressure enclosure (tent) could be compromised. This effort would have been time consuming, financially infeasible, and disruptive for the community as was experienced during the driving of the first sheet pile wall. For these reasons, ISS is a more feasible and implementable option.

COMMENT 2: The draft RA [ROD Amendment] states that "Vertical delineation of contamination confirmed the bulk of remaining contamination extends approximately 4 feet below base of excavation at a maximum depth of 25 feet bgs." Please provide additional information about the confirmation sampling (number, type, and depth of samples). Were "clean" samples collected below 25 feet bgs? If so, how many, and what threshold was applied?

RESPONSE 2: Excavation and sampling frequency were performed in accordance with the approved Remedial Design dated May 4, 2023. A total of 55 confirmation samples were collected. Eight samples exceeded the 10,000 ppm threshold established in DER-10 Section 2.1(f) between 19 and 25 ft. Only one confirmation sample out of 55 samples exceeded the threshold criteria below 25 ft bgs. Details of excavation as performed, shake test results, endpoint confirmation sampling, and additional delineation sampling results can be found in the attached supporting documents for the ROD Amendment. Relevant documents include the "Completion of the OU-1 Western Excavation Remedial Element Letter Report", dated January 3, 2024, and the "Proposed Amendment to the Record of Decision, Revision 1", dated February 26, 2024, both prepared by Haley & Aldrich of New York (HANY).

Comments Related to Remedial Design / Remedy Monitoring

COMMENT 3: In the evaluation of threshold criterion #1 (Protection of public health and the environment), the RA states: "the proposed amended remedy will equally comply with this criterion with the addition of ISS to immobilize LNAPL source material remaining post-excavation."

This statement could be viewed as problematic in several aspects:

- Leaving contamination in place, relative to removing all contaminated soil, cannot be considered "equal" in any meaningful sense.
- The apparent equivalence is dependent, in part, by shifting from criteria that include SCOs based on "protection of groundwater," to a less stringent target that is based only on "grossly contaminated soil".
- The RA is not clear regarding the expectation for groundwater that could flow beneath the ISS zone.

It is important to consider that ISS does not eliminate any impact to groundwater. Importantly, effective implementation should significantly reduce groundwater advection through the contaminated soil. However, solidified soil is still porous, and the pore fluid will be in contact with grossly contaminated material, raising its concentration. Thus, over time, the normal process of diffusion will result in the release of contaminated groundwater from the ISS zone, possible into areas of increased flow. It would be plausible to suggest that such a release would have a small effect on human health and the environment, but not zero. The RA should provide more detail to support this sort of argument and communicate its scientific foundation. Put differently, the implementation of ISS does not "turn off" all release of contaminant.

The above concerns should be addressed by an expanded analysis of criterion #1. The current RA provides only one sentence!

For criteria #2 (SCGs), the evaluation should state clearly that the SCGs have been modified and defend this decision.

RESPONSE 3: The evaluation of the two threshold criteria (Criteria 1: overall protection of public health and the environment, and Criteria 2: compliance with standards, criteria and guidance) are met by the implementation of ISS. As noted in the Summary of Proposed Remedy Changes in this ROD Amendment, the amended remedy element applies to soil, not to groundwater.

The ISS mixture is, in essence, a concrete monolith. Hydraulic conductivity of the ISS mixture exceeds NYSDEC QA/QC minimum standards of 1.0×10^{-6} cm/sec; laboratory results demonstrate hydraulic conductivities between 1.0×10^{-7} and 1.0×10^{-9} cm/sec were achieved. This is equivalent to a clay aquitard (i.e., water barrier), through which water and contaminants would not readily flow (see Freeze and Cherry, 1979). Groundwater will not readily penetrate a concrete monolith, the building slab which acts as a site cover, nor the sealed steel sheeting surrounding the site. In addition, clay lenses are located at approximately 30 feet below grade and the cutoff wall was installed to 34 feet below grade. Given that static groundwater is between 13 and 16 feet, and that phthalates cannot sink beneath the water table and do not readily dissolve in groundwater, on-site residual contamination will have limited ability to diffuse into the surrounding neighborhood or into the on-site building. This satisfies Criteria 1.

In accordance with Part 375-1.8(c), the hierarchy of remedial actions for source removal and control measures includes (in order of most preferable to least preferable) removal and/or treatment, containment, elimination of exposure, and treatment at the point of exposure. The original remedy for soil included excavation. The majority of the source was removed via

excavation. The amended remedy includes source treatment and containment, which satisfies Criteria 2.

COMMENT 4: The opening section of the RA [ROD Amendment] refers to the 10,000 mg/kg threshold for grossly contaminated soil. The statement in the text states: "This is the concentration at which non-aqueous phase liquid (NAPL) would be expected to be present". However, this is only one of the criteria listed in DER-10, and it is not specific to the contaminant of concern, which has a very low aqueous solubility and may be present as NAPL at much lower soil concentrations.

RESPONSE 4: In addition to the threshold of 10,000 mg/kg concentration in soil, DER-10 lists a number of methods to determine the presence of NAPL in soil including visual identification of sheen or other visible product, the use of field instruments, ultraviolet fluorescence, soil-water agitation, and hydrophobic dye testing. Several of these methods are not applicable to phthalates (i.e., field instrumentation, UV fluorescence and hydrophobic dye testing) due to the nature of the contaminant. Other methods as outlined in DER-10 were used to assess the presence of NAPL, including visual observations and soil-water agitation (i.e., shake tests). Following excavation to remove all visible NAPL, shake tests were performed at the base of excavation as an additional field method to confirm presence or absence of NAPL. Addition excavation was performed as needed if a shake test contained NAPL until "clean" test were achieved. Endpoint samples were then taken at these depths to determine the extent of residual contamination. Details of excavation as performed, shake test results, and endpoint confirmation sampling can be found in the attached supporting documents for the ROD Amendment. Relevant letter-reports include the "Completion of the OU-1 Western Excavation Remedial Element Letter Report", dated January 3, 2024, and the "Proposed Amendment to the Record of Decision, Revision 1", dated February 26, 2024, both prepared by Haley & Aldrich of New York.

