HALEY ALDRICH

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RCRA CLOSURE PLAN
FORMER NUHART SITE
NUHART WEST
49 DUPONT STREET
BLOCK 2487 LOT 1, 10, 12, 72 AND 78
NYSDEC SITE #C224136 (NUHART WEST)
PROPOSED NYSDEC BCP SITE #C224287 (NUHART EAST)
RCRA SITE ID #NYD001468354
BROOKLYN, NEW YORK

by Haley & Aldrich of New York
New York, New York

for Dupont Street 1 LLC
520 Madison Avenue, Suite 3501
New York, New York 10022

File No. 0203497-002
November 2021

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11 November 2021
File No. 0203497-001

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233

Attention: Mr. Bryan Wong

Subject: RCRA Closure Plan
NYSDEC Site C224136 – Former NuHart Site
49 Dupont Street
Brooklyn, New York

Dear Mr. Wong,

On behalf of Dupont Street 1 LLC, Haley & Aldrich of New York (Haley & Aldrich) is submitting this revised Resource Conservation and Recovery Act (RCRA) Closure Plan for the Former NuHart Site as per supplemental comments provided by the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) on 27 October 2021 (NYSDOH) and on 03 November 2021 and 10 November 2021 (NYSDEC). This RCRA Closure Plan has been developed based on the NYSDEC's "Technical Guidance for Site Investigation and Remediation" (DER-10, dated May 2010). Comments were addressed as follows:

<u>Department of Health Comments:</u>

1. NYSDEC Site Number has been added to the cover page.
2. Section 5 has been updated to reflect Stephen Lawrence as the NYSDOH Case Manager.
3. Section 6.2 - Community Air Monitoring Plan:
    a. CAMP section has been updated to reflect monitoring onsite and in proximity of sensitive receptors which will include continuous monitoring for VOCs, dust and odors at fixed locations.
    b. CAMP will be conducted indoors and outdoors when there is potential for migration to the community of site contamination, dust and/or odors.
    c. Figure indicating proposed locations of CAMP stations has been provided (included in Figure 2). It is noted that station's locations may be adjusted as needed based on security and changes in wind direction. NYSDEC and NYSDOH will be updated accordingly in the daily reports of any shifting of stations.
    d. Exceedances and mitigation efforts will be reported to the NYSDEC and NYSDOH via email promptly.
4. Reference to DER-10 Appendix 1A and 1B is now included in the text and also appended to this report as Appendix C.

Division of Materials Management Comments:

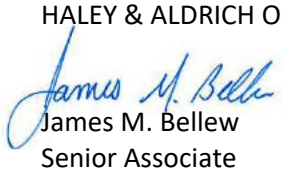
1. Language has been added to Section 3.6 to clarify that all wastes generated in the cleanup, demolition and remediation of all contaminated environmental media at this facility (NuHart East and West) will be disposed of as Listed hazardous waste unless the facility obtains a contained-in-determination from the NYSDEC to dispose of the waste as non-hazardous.
2. Section 3.4.9 has been added to note that underground storage tanks will be subject to soil and hazardous waste relations upon removal, which will be done as part of the remedial action.
3. Additional rinsate sampling requirements have been added to Section 3.5.1.
4. The Clean Debris rule has been added as an Alternate Treatment Standard for Hazardous Debris in Section 3.6
5. Reference to the Former NuHart Site facility, which includes NuHart East and West, has been revised throughout for clarity.
6. Cover page has been revised to include the NuHart East proposed Brownfield Cleanup Program Site number (program acceptance pending).
7. Introduction has been revised to state that NuHart East will also be evaluated for the presence of hazardous waste.
8. It is noted that detailed steps of the decontamination and rinsate sample collection activities must be approved by NYSDEC prior to implementation of the Closure Plan.
9. Section 3.4.4 has been revised to include raw materials.
10. Section 3.4.6 has been revised to include a site walkthrough.
11. It should be noted that the two phthalate impacted areas are sub-slab, not the slab itself, which were determined during geotechnical investigation. These areas will be addressed during the remedial action.
12. Language noting that all wastes generated in the facility (NuHart East and West) will be handled and disposed of as Listed hazardous wastes unless the facility obtains contained-in-determinations is included in Section 3.6.
13. Section 4.5 of the QAPP has been revised to include reference to the independent third-party validator. The third party validator resume has been added as an attachment to the QAPP.

QAPP Comments

1. Equations for accuracy and precision have been revised.

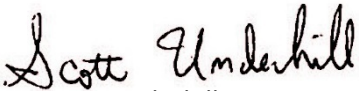
Please do not hesitate to contact us if there are any questions regarding this submittal or any other aspects of the project.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK



James M. Bellew
Senior Associate

Mari C. Conlon, P.G.
Project Manager



Scott A. Underhill, P.E.
Remedial Engineer

Cc:

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Bryan Wong (NYSDEC)	Email: yukyin.wong@dec.ny.gov

Certification

I, Scott A. Underhill, certify that I am currently a NYS registered Professional Engineer and that this RCRA Closure Plan was prepared in accordance with 6 NYCRR Part 373-2.7.

11 November 2021

Scott A. Underhill *Date*
NYS Professional Engineer #075332

I, James M. Bellew, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this RCRA Closure Plan was prepared in accordance with 6 NYCRR Part 373-2.7.

11 November 2021

James M. Bellew *Date*

List of Figures

List of Appendices

1. Introduction

On behalf of Dupont Street 1 LLC, Haley & Aldrich of New York (Haley & Aldrich) has prepared this Resource Conservation and Recovery Act (RCRA) Closure Plan for the Former NuHart Site located at 49 Dupont Street (see Figure 1) in the Greenpoint neighborhood of Brooklyn NY (Site). The Former NuHart Site is listed in the New York State Department of Environmental Conservation (NYSDEC) Inactive Hazardous Waste Registry as a Class 2 Site (Site No. 224136). This RCRA Closure Plan was prepared in accordance with DER-10 which is entitled "Technical Guidance for Site Investigation and Remediation" and dated May 2010 (DER-10).

The Former NuHart Site is separated into two portions. The western portion, referred to as NuHart West and identified as Section 3, Block 2487, Lots 1, 10, 12, 72, and 78 on the New York City tax map, is 49,000-square feet in area. The eastern portion, referred to as NuHart East and identified as Section 3, Block 2487, Lots 17, 18, 20, 21 and 57, is 36,000-square feet in area. Combined, the two portions comprise the Former NuHart Site which is currently owned by Dupont Street Developers LLC. The Former NuHart Site is bounded by Clay Street followed by industrial and manufacturing buildings to the north, Dupont Street followed by residential apartment buildings and a senior living facility to the south, residential buildings to the east and Franklin Street followed by the Greenpoint Playground to the west. The Site location is shown on Figure 1. Existing features are shown on Figure 2. The Former NuHart Site is currently improved with a vacant building.

The activities outlined in this plan address closure items located on the NuHart West portion of the Site where hazardous materials was handled. The NuHart East portion of the Site was primarily used for storage and shipping facility operations and closure activities are not planned in this area. However, NuHart East will be evaluated for the presence of hazardous waste and areas will be identified during a pre-closure facility walk through. Any hazardous waste identified will be appropriately handled and disposed. It is included herein as United States Environmental Protection Agency (USEPA) generator identification numbers are assigned to a facility and include all contiguous property owned and operated as part of the facility, as defined in 6NYCRR Part 370.2. The Former NuHart Site, under EPA ID number NYD001468354, includes NuHart East and West.

The Former NuHart Site is within a MX-8 Special Mixed-Use District (MX) and currently zoned M1-2/R6A, with the exception of Lot 57 which is not within the MX district. The MX was established in 1997 to encourage investment in, and enhance the vitality of, existing neighborhoods with mixed residential and industrial uses in close proximity and create expanded opportunities for new mixed-use communities. New residential and nonresidential uses (commercial, community facility and light industrial) can be developed as-of right and be located side by-side or within the same building. Pairing an M1 district with an R3 through R10 district (e.g., M1-2/R6) ensures a balanced variety of uses.

2. Background

2.1 CURRENT LAND USE

The Former NuHart Site facility is currently a vacant industrial building that was formerly operated by Harte & Co. operating as NuHart Plastics. The Site is listed in the NYSDEC Inactive Hazardous Waste Registry as a Class 2 Site (Site No. 224136). Historically, the facility was used for the manufacturing of plastic and vinyl products.

2.2 SITE HISTORY

The Former NuHart Site was developed since at least 1887 and was used for office, storage, shipping and receiving facility, metalworking, manufacturing of light fixtures, soaps, and water proofing materials, scrap metal facilities through 1950. From 1950 until 2004, the Site and associated manufacturing buildings to the east were used by the NuHart company for the production, storage, and shipping of plastic and vinyl products. Operations ceased in 2004 and the Site buildings have been vacant since that time. NuHart West was the primary operating area of the facility with NuHart East used for materials storage, shipping, a boiler room, a slitting room and a warehouse.

2.3 SURROUNDING LAND USE

The Former NuHart Site is located in a mixed-use residential, commercial, and industrial area. A senior living facility, Dupont Street Senior Housing, is located directly south of the property across Dupont Street. No public schools or hospitals are located within a 1,000-foot radius of the Site. The nearest schools are The NY League for Early Learning - The Greenpoint School located at 725 Leonard Street approximately 2,700 feet (ft) to the southeast, P.S. 31 Samuel F. Dupont – Elementary School, located at 75 Meserole Avenue approximately 3,400 ft southwest, and P.S. 34 Oliver H Perry - Elementary School located at 131 Norman Avenue approximately 4,100 ft to the south. The properties adjacent to the Site to the east are zoned residential use R6-B while the NuHart Registry site to the west is zoned M1-2/R6-A. Properties to the north across Clay Street are zoned mixed-use M1-2/R6 and properties to the south across Dupont Street are zoned residential R6-B.

2.4 SURROUNDING LAND USE HISTORY

The area surrounding the Former NuHart Site was historically used for dwellings and manufacturing/ industrial purposes from the late 1800s through the 1950s. From the 1950s through the early 2000s, industrial and manufacturing operations continued in the Greenpoint neighborhood with residential homes and apartment buildings surrounding the area. Industrial and manufacturing operations ceased in the early 2000s and the area is now predominantly residential.

2.5 GEOLOGY AND HYDROGEOLOGY

Native materials are present beneath the historic fill and are identified as unconsolidated Upper Pleistocene glacial deposits by the U.S. Geological Survey (USGS Open-File Report 92-76, 1995). Onsite, these deposits were described in the RI Report as sandy soil with some gravel to between 10 and 12 feet below grade, below which silt and clay intervals are present. The top of a nearly continuous thick clay

layer is found between 8 and 23 feet below grade. Groundwater is encountered at approximately 7 to 10 feet below grade (ft bgs) on NuHart West and at approximately 6 to 7 ft bgs on NuHart East. Groundwater generally flows to the southwest.

