

**FIFTH FIVE-YEAR REVIEW REPORT FOR
ABEX CORP SUPERFUND SITE
PORTSMOUTH, VIRGINIA**



MAY 2022

Prepared by

**U.S. Environmental Protection Agency
Region 3
Philadelphia, Pennsylvania**

**Paul Leonard, Director
Hazardous Site Cleanup Division
U.S. EPA, Region III**

Date

Table of Contents

LIST OF ABBREVIATIONS & ACRONYMS	ii
I. INTRODUCTION	3
Site Background.....	3
FIVE-YEAR REVIEW SUMMARY FORM.....	7
II. RESPONSE ACTION SUMMARY	7
Basis for Taking Action	7
Response Actions.....	8
Status of Implementation	9
Institutional Control Review	10
Systems Operations/Operation & Maintenance.....	14
III. PROGRESS SINCE THE PREVIOUS REVIEW	14
IV. FIVE-YEAR REVIEW PROCESS	14
Community Notification, Involvement & Site Interviews.....	14
Data Review.....	15
Site Inspection.....	15
V. TECHNICAL ASSESSMENT	16
QUESTION A: Is the remedy functioning as intended by the decision documents?.....	16
QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of the remedy selection still valid?.....	16
QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?	17
VI. ISSUES/RECOMMENDATIONS	17
VII. PROTECTIVENESS STATEMENT	18
VIII. NEXT REVIEW	18
APPENDIX A – REFERENCE LIST	A-1
APPENDIX B – SITE CHRONOLOGY.....	B-1
APPENDIX C – SITE MAPS	C-1
APPENDIX D – SITE INSPECTION CHECKLIST	D-1
APPENDIX E – PRESS NOTICE.....	E-11
APPENDIX F – SITE INSPECTION PHOTOS	F-1
APPENDIX G – INTERVIEW FORMS.....	G-1
APPENDIX H – ADDITIONAL BACKGROUND INFORMATION	H-1
APPENDIX I – ENVIRONMENTAL COMPLIANCE EXCAVATION PERMIT	I-1

Tables

Table 1: OU1 Soil COC Cleanup Goals	9
Table 2: Summary of Implemented Institutional Controls (ICs)	12
Table 3: Protectiveness Determinations/Statements from the 2012 FYR	14
Table B-1: Site Chronology	B-1

Figures

Figure 1: Detailed Site Map	5
Figure 2: Operable Unit Map	6
Figure 3: Institutional Control Map.....	13
Figure C-1: Site Vicinity Map.....	C-1

LIST OF ABBREVIATIONS & ACRONYMS

bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
IEUBK	Integrated Exposure Uptake Biokinetic
HUD	U.S. Department of Housing and Urban Development
IC	Institutional Control
mg/kg	Milligrams per Kilogram
mg/ft ²	Milligrams per Square Foot
NCP	National Contingency Plan
NPL	National Priorities List
OU	Operable Unit
OSWER	Office of Solid Waste and Emergency Response
O&M	Operation and Maintenance
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCIWP	Permanent Cover Investigation Work Plan
PRHA	Portsmouth Redevelopment & Housing Authority
PRAP	Preferred Remedial Alternative Plan
RAO	Remedial Action Objective
RI/FS	Remedial Investigation and Feasibility Study
RIR/RAWP	Remedial Investigation Report/Remedial Action Work Plan
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Residential Screening Level
SSTP	Soil Storage and Treatment Pad
TCLP	Toxicity Characteristic Leaching Procedure
UU/UE	Unlimited Use and Unrestricted Exposure
VADEQ	Virginia Department of Environmental Quality
WPH	Washington Park Housing Complex

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR Reports such as this one. In addition, FYR Reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fifth FYR for the Abex Corp. Superfund site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

To manage site investigations and cleanup, EPA divided the Site into two operable units (OUs); this FYR addresses OU1. OU1 includes soil contamination in an approximately 700-foot radius around the former Abex foundry as well as and commercial properties along Effingham Street. The Lincoln Street residential block soil excavation (Figures 1 and 2) was also completed at this time by the responsible parties even though the source of contamination was determined to not be Site related. OU2 includes site area groundwater, site-wide surface water, site wide sediments and soil contamination located outside of OU1. EPA selected a No Action remedy for OU2 on April 13, 2022.