COMMENT 5: Will there be soil between the slab and ISS layer? If so, how much?

RESPONSE 5: Following the completion of the ISS, imported recycled concrete aggregate was used to backfill portions of the site to the foundation slab depth (16 feet below grade). There is no remaining soil between the ISS monolith and the slab.

COMMENT 6: What will the testing cycle be going forward?

RESPONSE 6: The site contains several environmental media that will have different testing cycles. The forthcoming Site Management Plan (SMP) will describe testing requirements and frequencies both onsite and offsite, as well as operation, maintenance, and monitoring requirements for all engineering controls. In general, the remedial party will be required to provide annual certification of the engineering controls in perpetuity; however, monitoring frequencies may occur at shorter intervals.

COMMENT 7: In the event of earthquake, climate change, water table changes and so forth, is the community guaranteed that the capping or slab won't rupture?

RESPONSE 7: The site cover system (i.e., foundation slab) is a permanent engineering control (EC) that must be maintained for the life cycle of the building. In the event of catastrophic failure,

the cover system would be repaired and re-certified. The SMP will include contingencies that the owner of the property must follow in perpetuity.

COMMENT 8: We are concerned that the concrete may start to deteriorate in such a way that would allow the contamination previously bound to once again get into the water table. Because this concrete will be below the water table, the time period for the degradation of Type III Portland cement should be longer than the entire lifespan of the building atop it. If there is degradation, how will that be addressed to ensure the toxic contaminants are not reintroduced to the environment?

RESPONSE 8: The Interstate Technology Regulatory Council (ITRC) published a technical/regulatory guidance document entitled "Development of Performance Specifications for Solidification/Stabilization" (ITRC, 2011), which provides the basis for the design and use of in-situ solidification (ISS) for the immobilization of contaminants in soil. The ITRC guidance document on ISS states that monoliths formed by ISS meet the definition of concrete.

The ITRC guidance document states that "the combined experience of the ITRC S/S [aka ISS] Team indicates that some in the regulatory community perceive that solidified materials will degrade over time as a result of one or more of the following: internal chemical reactions; geochemical and/or biological reactions within the surrounding environment; and physical mechanisms such as settlement, wet-dry cycling, or freeze-thaw cycling. However, degradation mechanisms for S/S that solidified materials typically are slow to manifest significant alteration of material properties which control contaminant release."

The ISS monolith under the building will not be exposed to the physical degradation mechanisms of settlement, wet-dry cycling, or freeze-thaw cycling. If the building is removed in the future, the remaining impacted material solidified in the monolith is identified in the recorded Environmental Easement and will be handled per the requirements of the forthcoming SMP, which will be reviewed and approved by NYSDEC and NYSDOH. In addition, the ISS monolith is further isolated by a surrounding steel sheet pile cut-off wall that was installed at the perimeter of the site and will remain in perpetuity. Finally, the area around the site will be monitored and remediated under the SMP to ensure the remedy is functioning as designed.

COMMENT 9: The original ROD indicated that excavation would address: "Soil which exceeds the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in the site groundwater above standards" (Table on page 12). In contrast, the amended ROD is expressed primarily in terms of "grossly contaminated soil". This raises the possibility that soil left in place, either within the ISS zone or below it, could adversely affect groundwater. The argument (in several places) is that groundwater flow through problematic soil will be reduced; however, it will not be eliminated. Please comment, including an explanation for limiting the vertical extent of the ISS.

RESPONSE 9: The reference to the protection of groundwater SCOs in the original ROD (excavation remedy element 2e) was intended to address on-site soil containing trichloroethene (TCE). TCE was also found dissolved in groundwater at concentrations significantly exceeding applicable standards. Phthalates do not readily partition (change phases) into groundwater and have strong adsorption tendencies, as supported by 15 years of groundwater monitoring data

collected at the site. While some groundwater samples from historical investigations have varying concentrations of dissolved phthalates, the vast majority have remained in the NAPL phase. As such, the phthalate contamination in on-site soil was addressed by excavation remedy element 2a (grossly contaminated soil).

Regarding the vertical extent of ISS, as stated in the "Proposed Amendment to the Record of Decision, Revision 1", dated February 26, 2024, prepared by HANY, additional SOE bracing was required to allow for approximately 4 additional feet of soil disturbance. As stated by the structural engineer in the attachments for the above-referenced letter, soil disturbance greater than the additional 4 feet would require the installation of a new set of sheet piles driven to a deeper depth. As stated in Response 1, a new SOE would be time consuming, financially infeasible, and disruptive for the community as was experienced during the driving of the first sheet pile wall. For these reasons, ISS is a more feasible and implementable option.

Comments Related to Schedule

COMMENT 10: Why did they remove the tent before ISS is complete? Or is it fully implemented?

RESPONSE 10: The ISS is complete. The developer elected to proceed with the full-scale implementation of the ISS based on favorable results of the pilot test performed in February 2024. Work was completed on March 7, 2024 following verification via QA/QC coring. The tent was removed between March 12 and 22, 2024.

COMMENT 11: Brooklyn Community #1 would like to express its deep concern regarding the proposed amended remedy for State Superfund Site No. 224136 (former NuHart Plastic Factory).