2.6 PREVIOUS INVESTIGATIONS AND REMEDIAL MEASURES

To date the following investigations have been performed at the subject Site:

- Underground Tank Closure Report (Advanced Site Restoration [ASR], July 2006)
- Phase II Site Assessment (ASR, March 2007)
- Phase II Investigation (Environmental Business Consultants [EBC], August 2007)
- Remedial Investigation Report (Ecosystems Strategies, July 2015)
- Remedial Investigation Report – Lot 57 (GZA Geoenvironmental [GZA], December 2016)
- Remedial Investigation report – (EBC, August 2018)

July 2006 – Underground Storage Tank Closure Report (ASR)

In this report, ASR documents the activities to close-in-place 17 underground storage tanks at the Former NuHart Site facility. Twelve (No. 6 – 17) of the 17 tanks are located on the Site. The tank details are as follows:

Tank No.	Content	Capacity (gal)
6	DiNP/DOP	6,000
7	DiNP/DOP	6,000
8	711 (Diundecyl Phthalate)	10,000
9	711 (Diundecyl Phthalate)	10,000
10	Extra Super Hecla Oil	5,000
11	Extra Super Hecla Oil	5,000
12	Extra Super Hecla Oil	5,000
13	Extra Super Hecla Oil	5,000
14	DiNP/DOP	10,000
15	DiNP/DOP	6,000
16	Plasticizer	6,000
17	Plasticizer	1,500

According to the ASR report, all of the tanks were opened, emptied, cleaned, and filled with foam. Documentation is provided as to the disposal of sludge and sediment from the tank bottoms.

March 2007 – Phase II Site Assessment (ASR)

ASR performed a series of investigations and remedial work in 2006 on the entire NuHart Manufacturing facility. This work included the installation of 41 soil borings, 17 monitoring wells, and ten product recovery wells. Of these, 25 borings, one monitoring well, and nine recovery wells were located on NuHart West. Two additional monitoring wells were located on the south side of the Clay Street sidewalk just north of NuHart West. Three monitoring wells were located on the east side of Franklin Avenue to the west of NuHart West. Two monitoring wells were located on the north side of the Dupont Street sidewalk to the south of NuHart West. Laboratory analysis of the soil samples included Volatile Organic Compounds (VOCs) and Semi-volatile Organic Compounds (SVOCs) by Environmental Protection

Agency (EPA) Method 8260 Stars and EPA Method 8270 Stars, respectively. Six of the monitoring wells contained floating product (liquid phthalate, Hecla oil or fuel oil) and were not sampled. The remaining 11 wells were sampled and analyzed for VOCs and SVOCs by EPA Method 8260 Stars and EPA Method 8270 Stars, respectively. The results from soil borings located on NuHart West identified elevated levels of VOCs in soil in the boring located closest to hecla oil tanks (TK 10 to 13) in this area of the property. Mercury was detected in one sample collected from soil boring SB-4. Phthalates, VOCs and/or SVOCs were reported above groundwater standards in all of the monitoring wells located on-site. No detections of VOCs or SVOCs above NYSDEC guidance values in the groundwater monitoring wells located across the adjacent streets. Free phase fuel oil was present in the recovery well located adjacent to Tanks TK12, TK13, TK15, and TK14.

August 2007 – Phase II Investigation (EBC)

In 2007 EBC performed a Phase II investigation of the Former NuHart Site. The purpose of this investigation was to establish the environmental condition of the entire property under the due diligence period as established under a buyers purchase agreement with the owner.

The investigation included the collection and analysis of 27 soil samples from 14 soil borings located on the property. Of these, four of the borings were located on NuHart West. On average, two soil samples were retained for analysis from each boring including one sample from the 0 to 4 ft interval and a second sample from the 8 to 12 ft interval. Sample analysis included VOCs (EPA 8260), SVOCs (8270), pesticides / polychlorinated biphenyls (PCBs; EPA 8081/8082) and Target Analyte List (TAL) metals. Although monitoring wells and soil gas implants were also installed during this investigation, they were not sampled as the agreement to purchase the property was terminated.

The report concluded that the fill materials contained elevated levels of metals and SVOCs above unrestricted soil criteria in the upper 5 ft of soil beneath NuHart West.

July 2015 – Remedial Investigation Report (Ecosystems Strategies)

Ecosystems Strategies Inc. (Ecosystem) performed a remedial investigation in 2015 on the Former NuHart Site. The portion of the investigation performed on NuHart West consisted of 37 soil borings, 12 monitoring wells, and four soil gas implants. Twelve additional soil borings and monitoring wells were located in the sidewalk to the north, west, and south of the warehouse building and 23 additional soil borings and monitoring wells were located in NuHart East.

Soil samples were retained from the 0 to 5, or 10 to 15 ft, or 8 to 12 ft, or 12 to 16 ft interval from 28 soil borings and from 11 monitoring well locations. Laboratory analysis was limited to VOCs, SVOCs and metals. The results identified elevated levels of Bis(2-ethylhexyl)phthalate in majority of the samples above Restricted-Residential Soil Cleanup Objectives (SCOs). The highest concentration of Bis(2-ethylhexyl)phthalate was reported in the boring SB-61 close to the western site boarder (2007 ASR Phase II reported free product plume area). Elevated levels of iron above Restricted-Residential SCOs were identified in all of the seven soils samples analyzed for TAL metals. Elevated levels of nickel above Restricted-Residential SCOs was identified in one of the samples. Two of the samples were identified with elevated levels of total chromium against Unrestricted Use SCOs.

The groundwater samples were analyzed for VOCs, SVOCs and metals. The results identified elevated concentrations of 1,1-Dichloroethane, 1,1-Dichloroethylene, acetone, cis-dichloroethene (DCE), trichloroethylene (TCE), trans-1,2-Dichloroethylene, Vinyl chloride in MW-8, Methylene chloride and Bis(2-ethylhexyl)phthalate in MW-22, and DCE, TCE and Di-n-octyl phthalate in MW-34. Elevated levels of iron and sodium were found in MW-22, MW-34 and MW-35.

Elevated levels of chlorinated compounds including 1,11,-Trichloroethane (TCA), TCE and tetrachloroethane (PCE), cis-DCE, and trans-DCE were reported in two of the four soil gas implants. Elevated PCE were detected in the balance two soil gas samples.

2.7 FACILITY DESIGN

Harte and Company, Inc. stored and used liquid plasticizers (phthalates) and lubricating oil in the manufacturing process. Liquid plasticizers stored included bis(2-ethylhexyl) phthalate, bis(2-ethylhexyl)adipate, and palatinol 711P phthalate. The manufacturing area was predominantly located in the western part of the building on the area identified as the Former NuHart Site (NYSDEC Site No. 224136).

The Former NuHart Site is underlain by sub-grade footings, utility networks, closed underground storage tanks (USTs), and piping and trench systems. Seventeen USTs and associated sub-grade pipe trenches were cleaned out and closed in place in 2006. The 17 USTs included eight containing plasticizers (phthalates), four containing "Super Hecla" oil (a heavy-weight machine lubricant), three containing fuel oil, and two chemical tanks containing methyl tert-butyl ketone and acetone. Previous interim remedial measures (IRMs) implemented under the spill program involved cleaning the floors of the factory, cleaning out the underground storage tanks, cleaning all sumps and pipe gallery wells, installing monitoring wells, and installing Light Non-aqueous Phase Liquid (LNAPL) collection wells and recovery equipment.

3. RCRA Closure Activities

3.1 RCRA OBJECTIVES AND RATIONALE

The objective of the RCRA Closure Plan is to ensure the facility requires no further maintenance or control for the preparation of the planned demolition activities. The general closure procedure for the Site will include the removal of oil/water separators, decontamination of the oil/water separator vaults, decontamination of the trenches and sumps containing liquid (former use of trenches and sumps is unknown but associated with former site operations), removal of satellite storage of LNAPL totes and solid waste drums, temporary decommissioning of LNAPL product recovery system and components, decontamination and removal of the above ground product/waste pipelines, decontamination and removal of the manufacturing processing equipment, decontamination of the slab of the entire western portion (registered as Class 2 site) of the building, and rehabilitation of the existing monitoring well network).

Upon completion of the above referenced closure activities, confirmatory rinsate samples will be collected and analyzed to ensure contaminants associated with former use of the Site are successfully removed to closure performance standards.

Additionally, upon approval of the final remedial design for the project (regarding subsurface contamination), the following below grade closure activities will be implemented: the removal of previously closed-in-place USTs, the removal of phthalate-stained concrete, and underground vaults containing waste liquid for removal and decontamination (former use of vaults is unknown but associated with former site operations.

Hazardous and non-hazardous waste generated during final closure of the Site shall be handled in accordance with applicable State and Federal regulations. Chemicals will be inventoried, segregated, and disposed in accordance with 6 NYCRR Part 373-3.7, and unlabeled chemicals will be analyzed to determine composition. Closure activities will be overseen by a Qualified Environmental Professional (QEP) under the supervision of the Remedial Engineer (RE).

3.2 GENERAL PROJECT INFORMATION

3.2.1 RCRA Remedial Engineer

The RE will review plans and submittals for this remedial project, contractor and subcontractor document submittals, and will confirm that plans and submittals are in compliance with this RCRA Closure Plan. Remedial documents, including contractor and subcontractor document submittals, will be submitted to the NYSDEC and New York State Department of Health (NYSDOH) in a timely manner and prior to the start of work associated with the RCRA Closure Plan.

The RE for this project will be Scott Underhill. The RE is a registered professional engineer licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program at the Site. The RE will send to the NYSDEC, by registered mail, a certification that the hazardous waste management unit has been closed in accordance with the specifications in the

approved closure plan. Documentation supporting the independent registered professional engineer's certification will be furnished to the NYSDEC upon request.

Under direction of the RE, the work of other contractors and subcontractors involved in aspects of the RCRA Closure Plan will be documented, including chemical inventory, decontamination of existing structures, confirmation sample collection, air monitoring, emergency spill response services, AST and former processing equipment removal, and management of waste transport and disposal.

The RE will review the work plans submitted by contractors and subcontractors for substantial conformance with this RCRA Closure Plan.