EPA led the FYR and its site inspection. Participants for the September 16, 2021 inspection included the EPA remedial project manager (RPM) Lisa Denmark and the Virginia Department of Environmental Quality (VADEQ) representative Angela McGarvey. Due to COVID and travel restrictions, another virtual inspection, using photographs from the September 16th inspection, was conducted on September 23, 2021 with a larger group including EPA RPM Lisa Denmark, EPA's site Community Involvement Coordinator Alex Mandell, VADEQ representative Angela McGarvey, and William Dunnell from PRP support contractor Viridian. The Nansemond Tribe was also invited to participate in both events but was unable to participate due to scheduling.

Site Background

The area is located in the populated eastern section of Portsmouth, Virginia. The Site lies about a half-mile west of the south branch of the Elizabeth River (Figure C-1). The Site and surrounding area are generally flat, about 10 feet above mean sea level.

The Abex Corporation/Railroad Products Group (Abex) operated a brass and bronze foundry on site from 1928 to 1978. The former foundry area included five buildings and a former sand disposal area. Surrounding land uses have historically been residential and industrial, including a nearby naval shipyard, a coal yard and several city incinerators. Residential areas were located near the foundry during its operations, including Seventh Street homes, the Lincoln Street block, the Effingham residential area and the Washington Park Homes Public Housing Complex (WPH) (Figure 1). Other on-site areas hosted public and commercial uses. The former WPH was located on the northern portion of the Site where past fill activities took place; residents were permanently relocated in 2002, following a 2000 civil rights lawsuit, and the complex was demolished as part of cleanup. The former WPH area is now zoned for commercial and industrial uses; part of the area is now a parking lot with an adjacent stormwater retention pond (Figure 1). The rest of the WPH area is undeveloped and for sale. Land use at the other residential areas, with the exception of the Lincoln Street block, has changed to commercial and public use over time.

The Abex foundry recycled used railroad car journal bearings lined with an alloy composed primarily of lead with smaller amounts of antimony and tin. Foundry operations and disposal practices contaminated area soil, primarily

with lead. See Appendix B for additional information on site history information. The extent of groundwater, surface water, and sediment contamination and ecological risk at the Site as part of OU2, which will not be assessed during this FYR.

Figure 1: Detailed Site Map



0 150 300 600
 Feet

Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, the GIS User Community, U.S. Census, 2012 FYR Figure 1 and Haley & Aldrich Operable Unit-1 Remediation Areas Map.

Current Uses

- 1 Retention Ponds for Parking Lot
- 2 Massimo Zanetti Beverage Parking Lot
- 3 Massimo Zanetti Beverage Distribution Center
- 4 Property for Sale

- 5 Portsmouth Fire Station
- 6 Portsmouth Police Mounted Patrol Headquarters
- 7 Premier Manufacturing
- 8 Dollar General
- 9 Charles A. Fisher Memorial Academy

- 10 7-Eleven Store and Gas Station
- 11 Seventh and Lincoln Shopping Center (Southside Plaza)
- 12 RS Andrews Heating and Cooling
- 13 Lincoln Street Block Residential Area

Historical Uses

- A Washington Park Public Housing Complex
- B Former Abex Lot
- C Seventh Street Row Homes