As has been stated by the developer, they must complete the site remediation and their housing development project in order to receive a certificate of occupancy, in order to qualify for a state 421(a) tax abatement. The board is worried the developer will sacrifice quality control and safety working under these underlying time constraints, as exemplified by their decision to proceed at-risk with implementing the amended ISS remedy sitewide before DEC's review and response to test results and public comment input. Being mixed and poured at a breakneck pace, has the ISS concrete mixture been compromised, leaving it susceptible to leakage?

Being that the developer is responsible for cleaning up two potentially lethal contaminants of concern in wide areas of the site where levels still exceed state residential limits, we fear for the health and safety of residents and neighbors. We cite recent setbacks for both the developers and DEC that undermine confidence in this rushed process. At 642 E 14th Street in Manhattan, the developers damaged a residential building there while performing excavation work at an adjacent property, prompting a vacate order for tenants. At 34 Berry Street in Williamsburg, extensive additional contamination was discovered after the building was constructed.

Additionally, the board is concerned that the health and contamination data and testing methods being used are out of date.

The board appreciates the fact that this project will create badly needed affordable housing in our district. However, the safety and health of the residents living in Brooklyn Community District #1 is of the utmost importance to us. We urge the NYS Department of Environmental Conservation, the NYS Department of Health and the developers, Madison Realty Capital, to hold the project's future residents and neighbors in the same regard, and work to ensure it.

RESPONSE 11: NYSDEC and NYSDOH acknowledge the concern of the community and factor in community health and safety into all decisions made in the remedy selection and implementation process. As such, NYSDEC has been working closely with the developer and their consultant during the entirety of the ISS process including design, implementation and verification.

Following the pilot study, ISS cells were mixed with a 20% mix ratio of Portland Type III cement. In comparable projects where ISS is more frequently used (i.e., former manufactured gas plant sites), a 10 to 12% mix ratio commonly provides the minimum strength and hydraulic conductivity (an indicator of permeability) required by NYSDEC's QA/QC process. At minimum, NYSDEC's QA/QC standards include:

- A lack of field evidence of significant non-aqueous phase liquid (NAPL) both within the ISS monolith and as evidenced on equipment or observed on exposed soils;
- An unconfined compressive strength (UCS) of the concrete monolith above 50 pounds per square inch (PSI);
- A hydraulic conductivity of less than $1.0x10^{-6}$ cm/sec;
- Less than 1 cubic foot of unmixed material observed in QA/QC cores; and
- A QA/QC core recovery rate of greater than 60%.

The developer acknowledged that failure to meet any of the above standards would require re-mixing and was ready to comply with such a scenario.

NYSDEC provided continuous oversight during mixing, pouring, and QA/QC implementation. NYSDEC directed the contractor and subcontractors as to the duration and scope for each pour to ensure each cell was properly mixed to the target depth. A sample of each mixture was taken by a certified concrete inspector and was properly cured and transported to a certified NYSDEC-approved laboratory.

Field observation and laboratory data have confirmed that both the pilot study and full-scale mixtures have exceeded QA/QC standards for UCS and hydraulic conductivity by 1 to 2 orders of magnitude (10 to 100 times the guidance values). This strongly indicates that the concrete is both stronger and significantly less permeable than NYSDEC requires for ISS monoliths. Several cores were taken at different areas of the monolith; NYSDEC documented that all QA/QC cores demonstrated well-mixed material vertically and that the mixture cured properly. NYSDEC is satisfied with the performance of the ISS.

The consultant collected 55 endpoint samples between September 2023 and January 2024 which were compared with current standards and guidance values. Corresponding field observations at sample depths indicated no visible NAPL remained in on-site soil. Laboratory results indicate a

significant reduction in on-site phthalate contamination (the maximum on-site pre-remediation concentration of bis(2-ethylhexyl)phthalate was 59,200 parts per million [ppm]).

The site will remain listed on the NYS Registry of Inactive Hazardous Waste Disposal Sites (State Superfund Sites) and will be monitored post-remediation in the manner outlined in the forthcoming SMP.

As a clarification, ISS has been proposed to remediate remaining contamination related to the on-site portion (operable unit OU-1) of the phthalate plume. Trichloroethene (TCE) is being remediated through groundwater treatment via zero-valent iron injection points and soil mixing in the northern portion of the site (both on-site and off-site) and at the adjoining BCP site, NuHart East (ID: C22487). The proposed ROD amendment does not change the remedy elements to address TCE contamination.

COMMENT 12: It's been concerning all along that the developer is in rush mode to meet 421(a) deadlines, while health and environment are second. This is while community deals with legacy, recent and current and health impacts.

RESPONSE 12: As discussed in Response 11 above, the NYSDEC and NYSDOH have been extensively involved in the design, performance, and QA/QC of the ISS effort to ensure it is both effective and safe for the public. To that end, the developer and their consultant have been responsive to any concerns raised by NYSDEC and NYSDOH and have been open to input and design changes in the development and implementation of the ISS. The deadlines in place related to 421(a) are outside the control of the NYSDEC and the developer.

COMMENT 13: In general, we are very concerned with the way that this process has unfolded. This has been a public comment period in name only. It seems as though the profits of the developer have been privileged over mandated community involvement. We have been invited to comment on a remedy that has already been completed.

While Madison Realty has taken this on "at risk," the idea that all the concrete blocks that have been created deep in the ground would be dug up is not only extremely unlikely, but if it were to happen, it would strain the neighbors with noise, additional machines, labor, and trucks. This was a short-sighted decision by the DEC to allow this development to proceed. While there has been real public engagement by holding meetings, it does not feel as though the community actually had an opportunity to provide input into the process.