3.2.2 Closure Performance Standard

This RCRA Closure Plan is designed to ensure that the Site requires no further maintenance or controls following closure of the hazardous waste activities in accordance with 6 NYCRR 373-3.7(b). The contents of this RCRA Closure plan are structured to minimize threats to human health and the environment. To ensure adequate closure, process equipment associated with regulated waste activity will be decontaminated and disposed of off-site. Following decontamination, confirmatory rinsate samples will be collected and analyzed to ensure that no significant concentrations (i.e., those exceeding the closure performance standards) of hazardous contaminants remain. Rinsate samples will be collected in locations as shown in Figure 3. If necessary, decontamination procedures will be repeated until contaminant levels are reduced to within acceptable guidelines or standards. If contamination exceeding performance standards is found to exist, appropriate remedial actions in accordance with NYSDEC requirements will be taken.

When available and applicable, federal, state, and/or local environmental quality standards are to be used to determine the adequacy of closure. Where formal standards do not exist, informal closure performance guidelines are to be used. The determination of informal closure performance guidelines was made after assessment of the following:

1. Review of available federal, state, and local guidelines and remedial action levels.
2. Review of similar projects and past NYSDEC and NYSDOH guidance.
3. The contaminated media (e.g., concrete surfaces)
4. Migration potential of contaminants.
5. Toxicological data for contaminants (e.g., methods of exposure, National Institute for Occupational Safety and Health standards).
6. Anticipated future use of subject property.

Hazardous waste storage containers shall be handled and labeled as "hazardous waste" or "hazardous waste pending analysis" while awaiting laboratory results, if necessary. Liquid hazardous waste shall be stored within secondary containment and shipped with a hazardous waste manifest. Confirmatory sampling will be conducted as part of the closure activities to document that no hazardous materials remain on the surface of the concrete that can adversely impact public health or the environment. Sampling will include rinsate sampling of solid surfaces. The scope of sampling is detailed in the project specific Quality Assurance Project Plan (QAPP), which is included as Appendix A.

For rinsate sampling, the closure performance standard shall be the NY State Ground Water Effluent Limitations from Class GA Waters as found in 6NYCRR 703.6. If any rinsate sample exceeds the NY State Ground Water Effluent Limitations from Class GA Waters as found in 6NYCRR 703.6, then the corresponding process equipment or area shall be re-cleaned and subsequently resampled. This procedure shall be repeated until parameters are within the closure performance standards. Proposed rinsate confirmation sample locations are shown in Figure 3.

All contaminated equipment, structures and soils must be properly disposed of or decontaminated. All decontamination wastes shall be contained. Any waste remaining in piping, tanks, containers, vaults, oil/water separators, trenches, process equipment, and decontamination wastes require a hazardous waste determination per 6NYCRR Part 372.2(a). 6NYCRR Part 371.1(h) – Residues of Hazardous Waste in Empty Containers will be referenced to determine if a container is RCRA empty and does not require disposal as a hazardous waste.

3.3 SUMMARY OF RCRA CLOSURE AREAS AND PROCEDURES

The proposed above grade RCRA Action consists of the following elements:

1. **Oil/Water Separators**: Liquid contamination sampling and analysis, liquid removal and disposal, vaults decontamination, and rinsate sample collection.
2. **Liquid Phase Hydrocarbons (LPH) Satellite Accumulation and Drum Storage Areas**: Evacuation, transportation and disposal of excess LNAPL storage tote contents, transportation and disposal of 55-gallon drums, proper sealing of ground drains, rinse and clean floor areas, proper disposal of cleaning wastewater, and confirmation rinsate sample collection. Erection of a temporary weatherproof structure for future LNAPL storage. Decontamination of storage totes and transfer of totes to weatherproof structure and disposal of excess storage totes.
3. **LPH Recovery System**: Temporary decommissioning of LNAPL product recovery system, proper sealing of ground drains, rinse and clean floor areas, proper disposal of cleaning wastewater, and confirmation rinsate sample collection. Furnish and install temporary waterproof structure for reestablishment of LNAPL product recovery system and/or evaluation or an alternative method.
4. **Above Ground Product/Waste Pipelines**: Waste pipeline identification through an engineering company specialized in piping system identification will utilize spray paint of varying colors to identify piping that was/was not used for delivery product and/or waste. Confirmation rinsate sample collection upon decontamination of pipelines.
5. **Processing Equipment and Above Grade Storage Tanks (Vinyl Chloride Resin Tanks)**: Confirmation rinsate sample collection upon decontamination of processing equipment and vinyl chloride resin tanks.
6. **Surface Decontamination Area (Facility Slab)**: Concrete slab decontamination, wastewater disposal, and confirmation rinsate sample collection.
7. **Monitoring Well Rehabilitation**: Repair existing monitoring well network and install flush mount road boxes.

8. **Remaining Facility Demolition and Site Security**: Demolish the remainder of the facility and secure the Site with perimeter fencing to prevent entry from the public. Site fencing will be secured during all non-operational site hours.

The proposed RCRA actions do not address sub-grade structures that will be removed and decontaminated at a later date, under subgrade remedial actions to be to be proposed in the Remedial Action Work Plan Submission. With information available to date, it is not believed that the site stored hazardous materials in tanks. However, if hazardous material was stored it would have likely been stored in the southwest corner of NuHart West (Figure 2). Currently, LPH removed from the subsurface is now stored in totes located in the containment areas on the western and northern boundaries of NuHart West (Figure 2).

3.4 RCRA CLOSURE ACTIVTIES

The maximum volume of hazardous waste on Site during active operations is unknown. Currently, the maximum volume of hazardous waste on Site is approximately 1,000 gallons of recovered LPH.

3.4.1 Oil/Water Separators

Two oil/water separators are located within the facility. The approximate locations of the oil/water separators decontamination areas are shown on Figure 3. Closure and decontamination of the oil/water separators will be performed in accordance with the procedure described below:

1. Collect representative liquid and sediment, if present, samples from the oil/water separators for laboratory analysis in accordance with the sampling frequency and analytical parameters required by the proposed disposal facility. Sample analysis will likely include the following analysis: VOCs via target compound list (TCL) EPA Method 8260B, SVOCS using TCL EPA Method 8270D, and metals using TAL EPA Methods 6010B, and 7470A (mercury in water). Additional analysis may be required for compliance with disposal facility permits.
2. Remove liquid within the oil/water separator utilizing a liquid pump truck for proper off-Site disposal once waste approval has been obtained.
3. Plug influent/effluent lines to prevent release of rinse waters.
4. Remove solids/sediment from the base of each vault utilizing a Guzzler/Vactor for proper off-Site disposal once waste approval has been obtained.
5. Decontaminate the vaults utilizing hot water applied via power-washer and detergent and remove liquid utilizing a liquid pump truck for off-Site disposal. The detergent will consist of a nontoxic floor cleaner, such as Green Extreme or equivalent non-toxic floor cleaner.
6. Perform second and third wash/rinse utilizing hot water applied via power-washer and detergent to decontaminate the concrete vault walls and base.
7. Remove liquid within the vaults utilizing a liquid pump truck for proper off-Site disposal.
8. Collect and laboratory analyze a confirmation rinsate sample from the base of the oil/water separator from the third rinse. Confirmation rinsate samples to be collected and analyzed per the protocols written in **Section 3.5.1** in this Closure Plan.

9. Perform additional decontamination in accordance with the procedures outlined in **Section 3.6.1**.
10. The decontamination rinse waters will be containerized into a 275-gal plastic totes. Liquid within the totes will be sampled to determine proper disposal options.
11. Liquid and solid waste generated during decontamination of the underground vaults will be transported by licensed waste transporters to facilities approved to accept the waste.

3.4.2 LPH Satellite Accumulation and Drum/Tote Storage Areas

Two satellite accumulation areas within the facility were used to store 55-gallon steel drums (containing contaminated debris, soil cuttings and recovered LNAPL, all of which are considered hazardous materials) and 275-gallon plastic totes (containing recovered water with LNAPL). The approximate location of LPH recovery system satellite accumulation areas is shown on Figure 3. Closure and decontamination of the LPH recovery system satellite accumulation areas will be performed in accordance with the procedure described below:

1. Block/seal floor drains within immediate area of satellite accumulation area.
2. Liquid within the totes will be sampled to determine proper disposal options. Sampling shall be conducted in accordance procedure summarized in **Section 3.5.3**. Evacuate the contents of the LNAPL totes utilizing a Guzzler/Vactor for proper off-Site disposal once waste approval has been obtained.
3. Liquid and solids within the drums and totes will be sampled to determine proper disposal options. Sampling shall be conducted in accordance procedure summarized in **Section 3.5.3**. Load, transport and dispose of drums for proper off-Site disposal once waste approval has been obtained.
4. Decontaminate the 275-gallon plastic totes utilizing a hot power-washer and detergent and remove water/detergent. The detergent will consist of a non-toxic cleaner, such as Green Extreme or equivalent non-toxic cleaner. A decontamination pad will be properly installed to retain wash fluid generated from decontamination procedures.
5. Confirmation rinsate samples to be collected and analyzed one per tote as per the protocols written in **Section 3.5.1** in this Closure Plan.
6. Perform additional decontamination in accordance with the procedures outlined in **Section 3.6.1**.
7. Erect temporary weatherproof structure and transfer two totes for future LNAPL storage. Transport and dispose of excess LNAPL totes. The weatherproof structure will be secured via padlock attached to an immobile feature (such as a pin anchored into the slab) to avoid unauthorized tampering. The structure will be protected during demolition by high-visibility temporary construction fencing, tape and signage surrounding the perimeter.

3.4.3 LPH Recovery System

Two product recovery systems consisting of belt skimmers were installed within the facility. The

approximate location of product recovery systems is shown on Figure 2. Temporary closure and decontamination of the product recovery system areas will be performed in accordance with the procedure described below:

1. Furnish and install temporary housing for the storage of the LPH Recovery System.
2. Dismantle the LPH Recovery System components and remove for later reuse on-Site (if required) or disposed if not needed. Furnish and install temporary housing for reestablishment of LPH Recovery System or evaluation or an alternative method (upon approval form the NYSDEC).
3. Block/seal all floor drains within immediate area of product recovery system area.
4. Decontaminate the concrete slab utilizing a hot power-washer and detergent and remove water/detergent utilizing a ride-on floor scrubber with a rear squeegee. The detergent will consist of a non-toxic floor cleaner, such as Green Extreme or equivalent non-toxic floor cleaner prescribed for use with a ride-on floor scrubber. If necessary, a decontamination pad will be properly installed to retain wash fluid generated from decontamination procedures. Wastes accumulated within the ride-on floor scrubber, or the decontamination pad will be pumped into 275-gallon plastic totes. Following issuance of approval by the disposal facility, a liquid pump truck will be utilized to empty each of the 275-gallon plastic totes and transport the liquid to the facility for off-Site disposal. Liquid and solid waste generated during decontamination of the concrete slab areas will be transported by licensed waste transporters to facilities approved to accept the waste.
5. A second and third wash/rinse utilizing a hot water applied via power-washer and detergent, and ride-on floor scrubber will be performed to decontaminate the concrete floor.
6. Collect and laboratory analyze a confirmation rinsate sample from the slab from the third rinse. Confirmation rinsate samples are to be collected and analyzed per the protocols written in **Section 3.5.1.**
7. Perform additional decontamination in accordance with the procedures outlined in **Section 3.6**.
8. The decontamination rinse waters will be containerized into a 275-gal plastic totes. Liquid within the totes will be sampled to determine proper disposal options.
9. Following issuance of approval by the disposal facility, a liquid pump truck will be utilized to empty each of the 275-gallon plastic totes and transport the liquid to the facility for off-Site disposal.
10. Erect temporary weatherproof structure(s) and reinstall secondary containment and belt skimmer system, if required, and/or evaluation or an alternative method.