- D Former Foundry Property
- E McCready Lot
- F Effingham Playground

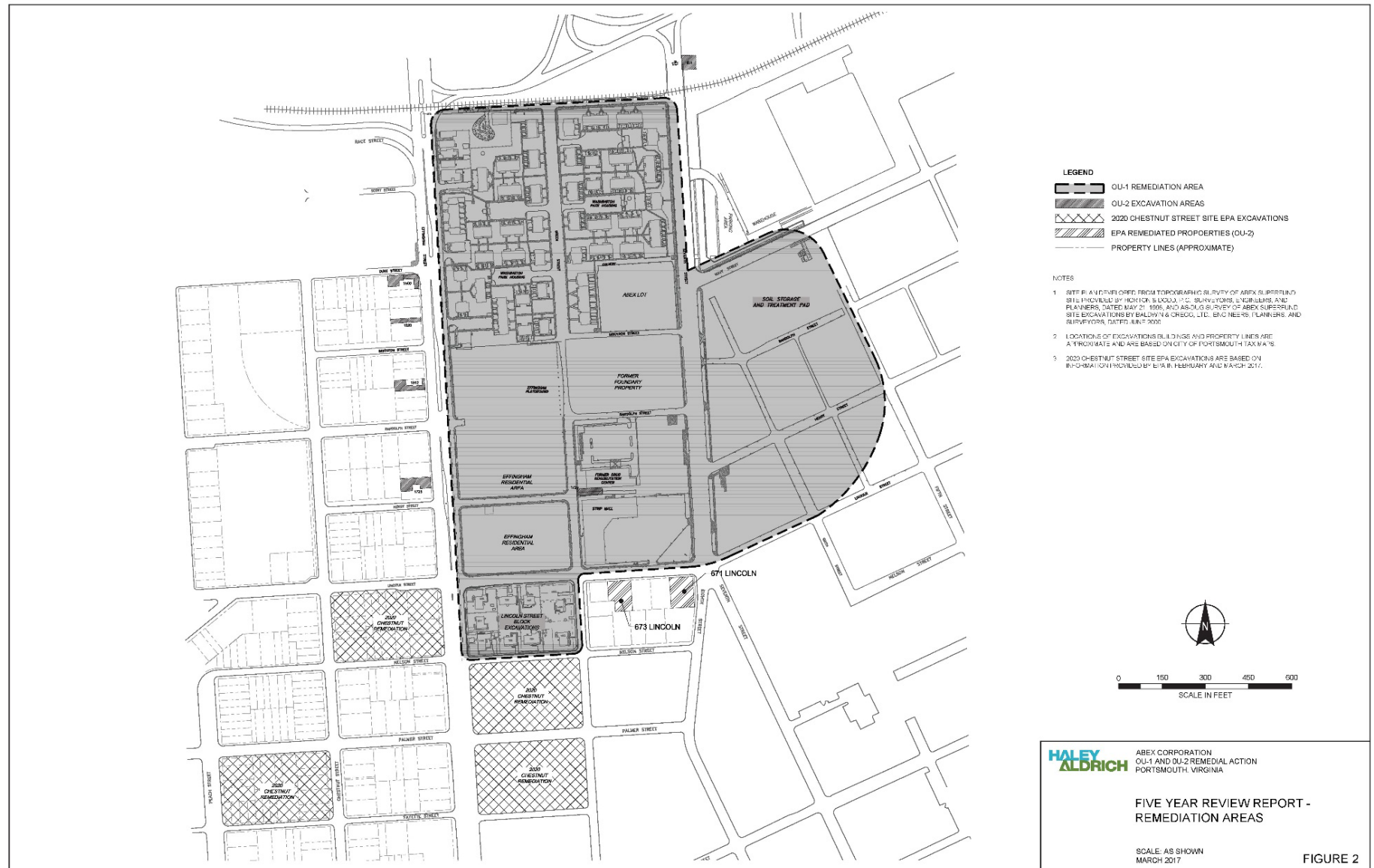
- G Effingham Residential Area
- H Lincoln Street Block Residential Area



Abex Corp. Superfund Site
 City of Portsmouth, Suffolk County, Virginia

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site. This Figure is from the 4th FYR.