At the public meeting held April 10, 2024, it was stated that the reason that the digging could not go deeper was because of the stability of neighboring buildings. However, the Proposed Record of Decision Amendment states that, "However, to implement deeper excavation to satisfy requirements of the original remedy (to a depth of 25 feet) would require the design and installation of a new, deeper cutoff wall/support of excavation, which would require destruction of existing foundations on the eastern portion of the site." To learn through reading the document that the major damage would be to the building that was recently built was yet another reason to be concerned about the process here. Previously there was much discussion about allowing the eastern building to be built before the remedy on the western part of the site was completed. This is exactly

the type of reason why. Because the DEC allowed the developer to push for speed in allowing the building to begin before the entire site was remediated, we now will have contamination remaining in our community. This is yet another example of the DEC putting the budget and timetable of MRC ahead of the health and safety of the community. We are extremely disappointed with how this has played out.

RESPONSE 13: NYSDEC and NYSDOH acknowledge that the perceived speed has been concerning for the public. As discussed in Response 11, this process was developed over the course of several months between NYSDEC, the developer, and their consultant. ISS was also an alternative remedy previously evaluated during the Feasibility Study. At the time of the preparation of the original ROD, it was anticipated that all on-site contamination could be remediated by excavation alone. As this could not occur, an additional remedial technology that was previously evaluated and deemed feasible was required. Regarding the breaking of the newly-poured foundation, if NYSDEC had determined that installation of a new SOE was feasible, the developer would have been instructed to do so regardless of the impact on the existing foundation. However, as stated in Response 1, further excavation would require: a) a new SOE/sheet pile wall driven to a deeper depth; and b) a redesign of the dewatering system. Additional dewatering may induce off-site drawdown and potential settling issues both for existing development foundations as well as neighboring buildings. In addition, the structural stability of the negative pressure enclosure (tent) would have been compromised. In other words, the tent would have had to have been removed, new SOE installed, and the tent re-constructed.

COMMENT 14: Even though I'm hopeful that the site may be something other than a toxic eyesore and horrible environmental reminder, I also have a sick feeling about all the involved parties being okay with leaving deadly phthalates behind in Greenpoint. Phthalates will remain under a residential building, under our streets and eerily close to our playground. I'm also disgusted that the developer went ahead with a pilot remedy (with NYS agency blessings) before the community had an opportunity to comment on it or to otherwise have input about it. Only in Greenpoint's own Area 51 would a developer be allowed to move forward with such a remedy and then have the audacity to gather comments afterward in terms of being "proposed". It's the typical middle finger feeling that the community has felt from the state, from our elected officials, from developers for decades. Not much has changed. Greenpointers know how it feels to be part of the tradeoffs of what you do. As we received this middle finger we continue to be acutely aware that the developer is in rush mode to build before they lose 421A credits. We experience it with amounts of dust, noise, trucks, being blown off at meetings, and so forth. We are still going to have phthalates in our soil and now we'll have even more congestion and crowding too. And this is to remind you that long time Greenpoint residents are still living with conditions, diseases and quality of life issues caused by poor environmental practices. Given that fact, a true cleanup should be the very best. It should be authentic and unrushed. This is not. You need to do better.

RESPONSE 14: As stated in Response 13, the NYSDEC and NYSDOH acknowledge that the perceived speed has been concerning for the public; however, significant outreach was made to the community throughout project and the AROD process. NYSDEC and NYSDOH have determined the ISS remedy in the AROD is protective of human health and the environment.

Comments Related to Public Outreach

COMMENT 15: I hardly call this a public meeting given there was no public outreach. Even the Senator's office had trouble getting registered for this meeting.

RESPONSE 15: As per the Citizen Participation Plan, NYSDEC has performed due diligence to provide timely outreach to the public. A community update meeting was held in February 2024. The elected officials were made aware of the April 10, 2024 public meeting and provided copies of the factsheet and meeting announcement when the comment period began. A factsheet containing a meeting announcement and registration link were sent to NYSDEC's site-specific contact list, which includes elected officials, North Brooklyn Neighbors, and any member of the public that have signed up for site updates.

Comments Related to Site Management

COMMENT 16: Does the site lose its superfund designation now that it's mostly mitigated? Or maybe not because of continual future well monitoring and unmitigated portions?

RESPONSE 16: The site will remain listed as a State Superfund Site. Currently the site is classified as Class 2, which is defined as a site which presents a significant threat to public health and/or the environment. Once remediation is complete and the site management phase begins, the site would be reclassified to Class 4, signifying remediation is complete, and any remaining contamination will be addressed through the implementation of institutional and engineering controls that will be operated, maintained and monitored under the forthcoming SMP.

COMMENT 17: What happens after remediation and the status of the site? It may be helpful for the community if you create a slide with what should be expected post-remediation. Does this now become just another developer site? Does this mean no more weekend work? There are a lot of hardships going on and we're just trying to deal with parking, deal with other things in the community. So there are community issues happening in conjunction with what's going on.

RESPONSE 17: The site will be monitored post-remediation in a manner outlined in the forthcoming SMP. NYSDEC will continue to provide the community with periodic updates including discussions of the SMP and Final Engineering Report (FER).

Regarding continued site development, the elected officials have worked with developers to create a task force which meets biannually. The developer will continue to provide updates at task force meetings and keep the community informed of both onsite and offsite work.

Regarding traffic, parking, and weekend work, NYSDEC defers those questions/issues to the task force.