3.4.4 Above Ground Product/Waste Pipelines

Metal piping potentially utilized to deliver virgin product and waste within the building when the facility was operational is present throughout the facility. An engineering company specialized in piping system identification will utilize spray paint of varying colors to identify piping that was not used for delivery product, waste and/or raw materials throughout the Former NuHart Site facility. Any pipes not identified as a utility pipe, will be cut opened and sampled in accordance with the procedure summarized in **Section 3.5.2**.

Sections of pipes identified as containing contaminants of concern will be decontaminated in accordance with the procedure below.

1. Piping that has been identified as having contaminants of concern will be cut down to lengths no greater than 8 feet and stored on plastic sheeting within the building.
2. Decontaminate the interior of each length of pipe utilizing a hot power-washer and detergent with a long-handled brush. The water/soap generated by cleaning the interior of the pipes will be containerized within 275-gallon plastic totes. The detergent will consist of a non-toxic cleaner, such as Simple Green or equivalent non-toxic cleaner.
3. Perform additional decontamination of the interior of the pipes (see procedure above) as needed in accordance with the procedure outlined in **Section 3.6.2**.
4. The decontamination rinse waters will be containerized into a 275-gal plastic totes. Liquid within the totes will be sampled to determine proper disposal options. Following issuance of approval by the disposal facility, a liquid pump truck will be utilized to empty each of the 275-gallon plastic totes and transport the liquid to the facility for off-Site disposal.
5. Decontaminated metal pipe will be disposed at a metal recycling facility.

Decontamination procedures will take place in a 50 by 50 ft containment pad. The decontamination pad will be water tight and pitched in a way for water to accumulate and be evacuated via a sump pump. The base and walls of the containment pad will be lined with 40-mil liner. Locations and staging of the decontamination containment pad and a storage area for materials identified as hazardous or non-hazardous waste will be determined prior to implementation of the work in this Closure Plan and subject to NYSDEC approval.

3.4.5 Processing and Above Grade Storage Equipment

Several pieces of metal equipment are present within the facility that do not have easily identifiable former uses. The interior of each piece of equipment as well as three approximately 3,000 gallon tanks containing virgin material (vinyl chloride resin) will be accessed by cutting a hole in the side. The volume of the remaining contents since cessation of site operations is unknown. In addition, two approximately 3,000 gallons storage tanks located on the roof of NuHart West reportedly contained dry material during operations. The volume of the remaining contents since cessation of site operations is unknown.

Pieces of equipment identified as containing contaminants of concern will be decontaminated in accordance with the procedure below.

1. Decontaminate the interior of each piece of equipment utilizing a hot power-washer and detergent. The water/soap generated by cleaning the interior of the pipes will be containerized within 275-gallon plastic totes. The detergent will consist of a non-toxic cleaner, such as Simple Green (MSDS attached) or equivalent non-toxic cleaner.
2. Where hardened material is present, utilize manual tooling to physically remove sections of contaminates present. Manual tooling may include non-sparking materials such as chisels, jackhammers etc.
3. Perform additional decontamination of the interior of the pipes as needed in accordance with the procedure outlined in **Section 3.6.2**.

4. The decontamination rinse waters will be containerized into a 275-gal plastic totes. Liquid within the totes will be sampled to determine proper disposal options.
5. Following issuance of approval by the disposal facility, a liquid pump truck will be utilized to empty each of the 275-gallon plastic totes and transport the liquid to the facility for off-Site disposal. Liquid and solid waste generated during decontamination of the concrete slab areas will be transported by licensed waste transporters to facilities approved to accept the waste.
6. Decontaminated metal associated with each piece of equipment will be disposed at a local metal recycling facility.

Decontamination will be completed as discussed in Section 3.4.4.

3.4.6 Surface Decontamination Area (Facility Slab)

Sections of the facility floor will be cleaned under this closure plan. The sections include the entire Class 2 portion of the building, and any areas with visible staining. Closure and decontamination of the concrete floor/slab will be performed in accordance with the procedure described below:

1. Decontaminate the concrete slab utilizing a hot power-washer and detergent and remove water/detergent utilizing a ride-on floor scrubber with a rear squeegee. The detergent will consist of a non-toxic floor cleaner, such as Green Extreme or equivalent non-toxic floor cleaner prescribed for use with a ride on floor scrubber. Wastes accumulated within the ride-on floor scrubber will be pumped into 275-gallon plastic totes.
2. A second and third wash/rinse utilizing a hot water applied via power-washer and detergent, and ride-on floor scrubber will be performed to decontaminate the concrete floor.
3. Collect and laboratory analyze a confirmation rinsate sample from the slab from the third rinse. Collect and laboratory analyze a confirmation rinsate sample from the slab from the third rinse. Confirmation rinsate samples to be collected and analyzed per the protocols written in **Section 3.5.1**.
4. Perform additional decontamination in accordance with the procedures outlined in **Section 3.6.1**. NYSDEC will be notified in order to perform a facility walk through and identify any additional locations to collect rinsate samples from the Former NuHart Site (both NuHart East and West) after structures have been removed and the concrete has been decontaminated/power washed.
5. To determine disposal options, liquid within the totes will be sampled in accordance procedure summarized in **Section 3.5.3**.
6. Following issuance of approval by the disposal facility, a liquid pump truck will be utilized to empty each of the 275-gallon plastic totes and transport the liquid to the facility for off-Site disposal. All liquid and solid waste generated during decontamination of the concrete slab areas will be transported by licensed waste transporters to facilities approved to accept the waste.

Additional areas identified in the field during closure activities will be included in the RCRA Closure Report.

3.4.7 Monitoring Well Rehabilitation

Located on NuHart West, 12 monitoring wells were previously installed during site investigations (see Figure 3). Currently, the monitoring wells are need repairs such as installing missing flush mount and road boxes and adding sealant to ensure proper sealing. Rehabilitation of the monitoring wells will be performed in accordance with the followings.

1. Inspect each of the monitoring wells and make notes on any required repairs.
2. If the road box is missing or damaged, re-install a new one.
3. If the flush mount is missing or damaged, re-install a new one.
4. If the well is not properly sealed, bentonite pellet sealant will be added to the annular space. Bentonite will be slowly poured into the annular space in the existing monitoring wells or by tremie pipe flushed into place with portable water.
5. If the monitoring well is no longer functioning, the monitoring well shall be abandoned properly and reestablished.
6. Re-development of the rehabilitated wells. Monitoring well development will be conducted within 24 hours from the well rehabilitation.

3.4.8 Facility Demolition and Site Security

Once decontamination is completed on the Site, the facility will be demolished in order to facilitate execution of a remedial action that is not included with this Closure Plan and will be presented in a separate report cover. Some of the interior elements identified above notably Above Grade Storage Tanks and Piping, are intertwined within the existing structure and penetrate through columns and/or the roof. The proposed RCRA actions do not address sub-grade structures, which will be removed and decontaminated at a later date under a separate, future Remedial Action Work Plan. Demolition work will include removal of interior walls but will not include demolition of the building slab, which will be addressed under remedial action work plans as per NYSDEC requirements.

Once the facility is demolished, the Site will be secured by a sitewide fence to prevent access from the public. Site fence will be secured and locked during non-operational hours.

3.4.9 Underground Storage Tank Removal

Procedures for underground storage tank removal will be included in the remedial action work plans for NuHart East and West. It is noted that while the tanks are no longer regulated under CBS program, they become wastes when they are excavated for disposal, which means they are subject to the solid and hazardous waste regulations. Therefore, as potentially listed hazardous wastes they will also require a contained-in-determination when they are removed.

3.5 SAMPLING PROCEDURE AND PROTOCOLS

3.5.1 Confirmation Rinsate Samples

Confirmation rinsate samples will be collected in accordance with the Confirmation Rinsate Samples Collection Protocol included as Attachment B. Confirmation rinsate samples will be analyzed for VOCs via TCL EPA Method 8260B, SVOCs using TCL EPA Method 8270D, and metals using TAL EPA Methods 6010B, and 7470A (mercury in water). Rinsate samples will also be analyzed for the following hazardous materials reportedly used at the facility: U002 (acetone), U057 (cyclohexanone), U107 (di-n-octyl phthalate), U159 (methyl ethyl ketone), U161 (methyl isobutyl ketone), U213 (tetrahydrofuran), U220 (benzene).

Rinsate sample results should be compared to NY State Ground Water Effluent Limitations from Class GA Waters as found in 6 NYCRR 703.6. Materials will be stored and sampling completed (where possible) in a temporary containment area with both a flexible boom and bentonite clay, to ensure no leaks from the temporary containment area during sampling. Additional protocols for rinsate sampling are included in Appendix B.

3.5.2 Liquid Samples for Disposal

Liquid within the totes will be sampled based on the disposal facility's requirements and may include the following analysis: VOCs via TC) EPA Method 8260B, SVOCS using TCL EPA Method 8270D, and metals using TAL EPA Methods 6010B, and 7470A (mercury in water).

3.5.3 Solid Waste Samples for Disposal

Excess solids will be sampled to determine proper disposal at a sampling frequency at one sample set per each 500 cubic yards (750 tons) to compliance with most TDSFs sampling protocols. Each set of samples will comprise of one discrete sample for VOCs analysis and one 5-point composite sample. The soils will be sampled based on a disposal facility's requirements and may include the following analytes: TCLP VOCs via TCL EPA Method 8260B, TCLP SVOCS using TCL EPA Method 8270D, and TCLP RCRA metals using TAL EPA Methods 6010B, and 7470A (mercury in water).

3.6 DISPOSAL FACILITIES

All wastes generated in the cleanup, demolition and remediation of all contaminated environmental media at this facility (NuHart East and West) has to be disposed of as listed hazardous waste unless the facility obtains a contained-in-determination from the NYSDEC to dispose of the waste as non-hazardous. The final recycling and /or disposal facilities have not been identified. Once these facilities have been selected, the NYSDEC will be notified of the proposed facilities and provided copies of the laboratory reports for the samples collected to arrange disposal.