Figure 2: Operable Unit Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Abex Corp. Superfund Site		
EPA ID: VAD980551683		
Region: 3	State: VA	City/County: City of Portsmouth/ Suffolk County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	Has the site achieved construction completion? No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Lisa Denmark		
Author affiliation: EPA Region 3		
Review period: 8/2/2021 - 5/10/2022		
Date of site inspection: 9/16/2021		
Type of review: Statutory		
Review number: 5		
Triggering action date: 5/8/2017		
Due date (five years after triggering action date): 5/8/2022		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Lead is the principal contaminant of concern (COC) at the Site due to its known health effects and its widespread presence in soil in former residential areas (WPH area and Effingham residential area) and foundry properties. The primary exposure pathway of concern at the Site was incidental ingestion of contaminated soil. According to the 1991 remedial investigation, the primary ecological effect associated with OU1 soils is the potential for impacted soils to reach the Elizabeth River and off-site locations as a result of surface runoff. Thus, the impact of this migration pathway and associated ecological risks was evaluated in OU2. Soil samples taken from the WPH area and properties next to the foundry in 1986 contained lead concentrations up to 12,800 milligrams per kilogram (mg/kg), which exceeded lead screening levels of 500 (now 400) mg/kg. Because other contaminants identified at the Site were co-located with the lead contamination, EPA determined that actions taken to achieve lead cleanup levels would also address unacceptable risks from additional contaminants, including cadmium, chromium, silver, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), antimony, nickel, copper, tin and zinc.

Response Actions

Abex completed emergency removal actions between 1986 and 1989 and again in 1992 to remove lead-contaminated soils from the Abex lot, the WPH area and the Effingham Playground. In addition, Abex fenced off and capped the Abex lot and the McCready lot with asphalt. In March 1993, Abex demolished Building 13, one of the foundry structures. It was disposed of off-site.

From July 1999 to January 2000, EPA conducted an emergency removal action to remove lead-contaminated dust from heating units and duct work at all 160 units at the WPH area (plus the rental office and the community center). At the same time, EPA cleaned any rooms in the apartments with lead-dust levels above U.S. Department of Housing and Urban Development (HUD) guidelines of 0.1 milligrams of lead per square foot of surface area (0.1 mg/ft²).

While site decision documents did not define remedial action objectives (RAOs) for the Site's cleanup, EPA designed the OU1 remedy to prevent exposure to lead by addressing the principal threat at the Site – lead-contaminated soil and debris associated with the former foundry.

EPA has issued several remedial decision documents since the Record of Decision (ROD) for OU1 in September 1992. These decision documents reflect changes in anticipated land use and changes to lead excavation concentration standards and depths. The OU1 remedy, as modified by a ROD Amendment in August 1994, an Explanation of Significant Differences (ESD) in October 1995 and an ESD in August 2002, includes the following components:

- Excavation of soil exceeding 500 mg/kg lead to the maximum depth of the water table (about 3-4 feet below the ground surface) within the Abex lot and the McCready lot.
- In areas zoned for commercial and industrial use (except for the Abex lot and the McCready lot), excavation of soil exceeding 500 mg/kg lead in the first foot below ground surface (bgs) and 1,000 mg/kg lead at a depth between 1 and 2 feet bgs.
- Following a civil rights lawsuit in 2000 and the resulting rezoning of the area for commercial and industrial use, EPA changed the remedy to remediate the WPH area to commercial and industrial use standards.
- Land use controls on future excavation below 2 feet in areas zoned for commercial and industrial use to prevent exposure to any remaining lead-contaminated soil. The institutional controls may include:
 - A city ordinance requiring a permit for, and imposing restrictions on, excavation in places within the area of OU1 and requiring notice to EPA, the City of Portsmouth, the Portsmouth Redevelopment & Housing Authority (PRHA) and the public prior to excavation in such locations.
 - The inclusion of provisions in deeds for properties within OU1 providing notice of the remedy and restricting excavation on such properties.
 - In areas zoned for commercial and industrial use, the placement of underground “warning liners” in excavated areas before backfilling with clean soil.
- As per the 1994 ROD Amendment, specified implementation of the remedy should achieve an average lead concentration of 400 mg/kg by removing soil with lead levels above 500 mg/kg (see Table 1).
- Maintenance of existing permanent covers (such as buildings without crawl spaces, parking lots, sidewalks and streets) to prevent future exposure to contaminated soil beneath these covers.
- Treatment of excavated soils exhibiting the characteristic of toxicity (as determined by analysis using the toxicity characteristic leaching procedure [TCLP]) by using chemical stabilization to bind the metals in the soil.
- Disposal of all excavated and treated soil at an off-site disposal facility.
- Demolition of the following buildings:
 - All existing structures on the Holland Property associated with the former foundry operation.
 - Single-family homes in the Effingham Residential Area.
 - Seventh Street row homes.