COMMENT 18: The original ROD and RA [ROD Amendment] includes the development of a Site Management Plan, which includes a Monitoring Plan. Given the past trajectory of the remedy implementation, including multiple modifications and the discovery of unexpected contamination, it would be prudent and appropriate to present core elements of the Monitoring Plan NOW rather than at a future time. For example, how will sampling be conducted to assess the effectiveness of the ISS remedy? What steps will be taken if groundwater contamination is

discovered? What would constitute an unacceptable level of groundwater contamination? How long will monitoring last?

RESPONSE 18: The SMP is forthcoming and will contain contingency plans. As described in previous responses above, the ISS has already met all required parameters through laboratory tests and in-field QA/QC coring. An LNAPL Recovery Design for the offsite portion is under review by NYSDEC and will be implemented once approved.

All Other Comments

COMMENT 19: While the previous remedy would have removed all contaminants from within the footprint of the site, the in-situ solidification/stabilization (ISS) procedure allows contaminants to remain on-site. We believe therefore that it is imperative that the information on remaining site contamination be included in the site deed restriction.

RESPONSE 19: An Environmental Easement dated April 8, 2024 was recorded with the New York City Office of the City Register. The Environmental Easement defines allowable site uses, restrictions on land use, and requires adherence to all requirements set forth in the SMP including the documenting and monitoring of remaining contamination.

COMMENT 20: Given that this new remedy leaves an appreciable amount of contamination in our community, we request that there be a review of alternative treatment methods every 5 years to evaluate whether there is a more health and environmentally protective alternative or treatment that becomes available in the future.

RESPONSE 20: The forthcoming SMP will include a contingency if the NYSDEC determines that the remedy is not performing as expected or as designed. The SMP includes a provision for NYSDEC to require the remedial party to perform a Remedial System Optimization (RSO) periodically. The RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information, and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

COMMENT 21: We want to ensure that this new amendment does not increase the public health risk. Does this new treatment meet health standards at or below the 1 in a million cancer risk?

RESPONSE 21: Potential exposures to the remaining site contamination have been mitigated through solidification of materials at 19.5 to 24.5 feet below grade and within the support of excavation limits. Solidification binds the soil particles together and reduces the permeability of the treated area so water cannot freely flow through the material. This greatly reduces the potential for the remaining contamination to dissolve into the groundwater. The solidified mass is located at depth, beneath approved backfill and well below the building foundation. People are not expected to come into contact with the solidified mass due to its depth and since the site is covered with buildings and pavement. New York State Department of Health believes that the remedial

plan is protective of public health, including the solidification of remaining contamination that could not be excavated during the initial phase of the remedy implementation.

COMMENT 22: ISS was covered in the 2017 Feasibility Study Report. In that report on page 4-33, it states, "This remedy further takes a relatively immobile plume and makes it slightly less immobile. The ISS option does not remove source material and once completed, would render the phthalates unrecoverable." Making the plume "less immobile" or more mobile seems contradictory to the goals of the operation. It is very concerning that ISS would make the plume more likely to move and in doing so would pose a greater threat to the community and the environment. Was this a mischaracterization or a typo? Please clarify.

RESPONSE 22: The above is a typo and should read "This remedy further takes a relatively immobile plume and makes it slightly less mobile."

COMMENT 23: Have the results of the LNAPL pilot test been shared with stakeholders?

RESPONSE 23: The results of the LNAPL pilot test are included in the draft LNAPL Recovery System Design, which is available on DECInfo Locator.

COMMENT 24: How will the offsite recovery be affected by the ISS process?

RESPONSE 24: Due to the cutoff wall, the offsite recovery design is unaffected by the ISS.

COMMENT 25: In Section 7.2, completed elements of the ROD are discussed, including the excavation in the eastern TCE source area, with reference to 27 endpoint samples. Were remedial goals met in this area? If not, what is the expectation for future impacts on groundwater?

RESPONSE 25: There were four exceedances of the PGWSCO for TCE in the northeastern portion of the Site with a maximum concentration of 11 ppm (PGWSCO: 0.47 ppm). Remaining TCE is being remediated in this area (both on-site and off-site) through groundwater treatment via ZVI injection points and soil mixing, as well as at the adjoining BCP site, NuHart East (ID: C22487). The proposed ROD amendment does not include additional elements to address TCE contamination.

COMMENT 26: Please clarify the costs of the original remedy. The RA states that the extra cost of implementing the original ROD would be $75M (page 16) or $55M (page 17), versus $40M already spent. Can these large estimates be substantiated?

RESPONSE 26: Cost summaries can be found in supporting documentation, specifically in letters dated January 18 and 30, 2024 from Dupont Street Owner LLC, the owner of the Site.

APPENDIX B

Administrative Record

ADMINISTRATIVE RECORD

Former NuHart Plastic Manufacturing
State Superfund Project
Kings County, New York
Site No. 224136

1. Order on Consent, Index No. R2-0654-11-10, between the NYSDEC and 49 Dupont Realty Corp., executed on January 18, 2011.
2. *Citizen Participation Plan,* dated April 2011, prepared by Ecosystems Strategies, Inc. (ESI)
3. Amended Order on Consent, Index No. R2-0654-11-10, to add a new owner (Dupont Street Developers LLC), executed on February 7, 2014.
4. *Remedial Investigation Report*, dated July 30, 2015, prepared by Ecosystems Strategies, Inc.
5. *Feasibility Study Report*, dated January 19, 2017, prepared by Goldberg Zoino & Associates of New York, P.C. d/b/a GZA GeoEnvironmental Of New York
6. *Record of Decision for the Former NuHart Plastic Manufacturing site,* dated March 27, 2019, prepared by the NYSDEC.
7. Order on Consent, Index No. R2-20210317-28, between NYSDEC and Dupont Street Owner LLC, executed on November 30, 2022
8. *Final 100% Remedial Design Report*, dated May 2023, prepared by H&A of New York LLP
9. *Completion of the OU-1 Western Excavation Remedial Element Letter Report,* dated January 3, 2024, prepared by Haley & Aldrich of New York (HANY)
10. OU-1 Western Excavation Request for Modification to Remedy letter dated January 18, 2024 from Dupont Street Owner LLC
11. Letter dated January 30, 2024 from Dupont Street Owner LLC
12. *Proposed Amendment to the Record of Decision, Revision 1,* dated February 26, 2024, prepared by HANY
13. *OU-1 Western Excavation ISS Completion Letter Report*, dated March 7, 2024
14. Comment letter dated April 15, 2024 from Community Board No. 1
15. Comment letter dated April 19, 2024 from North Brooklyn Neighbors
16. Comment email dated April 23, 2023 from Laura Hofmann
17. Comment letter dated April 24, 2024 from Alan Rabideau