The Clean Debris rule is an Alternate Treatment Standard for Hazardous Debris (6NYCRR Part 376.4 (g)) which may be pursued to decontaminate and dispose of hazardous waste concrete. Treatment requirements include the following:

1. Facility to decontaminate/power wash concrete slab using a minimum pressure level to remove at least 0.6 cm from the concrete surface. The Closure Plan must include equipment specifications.
2. Decontamination/power wash waste must be disposed of as hazardous waste.
3. Concrete can be disposed of as non-hazardous after a Professional Engineer visually inspects the slab and certifies that the concrete surface has been removed, there are no more stained, rusted, and cracked areas or that these areas have been disposed of as hazardous waste. A contained-in-determination from the NYSDEC is not required even if the waste would have been Listed.
4. During the demolition phase, soil and fill material must be cleaned from the underside of the concrete slab sections before the slab can be disposed of as non-hazardous, otherwise the concrete slab will have to be disposed of as hazardous waste.

3.7 DECONTAMINATION PROCEDURES

After the third rinse of the areas that require decontamination collect confirmation rinsate samples per the sampling protocol outlined in **Section 3.5.1.** If the laboratory results of the confirmation rinsate sample do not meet NY State Ground Water Effluent Limitations from Class GA Waters as found in 6NYCRR 703.6, additional decontamination and rinsate sampling will be repeated until results do meet. Additional decontamination of the interior of the equipment will be implemented utilizing a hot power-washer and detergent as needed. these standards.

4. Quality Assurance and Quality Control

Quality Assurance/Quality Control (QA/QC) procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process.

QA/QC procedures are defined in the QAPP included in Appendix A.

5. Project Organization

A project team for the Site has been created, based on qualifications and experience, with personnel suited for successful completion of the project.

The NYSDEC Case Manager will be Bryan Wong. The Case Manager will be responsible for overseeing the successful completion of the project work and adherence to the Closure Plan on behalf of NYSDEC.

The NYSDOH Case Manager will be Stephen Lawrence. The Case Manager will be responsible for overseeing the successful completion of the project work and adherence to the work plan on behalf of NYSDEC.

Scott Underhill P.E. will be the RE for this work. Mr. Underhill is a professional engineer licensed by the State of New York. The RE will have primary direct responsibility for implementation of the overall remedial program for the Site. The RE will certify that the remedial activities were observed by a qualified environmental professional(s) under his supervision and that the remediation requirements set forth in the RCRA Closure Plan and any other relevant provisions of ECL 27-1419 have been achieved in conformance with the plan.

James Bellew will be the QEP and Principal in Charge for this work. Mr. Bellew has 15 years of experience in investigation and remediation in New York and throughout the eastern United States. In this role, Mr. Bellew will be responsible for the overall completion of each task as per requirements outlined in this work plan and in accordance with the DER-10 guidance.

Mari Conlon P.G. will be the Project Manager for this work. In this role, Ms. Conlon will manage the day-to-day tasks including coordination and supervision of field engineers and scientists, adherence to the work plan and oversight of project schedule. As the Project Manager, Ms. Conlon will be responsible for communications with the NYSDEC Case Manager regarding project status, schedule, issues, and updates for project work.

Die Fu, P.E. will be the Assistant Project Manager for this work. Ms. Fu will act as the Quality Assurance Officer (QAO). The QAO will assure the application and effectiveness of the QAPP by the analytical laboratory and the project staff, provide input to field team as to corrective actions that may be required as a result of the above-mentioned evaluations and prepare and/or review data validation and audit reports.

Sarah Commisso will be the field geologist responsible for implementing the field effort for this work. Ms. Commisso's responsibilities will include implementing the work plan activities and directing the subcontractors to ensure successful completion of field activities.

The analytical laboratory will be Alpha Analytical of Westborough, MA, a New York Environmental Laboratory Approval Program (ELAP) certified laboratory. Alpha Analytical will be responsible for analyzing samples as per the analyses and methods identified in Section 3.

6. Health and Safety

6.1 HEALTH AND SAFETY PLAN

A Site-specific Health and Safety Plan (HASP) will be prepared in accordance with NYSDEC and NYSDOH guidelines. The HASP will include a description of health and safety protocols to be followed by Haley & Aldrich field staff during implementation of the remedy, including monitoring within the work area, along with response actions should impacts be observed. The HASP will be developed in accordance with Occupational Health and Safety Administration (OSHA) 40 CFR Part 1910.120 regulatory requirements for use by Haley & Aldrich field staff that will work at the Site during planned activities. Contractors or other personnel who perform work at the Site are required to develop their own health and safety plan and procedures of comparable or higher content for their respective personnel in accordance with relevant OSHA regulatory requirements for work at hazardous waste sites as well as general industry as applicable based on the nature of work being performed.

6.2 COMMUNITY AIR MONITORING PLAN

The proposed investigation/remediation work will be completed both indoors and outdoors at the Site. Where intrusive operations are planned, community air monitoring will be implemented to protect the downwind receptors. A Haley & Aldrich representative will continually monitor the breathing air in the vicinity of the immediate work area using a PID to measure total VOCs in air at concentrations as low as 1 part per million (ppm). The air in the work zone also will be monitored for visible dust generation. Figure 2 shows potential locations of fixed stations whereby station locations will be adjusted to have at least one upwind and two downwind stations during demolition work. Additional stations may be employed upon consultation with the NYSDEC and NYSDOH.

The Community Air Monitoring Plan (CAMP) will require continuous real-time monitoring for particulate matter less than 10 micrometers in size (PM-10) and VOCs at the downwind perimeters when ground intrusive activities, including soil/waste excavation, soil handling, test pit excavation and/or trenching, are in progress at the Site. The CAMP will be in accordance with DER-10 Appendix 1A New York State Department of Health Generic Community Air Monitoring Plan and Appendix 1B Fugitive Dust and Particulate Monitoring which are included as Appendix C. Upwind background concentrations will be determined each day prior to commencement of intrusive work. The CAMP aims to provide protection for residents in the designated work area and residents and sensitive receptors of the downwind community from potential airborne releases that directly result from the remedial construction activities conducted at the Site. Adherence to the monitoring action levels specified in the CAMP requires monitoring and, when necessary, corrective actions to abate emissions, and/or shutdown work. The CAMP also helps to confirm that work activities do not spread contamination off-Site through the air. In addition, visual and olfactory observations will be made to keep dust and odors at a minimum around the work areas. VOCs will be monitored using a PID, and particulates will be monitored using TSI DustTrak Environmental Monitor (DustTrak) equipment. Readings will be recorded every 15-minutes at the Site by field personnel.

The following actions will be taken based on monitoring of particulate concentrations:

- If the downwind PM-10 particulate level is 100 µg/m^3 greater than background for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 µg/m^3 above the background level, work will be stopped, the NYSDEC and NYSDOH will be notified and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

The following actions will be taken based on VOC monitoring:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, the NYSDEC and NYSDOH will be notified and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less, but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down and the NYSDEC and NYSDOH will be notified.

6.3 ODOR, DUST AND NUISANCE CONTROL PLAN

Dust, odor, and nuisance controls will be accomplished by the remediation contractor as described in this section.

Odor Control

This odor control plan is capable of controlling emissions of nuisance odors off-Site. Specific odor control methods to be used if needed will include application of foam suppressants or tarps over the odor or VOC source areas. If nuisance odors are identified, work will be halted, and the source of odors will be identified and corrected. Work will not resume until nuisance odors have been abated. The NYSDEC and NYSDOH will be notified of odor events and of other complaints about the project. Implementation of odor controls is the responsibility of the Contractor. Monitoring odor emission, including the halt of work, will be the responsibility of the RE or his/her designated representative.

Necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-Site disposal; (b) use of chemical odorants in spray or misting systems; and (c) use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, the NYSDEC and NYSDOH will be notified and, upon approval, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

Dust Control

A dust suppression plan, in accordance with Appendix 1B Fugitive Dust and Particulate Monitoring from DER-10, that addresses dust management during ground-intrusive on-Site work will include, at a minimum: (a) use of a dedicated water distribution system, on-Site water truck for road wetting, or an alternate source with suitable supply and pressure for use in dust control; (b) gravel used for on-Site roads to provide a clean and dust-free road surface; and (c) on-Site roads will be limited in total area to minimize the area required for water spraying.

Other Nuisances

A plan for rodent control will be developed and used by the remediation contractor during Site preparation (including clearing and grubbing) and during remedial work. A plan for noise control will be developed and used by the remediation contractor during Site preparation and remedial work and will conform, at a minimum, to the NYCDEP noise control standards.

7. Reporting

7.1 DAILY REPORTING

Daily reports will be submitted to NYSDEC and NYSDOH summarizing the Site activities completed during the RCRA closure activities. Daily reports will include a Site figure, a description of Site activities, a photo log and CAMP data. Daily reports will be submitted to the NYSDEC and NYSDOH case managers the following morning after Site work is completed.

7.2 SUMMARY REPORTING

In accordance with 6 NYCRR 373-3.7(f)(1), within 60 days of completion of closure of the former hazardous waste storage areas, the owner/operator will submit to NYSDEC by registered mail, a certification that the former hazardous waste storage areas were closed in accordance with the specifications of the approved Closure Plan. The owner/operator of the site and an independent Professional Engineer registered in the State of New York will sign the certification. Documentation supporting the certification will be provided in a Certification Report submitted with the certification. The report will include the following:

a. Text describing closure activities
b. Tables and figures summarizing the sampling and analytical data
c. Appendices containing, at a minimum:
    i. Meeting notes from the pre-closure meeting
    ii. Daily reports
    iii. Photographs and logbook
    iv. Laboratory analytical results including QA/QC documentation
    v. Documentation of all stages of waste generation, handling, and disposal
    vi. An electronic copy of the deliverables package in PDF format

8. Schedule

Upon approval of the RCRA Closure Plan, the Site owner will implement closure activities described in this plan in accordance with the following schedule. If the laboratory results of the confirmatory samples indicate additional decontamination is required, the schedule will be updated accordingly.