Table 1: OU1 Soil COC Cleanup Goals

Soil COC	Anticipated Land Use	Excavation Concentration (mg/kg) ^{a, b}	Excavation Level (feet bgs) ^a
Lead	residential	remove if > 500	down to water table as needed
Lead	commercial/industrial use	remove if > 500	up to 1
		remove if > 1,000	> 1 and ≤ 2
<p><i>Notes:</i> ^a As required by the 1994 ROD Amendment. ^b The goal of removing soil with lead levels above 500 mg/kg was to reduce the average lead level across OU1 to below 400 mg/kg, according to the 2009 Remedial Action Report.</p>			

Status of Implementation

EPA and Abex signed a Consent Decree in April 1996; Abex agreed to perform the Site’s remedial design and remedial action and pay EPA’s past site costs. Abex conducted the remedial design with EPA approval in July 1998 and conducted the remedial work for OU1 in three phases between 1997 and 2000. In 2002, PRHA permanently relocated WPH area residents as a result of a civil rights lawsuit and rezoned the WPH area for commercial and industrial uses. In response, EPA issued an ESD to change soil cleanup criteria in the former WPH area from residential standards to commercial/industrial standards.

Phase One

The first phase took place in April and May 1997. It included the construction of a soil storage and treatment pad (SSTP) for soil handling activities. Other activities included:

- Asbestos abatement and decontamination of the structures on the former foundry property and Seventh Street row homes.
- Collection and analyses of composite samples of buildings and structures.
- Demolition and off-site disposal of non-hazardous waste of property buildings and structures, including the Seventh Street row homes and debris.
- Restoration of demolition areas to match existing grade.
- Installation of security fencing at perimeter of the block containing the former foundry and the Seventh Street row homes.
- Rezoning of the Effingham Residential Area by the City of Portsmouth for commercial and industrial use, part of which would become a fire station.

Phase Two

The second phase focused on the demolition of the 20 Effingham Residential Area homes. It took place in August 1998. The phase included:

- Collection and analysis of composite samples of buildings and structures.
- Demolition of buildings and structures and off-site disposal of the material as non-hazardous waste.
- Restoration of demolition areas to match existing grade.
- Installation of security fencing at the perimeter of the Effingham Residential Area.

Phase Three

Abex completed the third phase of OU1 cleanup work between January 1999 and May 2000. This phase included:

- Excavation, treatment (as necessary by stabilization with lime and Portland cement) and off-site disposal of contaminated soils from the former foundry property, the adjacent WPH area, the Effingham Residential Area, vacant blocks east of the former foundry, and the residential properties bounded by

Lincoln, Effingham, Green and Nelson streets.¹ The OU1 RACR states 13,853 tons of non-hazardous soil was disposed of and 245 cubic yards from the 5 yards that were remediated.

- In accordance with the ROD Amendment, soil beneath permanent covers (buildings without crawl spaces, parking lots, sidewalks and streets) was not removed. All areas remediated per the ROD Amendment that contained permanent covers were required to use institutional controls to protect these covers and future exposures.

During this time, the City of Portsmouth completed construction of a new fire station on Effingham Avenue. The City dedicated the fire station on July 3, 2001.

Remediation of WPH Area

Following the settlement of a civil rights lawsuit in 2000 and relocation of former WPH residents in 2001 and 2002, PRHA demolished WPH structures in November 2003. In February 2004, Abex investigated soil conditions in the areas beneath the footprints of the former buildings in accordance with the EPA-approved December 2003 Washington Park Housing Permanent Cover Investigation Work Plan (PCIWP). EPA reviewed and approved the May 2004 Remedial Investigation Report/Remedial Action Work Plan (RIR/RAWP) and the September 2005 Revised Project Manual prepared by Abex. The plans described the remediation of lead-contaminated soil beneath the former WPH buildings and associated asphalt and sidewalk cover. Abex performed the WPH remedial action of excavation between November 2005 and March 2006. During this time, the City of Portsmouth rezoned the former WPH area from residential use to commercial and industrial uses. At present, a beverage distributor (Massimo Zanetti Beverage USA) has built a warehousing and transportation facility on a portion of the former WPH area (see Figure 1).