100 50 0 100

Feet

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Figure 1 - Site Boundary Map
Former NuHart Plastic Manufacturing
Site No. 224136

Legend

- Former NuHart Property Boundary
- Superfund Site Boundary

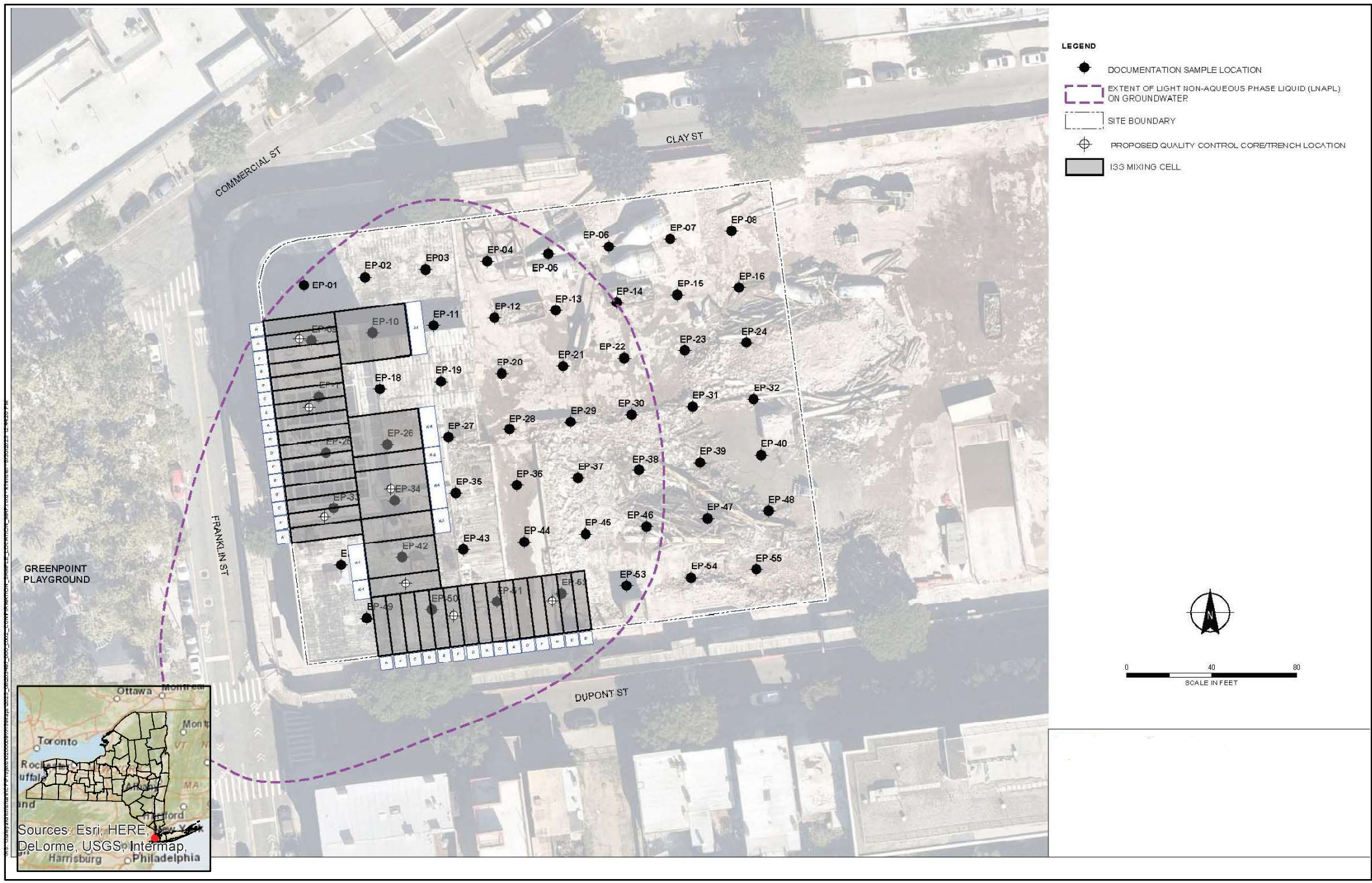

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Figure 2 - ISS Installation

ATTACHMENT B
LNAPL VEFR Procedure & Spill Mitigation Measures

LEGEND

- PROPERTY BOUNDARY
- AS-BUILT LNAPL BARRIER WALL (SEE NOTE 4 AND 5)
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- MW-1 — EXISTING GROUNDWATER MONITORING WELL
- RW-45 — EXISTING LNAPL RECOVERY WELL LOCATION (4" DIAMETER WITH 0.01 SLOT SIZE)
- RW-46 — EXISTING LNAPL RECOVERY WELL LOCATION (2" DIAMETER WITH 0.01 SLOT SIZE)
- RW-47 — EXISTING LNAPL RECOVERY WELL LOCATION (4" DIAMETER WITH 0.02 SLOT SIZE)
- RW-48 — EXISTING LNAPL RECOVERY WELL LOCATION (2" DIAMETER WITH 0.02 SLOT SIZE)
- EXTENT OF LNAPL IN GROUNDWATER (THE MEASURED THICKNESS OF LNAPL >0.5')
- TIER 1 ACTIVE RECOVERY AREA
- TIER 2 SOCK / VAC TRUCK RECOVERY AREA (6 VEFR WELLS HIGHLIGHTED GREEN)