ANTICIPATED CLOSURE ACTIVITIES SCHEDULE			
TASK	START DATE	END DATE	Cost Estimate
RCRA Closure Plan / QAPP Submission	November 2021		N/A
30-Day Public Comment Period	November 2021	December 2021	N/A
DEC Approval of RCRA Closure Plan	January 2022		N/A
Closure of Oil/Water Separators	January 2022	February 2022	$10,000
Closure of LNAPL Satellite Accumulation Areas	January 2022	March 2022	$25,000
Closure of LPH Recovery System Operation Areas	January 2022	March 2022	$50,000
Closure of Above Ground Product/Waste Pipelines	January 2022	March 2022	$100,000
Closure of Processing Equipment and Above Ground Storage Tanks	January 2022	March 2022	$125,000
Decontamination of Facility Slab	January 2022	March 2022	$30,000
Monitoring Well Rehabilitation	January 2022	February 2022	$35,000
Demolition of Remaining Structure	April 2022	May 2022	TBD
RCRA Closure Report Submission	April 2022	May 2022	$15,000

Notes:

1. The NYSDEC will be notified at least three days prior to the start of any site work outlined in this closure plan. If necessary, a pre-closure meeting will be held to address closure requirements in detail.
2. A notice in a local newspaper will be issued by facility ownership's team, providing the public with the opportunity to submit written comments on this RCRA Closure Plan and to request modifications to the plan within 30 days of the date of the public notice. The NYSDEC can only approve the RCRA Closure Plan after public comments have been acceptably addressed.
3. Post-closure activities will be performed and monitored under the State Superfund Program (SSF). As per the SSF Record of Decision dated March 2019, contaminated soil will be excavated, and systems will be installed for long term soil and groundwater remediation.

In accordance with 6 NYCRR Part 373-3.7 (d) and the schedule above, implementation of the Closure Plan shall begin within 30 days following the receipt of approval of the Closure Plan by NYSDEC. Final closure shall be completed within 180 days after approval of Closure Plan by NYSDEC. Within 60 days of final closure, the closure certification shall be sent to the NYSDEC that the Site has been closed in accordance with the specifications of the approved closure plan. Notification of partial closure and final closure must be made to the NYSDEC in accordance with 373-3.7 (c)(4). The notification must be made at least 45 days prior to the date on which the owner or operator expects to begin final closure of a facility with only tanks, container storage, or incinerator units.

References

1. Phase I Environmental Site Assessment. 22-32 Clay Street & 67-93 Dupont Street, Brooklyn, New York. Prepared for 1 Dupont Realty LLC by Haley & Aldrich of New York. July 2021

2. Underground Storage Tank Closure Report. Prepared for 49 Dupont Realty Corporation by Advanced Site Restoration, LLC (ASR). July 2006

3. Phase II Site Assessment. Prepared for 49 Dupont Realty Corporation by Advanced Site Restoration, LLC (ASR). March 2007

4. Phase II Investigation. Prepared for Keren Star Management by Environmental Business Consultants (EBC). August 2007

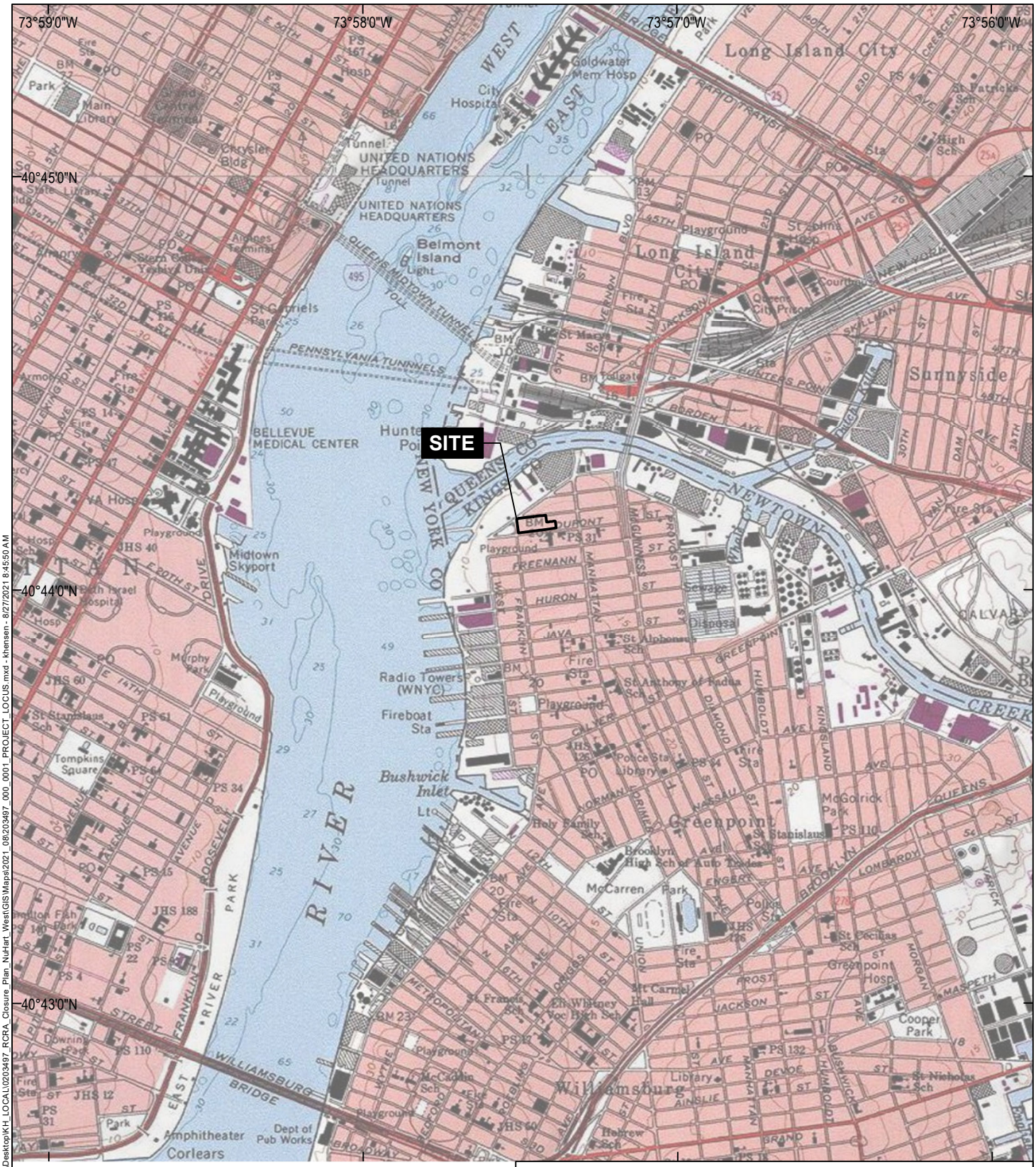
5. Remedial Investigation Report. Prepared for Dupont Street Developers LLC by Ecosystems Strategies. July 2015

6. Remedial Investigation Report. Prepared for Dupont Street Developers by GZA. December 2016.

7. Remedial Investigation Report. Prepared for Dupont Realty NY LLC by Environmental Business Consultants (EBC). August 2018.

8. Supplemental Remedial Investigation Work Plan/Interim Plan/Interim Remedial Measure Work Plan Former NuHart East Site. Prepared for Dupont Street 1 LLC by Haley & Aldrich. July 202

FIGURES



GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\0203497_RCRA_Closure_Plan_NuHart_West\GIS\Maps\2021_08\203497_000_0001_PROJECT_LOCUS.mxd - khensen - 8/27/2021 8:45:50 AM

MAP SOURCE: USGS
SITE COORDINATES: 40°44'09"N, 73°57'26"W

HALEY ALDRICH

RCRA CLOSURE PLAN
FORMER NUHART PLASTICS SITE
NUHART WEST
49 DUPONT STREET
BROOKLYN, NEW YORK

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
AUGUST 2021

FIGURE 1

LEGEND

- MEASURE TO DIVERT WATER
- LIQUID PHASE HYDROCARBONS (LPH) RECOVERY WELL DECONTAMINATION AREA
- SUB-SLAB PHTHALATE IMPACTS AREA
- VINYL CHLORIDE RESIN TANK
- OIL/WATER SEPARATOR DECONTAMINATION AREA
- LPH TOTE STORAGE DECONTAMINATION AREA
- DRUM STORAGE DECONTAMINATION AREA
- SURFACE DECONTAMINATION AREA
- UNDERGROUND VAULT
- BELOW GRADE LOADING BAY
- PROCESSING EQUIPMENT
- UNDERGROUND STORAGE TANK
- PARCEL BOUNDARY
- SITE BOUNDARY
- POTENTIAL HAZARDOUS WASTE STORAGE AREA (FROM FORMER OPERATIONS)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY

N

0 60 120

SCALE IN FEET

HALEY ALDRICH

RCRA CLOSURE PLAN
FORMER NUHART PLASTICS SITE
NUHART WEST
49 DUPONT STREET
BROOKLYN, NEW YORK

SITE FEATURES CLOSURE PLAN

OCTOBER 2021

FIGURE 2

LEGEND

- RINSATE SAMPLE
- LIQUID PHASE HYDROCARBONS (LPH) RECOVERY WELL DECONTAMINATION AREA
- SUB-SLAB PHTHALATE IMPACTS AREA
- VINYL CHLORIDE RESIN TANK
- OIL/WATER SEPARATOR DECONTAMINATION AREA
- LPH TOTE STORAGE DECONTAMINATION
- DRUM STORAGE DECONTAMINATION AREA
- SURFACE DECONTAMINATION AREA
- UNDERGROUND VAULT
- BELOW GRADE LOADING BAY
- PROCESSING EQUIPMENT
- UNDERGROUND STORAGE TANK
- PARCEL BOUNDARY
- SITE BOUNDARY
- POTENTIAL HAZARDOUS WASTE STORAGE AREA (FROM FORMER OPERATIONS)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
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0 60 120

SCALE IN FEET

HALEY ALDRICH

RCRA CLOSURE PLAN
FORMER NUHART PLASTICS SITE
NUHART WEST
49 DUPONT STREET
BROOKLYN, NEW YORK

RINSATE SAMPLE COLLECTION LOCATIONS

OCTOBER 2021

FIGURE 3

G:\C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\0203497_RCRA_Closure_Plan_NuHart_WestGIS\Maps\2021_08\203497_000_0003_RINSANTE_SAMPLE_COLLECTION_LOCATIONS.mxd - khensen - 10/5/2021 11:11:16 AM