See Figure 1 for a full list of current site uses of OU-1 that include residential areas to the south of Lincoln Street, commercial stores such as the Dollar General and 7-Eleven, and public buildings such as a fire station and police training facility.

The Site's 2009 Remedial Action Report concluded that remedy implementation across all of OU1 lowered the lead concentrations in OU1 area soils to between 100 mg/kg and 300 mg/kg depending on the area, which is below the residential screening level of 400 mg/kg. Property within OU-1 is all non-residential property. The area is currently zoned commercial/industrial. Though the Lincoln Street block was cleaned up, it was not site-related and remains residential. For additional background information and information on confirmatory sampling, see Appendix H.

Institutional Control Review

For OU1 properties, the remedy required institutional controls on commercial and industrial properties in the form of one or more of the following: a city ordinance, deed provisions or underground "warning liners" to restrict excavation. There are 41 parcels impacted by OU1 remedial efforts including 28 commercial/industrial parcels and 13 residential parcels in the Lincoln Street block that are not site-related but were remediated during the RA. Groundwater investigations continue as part of OU2 but it is important to note that neither the surficial aquifer nor the deeper aquifer are used for drinking water supplies near the Site.

All commercial and industrial properties are covered at least in part by City Ordinance 1996-51, which restricts any excavation at properties within OU1 boundaries (defined in the ordinance as the area bounded by Fifth Street on the east, Effingham Street on the west, Lincoln Street on the south, and Race Street on the north and inclusive of the area within a 350-foot radius of the corner of Seventh and Harrison [now Wavy] Streets), prior to obtaining

¹ Though the Lincoln Street block cleanup was done as part of OU1, it was not required as part of the EPA-selected remedy. According to the 2009 Remedial Action Report, although Abex found elevated levels of lead on the Lincoln Street block during the OU1 remedial investigation, the investigation concluded that the lead was not from the former foundry. This determination was made through extensive work to compare ratios of contaminants to fingerprint the lead contamination. Abex agreed to address the yards but the crawl spaces were not sampled or addressed, as described in the OU1 ROD Amendment for the homes in the Effingham Residential Area.

an environmental compliance excavation permit from the city engineer or his/her designee (see Table 2). The ordinance defines Race Street and Fifth Street as the northern and easternmost boundaries. A title search for any of the properties included in the ordinance would yield these permit restrictions. In addition, some of the commercial parcels have property notes in their city planning department parcel information sheets or references to the site use restrictions in the deeds. For example, parcel 00310421 includes lister notes, "Inside 700 Ft Radius of Abex Site" and parcel 00290090 includes lister notes "Inside 700 Ft Radius of Ab Ex Site Part of Superfund Site." See Figure C-2 for location of site parcels.

The Ordinance restricts excavation at properties within the boundaries of the Abex Superfund Site Operable Unit 1 Area (as defined in the Ordinance) and requires a party who wants to excavate in that area to notify EPA Region III and apply for an environmental compliance excavation permit from the city engineer. The city engineer must notify EPA at least five days prior to issuing a permit. EPA and the city engineer work together on larger projects to ensure compliance and documents are filed appropriately at both agencies. Section 11-44 of the Ordinance sets forth the terms and conditions of the permits, requiring that all excavation be conducted in a manner consistent with the remedy and performance standards set forth in the ROD Amendment and ESD, and prohibits any excavation activities that may present an imminent and substantial endangerment to public health or welfare or the environment due to the release or threatened release of any hazardous substance, pollutant, or contaminant.

The Ordinance provides flexibility to determine if a request for a permit includes a non-OU1 area. Since the Ordinance covers an area at least as large as OU1, and may actually be over-inclusive, the city engineer, in consultation with EPA, has the flexibility when issuing a permit to determine the conditions at a particular parcel and include parcel-specific conditions in the permit.