NOTES

1. LOCATIONS OF EXISTING MONITORING WELLS, PRODUCT RECOVERY WELLS, EXTENT OF LNAPL IN GROUNDWATER, ARE APPROXIMATE AND REFERENCED FROM ALTERNATIVE WELL LAYOUT FIGURES PREPARED BY GZA GEOENVIRONMENTAL, INC. DATED AUGUST 2016.
2. EXISTING UNDERGROUND UTILITIES SHOWN WERE FROM AN ELECTRONIC CAD FILE ENTITLED "ARCHITECTURAL SURVEY OF DESCRIBED PROPERTY" DATED 2 SEPTEMBER 2021 BY LEONARD J. STRANDBERG AND ASSOCIATES, OF FREEPORT, NEW YORK.
3. LOCATION OF ALL EXISTING FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE.
4. OU-1 LNAPL BARRIER WALL IS STEEL SHEET PILE; EASTERN PERIMETER AND CENTER DIVIDER SECTIONS OF OU-1 STEEL SHEET PILE WALL HAVE BEEN CUT DOWN TO EXIST BELOW THE BOTTOM OF DEVELOPMENT.
5. OU-2 LNAPL BARRIER WALL IS A SECANT PILE WALL.

LNAPL VEFR Procedure & Spill Mitigation Procedures:

VEFR events will occur on weekdays between 10am and 2pm (ET)

1. Air monitoring will be conducted using one station positioned downwind of VEFR operations in accordance with the approved Community Air Monitoring Plan (CAMP). The downwind CAMP station will be equipped with a TSI DustTrak and MiniRae PID to measure airborne particulate matter and VOC concentrations. Action levels and corrective measures are those described in the approved CAMP for the Site. A universal spill kit consisting of oil-sorbent pads, nitrile gloves, plastic disposal bags, Alconox detergent and a sealable plastic bucket will be available. Odor suppressant foam or spray will be available for use in the event that VEFR operations generate odors.

2. Oil-absorbent booms will be placed surrounding any sewer catch basins adjacent to the LNAPL recovery area on the sidewalk to ensure that the work activities do not spread impacted wastes. A containment set up consisting of a standard woven poly tarp or black poly sheeting with a hole cut out in the center will be placed over the recovery well to mitigate any potential recovery equipment leaks prior to commencing VEFR operations. Four sections of 2-inch by 4-inch lumber or 4-inch diameter oil-absorbent booms will be inserted underneath the poly tarp/sheeting to create an elevated containment perimeter surrounding the recovery well. Additional oil absorbent booms will be lined along the outside of the lumber containment perimeter if lumber is chosen. Traffic cones and extendable connector bars will be placed around the spill containment system to delineate any pedestrian traffic around the VEFR operation.

3. A vacuum truck operated by a licensed environmental contractor will be positioned in the parking lane adjacent to the LNAPL recovery well(s). The vacuum truck system exhaust will be connected to a vapor phase activated carbon drum via a flex hose with a camlock coupler fitting and the post-treated port pipe will extend 4 ft above the top of the drum to allow effluent air to escape above the breathing zone. The carbon drum will be positioned adjacent to the vacuum truck within the pedestrian traffic exclusion zone or secured in the bed of the environmental contractor's flatbed or pickup truck parked behind the vacuum truck during VEFR operation.

4. The well vault cover and locking J-plug will be temporarily removed from the top of the recovery well riser pipe and placed to the side within the containment area. The absorbent sock will be pulled out of the well and visually inspected for approximate LNAPL saturation percentage. The absorbent sock will be placed in a heavy-duty plastic contractor bag or sealable bucket during vacuum truck VEFR operation. The depth to LNAPL and the depth to groundwater in each recovery well to have LNAPL extracted will be gauged using a Solinst oil-water interface meter and recorded in a field log. Approximate LNAPL saturation percentage of the absorbent sock will also be recorded.

5. The vacuum truck flexible hose will be inserted into the recovery well to the depth where LNAPL was measured. VEFR operations will then be initiated and continued for approximately 5 minutes to remove LNAPL and water from the well. A transparent pipe section of the vacuum truck hose will be incorporated to visually determine when the LNAPL extraction had been completed.

6. Once VEFR is completed and the vacuum shut off, the vacuum truck flex hose will be pulled out of the well and wiped with an oil spill pad as low to the ground containment as possible. Wipe off residual LNAPL on the outside of the tube back down into the recovery well to prevent residual LNAPL from leaking onto the sidewalk area. The open end of the vacuum truck flex hose will be immediately plugged prior to coiling the hose back onto the truck.

7. The recovery well will be gauged again using a Solinst oil-water interface meter and the depth measurement(s) recorded in a field log. The absorbent sock that was removed from the well will be replaced with a new one if the approximate LNAPL saturation in the existing sock is greater than or equal to 50%. If the absorbent sock that was removed has an approximate LNAPL saturation less than 50%, it will be reinserted into the well to the measured depth of groundwater or LNAPL-groundwater interface. Ensure that the absorbent sock is securely tied to the bottom of the locking J-plug with an oil-resistant rope. The locking J-plug and well vault cover will then be re-secured over the top of the recovery well riser pipe. Incidental waste such as LNAPL-contaminated personal protective equipment (PPE) and containment materials will be transferred into a heavy-duty plastic contractor bag or sealable bucket.