APPENDIX A

Quality Assurance Project Plan

HALEY ALDRICH

www.haleyaldrich.com

QUALITY ASSURANCE PROJECT PLAN
FORMER NUHART PLASTICS SITE
NUHART WEST
49 DUPONT ST
BROOKLYN, NEW YORK

by
Haley & Aldrich of New York
New York, New York

for
New York State Department of Environmental Conservation
Albany, New York

File No. 002
November 2021

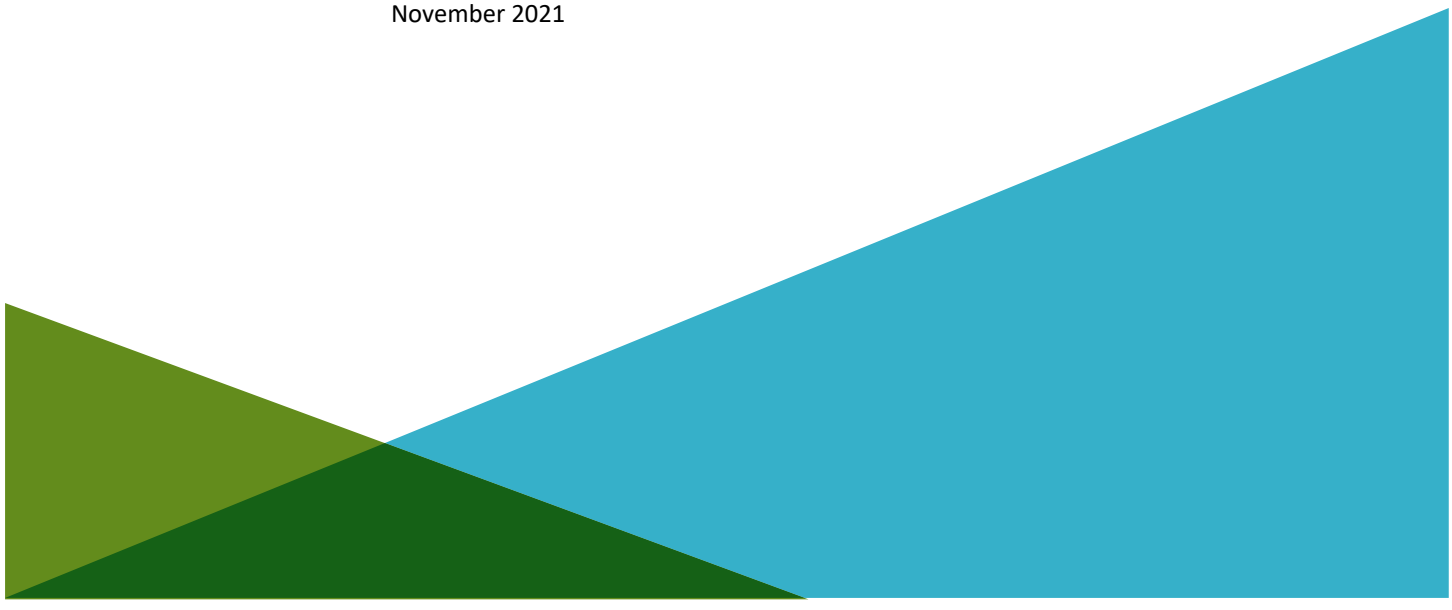

Table of Contents

List of Attachments

List of Tables

1. Introduction

This Quality Assurance Project Plan (QAPP) has been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by the approved RCRA Closure Plan.

To ensure the successful completion of the project each individual responsible for a given component of the project must be aware of the quality assurance objectives of his / her particular work and of the overall project. The Remedial Engineer, Mr. Scott A. Underhill, P.E. will certify that the remedial activities were observed by a qualified environmental professional(s) under his supervision and that the remediation requirements set forth in the RCRA Closure Plan and any other relevant provisions of ECL 27-1419 have been achieved in conformance with the plan.

James Bellew will be the Qualified Environmental Professional (QEP) and Principal in Charge for this work. Mr. Bellew will be responsible for the overall completion of each task as per requirements outlined in this work plan and in accordance with the DER-10 guidance.

Mari Cate Conlon will serve as the Project Manager and will be responsible for implementation of the RCRA Closure Plan and coordination with subcontractors.

Die Fu, P.E., will be the Assistance Project Manager and Quality Assurance Office (QAO) for the project conducting the following activities:

- conduct periodic field and sampling audits;
- interface with the analytical laboratory to resolve problems; and
- interface with the data validator and/or the preparer of the DUSR to resolve problems.

Reporting directly to the Project Manager and QAO will be the field geologist, Sarah Commisso, who will serve as the environmental professional who will record observations, direct the subcontractors and be responsible for the collection and handling of all samples.

1.1 ORGANIZATION

Project quality assurance (QA) will be maintained under the direction of the Project Manager, in accordance with this QAPP. Quality contorl for specific tasks will be the responsibility of the individuals and organizations listed below, under the direction and coordination of the Project Manager.

General Responsibility	Scope of Work	Responsibility of Quality Control
Field Operations	Supervision of field crew; sample collection and handling.	Sarah Commisso
Project Manager	Implementation of the investigation according to the WP.	Mari Cate Conlon, P.G.
Laboratory Analysis	Analysis of soil/liquid samples by NYSDEC ASP methods Laboratory.	Alpha Analytical Laboratories
Data Review	Review for completeness and compliance	3rd party validation

2. Background

2.1 ORGANIZATION

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative Statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan. In this plan, QA and Quality Control QC are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.
- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

2.2 QA/QC REQUIREMENTS FOR ANALYTICAL LABORATORY

Samples will be analyzed by a New York State Department of Health (NYSDOH) certified laboratory that is certified in the appropriate categories. Data generated from the laboratory will be used to evaluate contaminants such as volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals in rinsate samples following decontamination of several areas of the Former NuHart Plastic Manufacturing Site. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. Current laboratory reporting limits will be used for the data generated by the analytical laboratory for this project, and whenever possible, the reporting limits will be sufficiently lower than the regulatory limits. The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this program as described in the work plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

2.2.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of calibration curves and initial calibration response factors must be consistent with method requirements presented in the most recent version of NYSDEC ASP 07/2005.

2.2.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hours by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

2.2.3 Field Blank

Internal quality control checks will include analysis of field blanks to validate equipment cleanliness. Whenever possible, dedicated equipment will be employed to reduce the possibility of cross-contamination of samples.

2.2.4 Trip Blanks

Trip blanks samples will be prepared by the project laboratory using ASTM Type II or equivalent water placed within pre-cleaned 40 milliliter (ml) VOC vials equipped with Teflon septa. Trip blanks will accompany each sample delivery group (SDG) of environmental samples collected for analysis of VOCs.

Trip blank samples will be placed in each cooler that stores and transports project samples that are to be analyzed for VOCs.

2.2.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NYSDEC ASP protocols for samples falling within the quantification limits without dilution.

2.3 ACCURACY

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%REC = \frac{SSR - SR^1}{SA} x\ 100$$

Where:
SSR = Spike sample results
SR = sample results
SA = spike added from spiking mix

2.4 PRECISION

Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the results. Precision is assessed by means of duplicate/replicate sample analyses.

Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formular:

$$RPD = \frac{D^1 - D^2}{(D^1 + D^2)/2} x\ 100$$

Where:

RPD = relative precent different
D^1 = first sample value
D^2 = second sample value (duplicate)

2.5 SENSITIVITY

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by NYSDEC ASP and to meet all site-specific standards, criteria, and guidance values (SGCs) established for this project.

2.6 REPRESENTATIVENESS

Representativeness is a measure of the relationship of an individual sample taken from a particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Remedial Investigation Work Plan.

2.7 COMPLETENESS

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers, and should be between 70% and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP Category B reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory's ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).
6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

2.8 CUSTODY PROCEDURES

Field personnel will keep written records of field activities on applicable preprinted field forms or in a bound field notebook to record data collecting activities. These records will be written legibly in ink and

will contain pertinent field data and observations. Entry errors or changes will be crossed out with a single line, dated and initialed by the person making the correction. Field forms and notebooks will be periodically reviewed by the Field Coordinator.

The beginning of each entry in the logbook or preprinted field form will contain the following information:

- Date
- Start time
- Weather
- Names of field personnel (including subcontractors)
- Level of personal protection used at the Site
- Names of all visitors and the purpose of their visit.

For each measurement and sample collected, the following information will be recorded:

- Detailed description of sample location,
- Equipment used to collect sample or make measurement and the date equipment was calibrated,
- Time sample was collected,
- Description of the sample conditions,
- Depth sample was collected (if applicable),
- Volume and number of containers filled with the sample; and,
- Sampler's identification.

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

2.9 SAMPLE HANDLING AND DECONTAMINATION PROCEDURES

The following procedures will be employed:

- A chain-of-custody (COC) record will be completed at the time of sample collection and will accompany each shipment of project samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until the samples are relinquished to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date and note the time of sample transfer on the COC record.

- Samples will be shipped or delivered in a timely fashion to the laboratory so that holding-times and/or analysis times as prescribed by the methodology can be met.

- Samples will be transported in containers (coolers) which will maintain the refrigeration temperature for those parameters for which refrigeration is required in the prescribed preservation protocols.

- Samples will be placed in an upright position and limited to one layer of samples per cooler. Additional bubble wrap or packaging material will be added to fill the cooler. Shipping containers will be secured with strapping tape and custody tape for shipment to the laboratory.

- Samples will be picked up by a laboratory courier or transported to the laboratory the same day they are collected unless collected on a weekend or holiday. In these cases, the samples will be stored in a secure location until delivery to the laboratory. Additional ice will be added to the cooler as needed to maintain proper preservation temperatures.

Dedicated disposable sampling materials will be used whenever possible. Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil;
- Rinse with tap water;
- Wash with alconox® detergent solution and scrub ;
- Rinse with tap water;
- Rinse with distilled or deionized water.

Field blanks will be prepared by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory.

3. Analytical Procedures

3.1 LABORATORY ANALYSIS

Rinsate samples will be analyzed by the NYSDOH ELAP laboratory for one or more of the following parameters: VOCs via target compound list (TCL) EPA Method 8260B, SVOCs using TCL EPA Method 8270D, and metals using Target Analyst List (TAL) EPA Methods 6010B, and 7470A (mercury in water).

If any modifications or additions to the standard procedures are anticipated and if any nonstandard sample preparation or analytical protocol is to be used, the modifications and the nonstandard protocol will be explicitly defined and documented. Prior approval by PM will be necessary for any nonstandard analytical or sample preparation protocol used by the laboratory, i.e., dilution of samples or extracts by greater than a factor of five.

4. Data Reduction, Review, and Reporting

Data generated by the laboratory operation will be reduced and validated prior to reporting in accordance with the following procedures:

4.1 FIELD DATA REDUCTION PROCEDURES

Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. The pH, conductivity, temperature, turbidity, DO, ORP and breathing zone VOC readings collected in the field will be generated from direct read instruments. The data will be written into field logbooks immediately after measurements are taken. If errors are made, data will be legibly crossed out, initialed and dated by the field member, and corrected in a space adjacent to the original entry.