8. The environmental contractor will demobilize the remaining non-impacted equipment and pedestrian traffic exclusion zone prior to the vacuum truck departing and transporting recovered LNAPL to be treated/disposed of at the Cycle Chem, Inc. disposal facility as a U028 and U107 listed waste under Profile No. 178765 / USEPA ID No. NYD001468354. Absorbent socks and personal protective equipment (PPE) used during LNAPL recovery will be stored in 55-gallon drums staged in the LNAPL storage room located in the cellar of the building and will be disposed of as hazardous waste at the Cycle Chem, Inc. disposal facility as a U028 and U107 listed waste under Profile No. 178765 / USEPA ID No. NYD001468354. Executed waste manifests will be provided by the environmental contractor responsible for operating the vacuum truck.

ABBREVIATIONS

APPROX. = APPROXIMATELY
BGS = BELOW GROUND SURFACE
EL. = ELEVATION
FT = FEET
LNAPL = LIGHT NON-AQUEOUS PHASE LIQUID
VOC = VOLATILE ORGANIC COMPOUNDS

N

0 30 60 90 120
SCALE IN FEET

HALEY ALDRICH
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213 W 35th Street, 7th Floor
New York, NY 10001
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www.haleyaldrich.com

RECORD DRAWINGS

Project No.:	0203497-000
Scale:	AS SHOWN
Date:	NOVEMBER 7, 2022
Drawn By:	KFP
Designed By:	MB/ZS
Checked By:	SAU
Approved By:	JMB

Stamp: STATE OF NEW YORK — SCOTT A. UNDERHILL — 075332 — LICENSED PROFESSIONAL ENGINEER — 2/13/25

Rev.	Description	By	Date
3	RECORD DRAWINGS	SAU	1/30/25
2	ADDED TIER 2	SAU	11/14/24
1	REMOVED TIER 2	SAU	8/8/24

LNAPL DESIGN
FORMER NUHART PLASTIC MANUFACTURING SITE
STATE SUPERFUND PROJECT
BROOKLYN, NEW YORK

AS-BUILT LNAPL SYSTEM RECOVERY APPROACH

C-200

Sheet: 3 of 6

POSTOLOWSKI, KEVIN Printed: 2/13/2025 2:27 PM Layout: C-200
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ATTACHMENT C
LNAPL VEFR Demonstration Tests Photo Log

Photo 1: View of recovery well RW-25 located on the Franklin Street sidewalk within the construction fencing.

Photo 2: View of spill containment setup, interface probe meter and vac truck flexible hose inserted into RW-25.

Photo 3: View of vac truck and environmental contractor personnel staged adjacent to RW-25.

Photo 4: View of transparent pipe section of vac truck flexible hose.

Photo 5: View of LNAPL extraction passing through transparent pipe section of vac truck flexible hose.

Photo 6: View of groundwater extraction passing through transparent pipe section of vac truck flexible hose.

Photo 7: View of groundwater extraction passing through tansparent pipe section of vac truck flexible hose.

Photo 8: View of spill containment setup and pedestrian delineation at MW-26 on the southeast corner of Dupont and Franklin Street.

Photo 9: View of spill containment setup at MW-26 on the southeast corner of Dupont and Franklin Street.

Photo 10: View of air monitoring station and vac truck staged on Dupont Street adjacent to MW-26.

ATTACHMENT D
Absorbent Sock Product Specifications

PIG® Monitoring Well Skimming Sock





SKM401 ext. dia. 1.5" x 18" L,Each absorbs up to 17 oz.,30 socks per box

Small diameter sock that lets you know if there's oil in your monitoring well.

- Simply lower this floating sump skimmer into a monitoring well to absorb oils without taking in any water
- Polypropylene skin resists tearing; meets ANSI and MIL-SPEC standards for static decay
- Polypropylene loop can be attached to rope (not included) for easy deployment and retrieval
- Absorbs and retains oils and oil-based liquids - including lubricants and fuels - without absorbing a drop of water
- Bright white color makes absorbed oil easier to see; clearly shows saturation level
- Can be incinerated after use to reduce waste or for fuels blending

pig EXCLUSIVE · Recycled Content · Autoship Eligible

Specifications

Absorbency Range	1 - 9.9 gal.
Dimensions	ext. dia. 1.5" x 18" L
Recycled Content	98% Pre-Consumer Recycled Polypropylene Filler
Absorbency	Up to 4 gal. per box
Absorbency per	Up to 17 oz. per sock
Application	Storm Preparedness
Color	White
Brand	PIG
Filler	Polypropylene
Fluid Absorbed	Oils; Fuels; Oil-Based Liquids (Not Water)
Skin/Outer Mesh	Skin - Polypropylene
Sold as	30 socks per box
Weight	6 lbs.
# per Pallet	30
UNSPSC	47131904
Pigalog® Page Number	Page 52

Metric Equivalent

Absorbency per	Up to 502.7 mL per sock
Absorbency	Up to 15.1 L per box
Weight	2.7 kg
Dimensions	ext. dia. 3.8cm x 46cm L

Technical Information

Certifications, Approvals and Ratings

ANSI/ESD STM11.11,MIL-STD-3010C

Technical Documents

Technical Data Sheet for PIG® Oil Only Absorbents

40 CFR 122.26

New Pig
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