4.2 LABORATORY DATA REDUCTION PROCEDURES

Laboratory data reduction procedures are provided by the appropriate chapter of USEPA, “Test Methods for Evaluating Solid Waste”, SW-846, Third Edition. Errors will be noted; corrections made with the original notations crossed out legibly.

4.3 QUALITY CONTROL DATA

Quality control data (e.g., laboratory duplicates, surrogates, matrix spikes, and matrix spike duplicates) will be compared to the method acceptance criteria. Data determined to be acceptable will be entered into the laboratory information management system.

Unacceptable data will be appropriately qualified in the project report. Case narratives will be prepared which will include information concerning data that fell outside acceptance limits and any other anomalous conditions encountered during sample analysis.

4.4 DATA VALIDATION

Data validation procedures of the analytical data will be performed by the Haley & Aldrich QA Officer or designee using the following documents as guidance for the review process:

- "U.S. EPA National Functional Guidelines for Organic Data Review”, and the "U.S. EPA National Functional Guidelines for Inorganic Data Review".

- The specific data qualifiers used will be applied to the reported results as presented and defined in the EPA National Functional Guidelines. Validation will be performed by qualified personnel at the direction of the Haley & Aldrich QAO.

- The completeness of each data package will be evaluated by the Data Validator. Completeness checks will be administered on all data to determine that the deliverables are consistent with the NYSDEC Analytical Services Protocol (ASP) Category A and Category B data package requirements. The validator will determine whether the required items are present and request copies of missing deliverables (if necessary) from the laboratory.

4.5 DATA REPORTING

Data reporting procedures will be carried out for field and laboratory operations as indicated below:

- Field Data Reporting: Field data reporting will be conducted principally through the transmission of report sheets containing tabulated results of measurements made in the field and documentation of field calibration activities.

- Laboratory Data Reporting: The laboratory data reporting package will enable data validation based on the protocols described above. The final laboratory data report format will include the QA/QC sample analysis deliverables to enable the development of a data usability summary report (DUSR).

In addition, an independent third-party validator must be used to prepare a DUSR. As per the DEC Program Policy DER-10/Technical Guidance for Site Investigation and Remediation the requirements for DUSR preparer: the environmental scientist preparing the DUSR must hold a bachelor's degree in a relevant natural or physical science or field of engineering. A proposed third party validator resume is included

5. Corrective Action

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved Closure Plan due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the field investigation, all changes to the sampling program will be documented in field logs/sheets and the PM advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

References

1. United States Environmental Protection Agency, (1999). EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations. EPA QA/R-5 Interim Final, November 1999.
2. United States Environmental Protection Agency (1991). Preparation Aids for the Development of Category I Quality Assurance Project Plans. U.S. EPA/600/8-91/003, Risk Reduction Engineering Laboratory, Office of Research and Development, Cincinnati, Ohio, February 1991.
3. United States Environmental Protection Agency, (1993). Data Quality Objectives Process for Superfund Interim Final Guidance. U.S. EPA/540/R-93-071, Office of Solid Waste and Emergency Response (OSWER), September 1993.
4. United States Environmental Protection Agency, (1992). Specifications and Guidance for Contaminant-Free Sample Containers. OSWER Directive 9240.0-05A, April 1992.
5. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-002.
6. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-001.
7. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Office of Solid Waste, U.S. EPA, SW-846, November 1986, with updates.
8. New York State Department of Environmental Conservation, NYSDEC Analytical Services Protocol (ASP), Bureau of Environmental Investigation, 1991 with updates.
9. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Technical Guidance for Site Investigation and Remediation, DER-10, May 2010.

TABLES

TABLE 1. SAMPLE COLLECTION AND ANALYSIS PROTOCOLS
FORMER NUHART PLASTICS SITE - NUHART WEST
49 Dupont Street
Brooklyn, NY

Matrix	Location	Rationale for Sampling	Laboratory Analysis
Liquid (Rinsate Samples)	2 oil/water separators, 5 LPH recovery systems and drum accumulation areas, 9 floor cleaning areas, 2 sumps/trenches, 1 closure implementation storage area	To evaluate effectiveness of decontamination actvities	VOCs via EPA Method 8260B, SVOCS via EPA Method 8270D, metals via EPA Methods 6010B, and 7470A (mercury in water)

Notes:

[1] Rinsate samples will be collected at minimum of one sample per room and also biased towards areas exhibiting the most amount of staining

TABLE 2. SUMMARY OF ANALYSIS METHOD, PRESERVATION METHOD, HOLDING TIME, SAMPLE SIZE REQUIREMENTS AND SAMPLE CONTAINERS

Former NuHart Plastics Site - NuHart West
49 Dupont Street
Brooklyn, NY

Analysis/Method	Sample Type	Preservation	Holding Time	Volume/Weight	Container
Volatile Organic Compounds/8260B	Water	HCl, Cool, 4 ± 2 °C	14 days	120 mL	3 - 40ml glass vials
Semi-volatile Organic Compounds/8270C	Water	Cool, 4 ± 2 °C	7 days	500 mL	2 - 250 mL amber glass
TAL Metals 6010/7471	Water	HNO_3Cool, 4 ± 2 °C	7 days	500 mL	1 - 500 mL plastic bottle

Notes:
1. Refer to text for additional information.
2. QA/WC Samples include one duplicate, one field blank and one trip blank (VOCs only)

ATTACHMENT A

Third Party Validator Resume

Sherri Pullar

Senior Project Scientist

EDUCATION

B.S., State University of New York, New Paltz, NY

TRAINING / CERTIFICATIONS

EPA Guidance on QAPP/eQAPP

Training in ADR and EDMS

DOD database training

WORK HISTORY

Years with firm: 12 years

Years Experience: 27 years

Sherri specializes in data validation of inorganic, organic, and wet chemistry data including PFAS and 1,4-dioxane (including ADR and EDMS). Sherri has extensive experience preparing, supporting, and developing numerous quality assurance project plans, sampling analysis plans, quality assurance sampling plans, precision, accuracy, reproducibility, completeness, and comparability reports, and standard operating procedures for field sampling, work plans, remedial investigations, feasibility studies, remedial actions, health and safety plans, and reviewing data packages for quality control and acceptability. Sherri has extensive experience with database entry for DOD and NJDEP.

BACKGROUND / EXPERIENCE

Haley & Aldrich of New York, Two Projects, NY, NY Senior Project Scientist. Worked on two sites with Haley & Aldrich to perform EPA Region II, level IV inorganic data validation, including metals and wet chemistry and organic data validation including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCSs, 1,4-dioxane, and PFOS in soil, sediment, groundwater, and air samples.

Environmental Business Consultants (EBC), Numerous Projects, Ridge, NY Senior Project Scientist. Worked on numerous sites with EBC to perform EPA Region II, level IV inorganic data validation, including metals and wet chemistry and organic data validation including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCSs, 1,4-dioxane, and PFOS in soil, sediment, groundwater, and air samples.

U.S. Navy, LTM, Former Naval Air Warfare Center Trenton, West Trenton NJ Senior Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC and SVOC in groundwater, soil and air samples. Responsible for uploading data into Navy database.

U.S. Navy, LTM, Naval Weapons Industrial Reserve Plant NWIRP, Bedford MA Senior Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC and SVOC in groundwater, soil and air samples. Responsible for uploading data into Navy database.

USACE New England District, LTM, Former Fort Devens, MA Senior Project Scientist. Performed organic data validation, including explosives and perchlorate using automated data validation (ADR) for groundwater and soil.

Northeastern Environmental Technologies (NEET), Numerous Projects, Ballston Spa, NY Senior Project Scientist. Worked on two sites with NEET to perform EPA Region II, level IV inorganic data validation, including metals and wet chemistry and organic data validation including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), in soil, groundwater, and air samples.

Foote Mineral GMP, LTM, East Whiteland Township, PA. Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC in groundwater samples. Responsible for uploading data into Navy database.

USACE New England District, LTM, Former Massachusetts Military Reservation, MA. Project Scientist. Performed organic data validation, including explosives and perchlorate and inorganic data validation, metals and wet chemistry using automated data validation (ADR) for soil and groundwater.

APPENDIX B

Rinsate Sample Collection Protocol

Attachment A

Rinsate Sample Collection Protocol

This procedure is intended to be used to collect samples for analysis of concrete floors, secondary containment areas and sumps, including surfaces that have been coated, to establish whether or not there is any contamination on the concrete surfaces. This procedure is to be performed after the surfaces have been cleaned and decontaminated pursuant to the approved closure plan. This procedure may also be suitable for use on other surfaces on a case-by-case basis.

1. Mark areas to be sampled on a facility floor plan for the area(s) to be closed. Sketches should include locations of building columns, walls, fixed equipment, and the rinsate sampling locations themselves to accurately locate the rinsate sampling points within the buildings.

2. Assemble and clean all equipment necessary for sample collection. Equipment needs to be cleaned, if not already pre-cleaned by the laboratory.

3. Create a temporary containment area on the floor using an inert, pre-cleaned, flexible boom.

4. Label the sample containers with a unique sample code, information on the site, sample location and date/time sample was collected. Affix appropriate labels for test parameters on the sample containers. Put on a new pair of disposable nitrile gloves.

5. At each sampling location, slowly pour the minimum quantity of de-ionized water (start with one gallon for metals analysis, much less for only volatiles) needed to collect all sample parameters, including QC samples, onto the concrete area. If the individual area is sloped, start pouring at the highest elevation. The de-ionized water may be provided by the analytical laboratory, purchased, or generated on-site.

6. Allow de-ionized water to collect and remain in the sample location for 10 minutes.

7. Collect the number of samples as specified in the closure plan along with appropriate QA/QC samples. Samples may be collected using dedicated, sterile glass pipettes provided by the laboratory, or any other suitable device approved in the closure plan. The pipettes are used to transfer the sample fluids into the appropriate laboratory supplied containers. Volatile sample containers shall be filled first to minimize loss of volatiles.

8. Samples must not be composited.

9. Cap the sample container and place sample containers in a cooler with ice to maintain a temperature of 4 °C.

10. Remove and discard the gloves. Place all disposable gloves into a plastic bag designated

for proper disposal.

11. Fill out sampling details in field log book. Photographs of the sample locations, wetted areas, equipment, and actual sampling events may be taken by the facility or Department staff and a list of the photographs shall be recorded in the field book.

12. Fill out the chain-of-custody and any other sample forms. Prepare the samples for storage and shipping in the cooler with ice to maintain a temperature of 4 $\pm$ 2°C. Ship overnight to the laboratory for analysis.

13. Follow the chain-of custody procedures as detailed in the Quality Assurance Project Plan.

APPENDIX C

DER-10 Appendix 1A and 1B for CAMP

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

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Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.