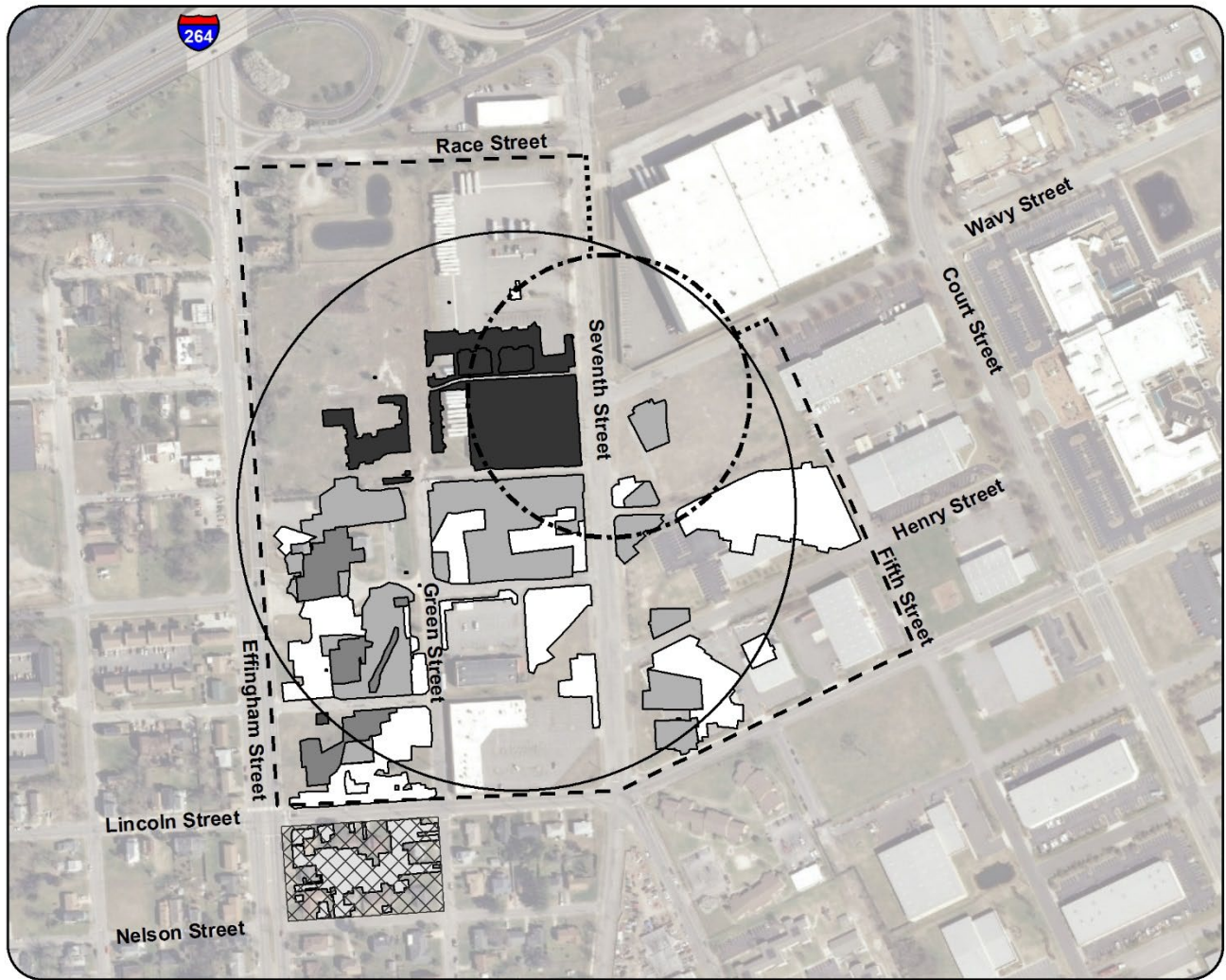
The 13 residential properties are known as the Lincoln Street block; they are bounded by Lincoln Street to the north and Nelson Street to the south. The Lincoln Street block does not have warning liners, is not included in City Ordinance 1996-51 and does not have notes in the city planning department parcel information sheets. Review of recent deeds from recent property transfers for these parcels did not indicate that institutional controls are in place for these residential parcels. Though these parcels were cleaned up during the OU1 remedial action, institutional controls are not required by EPA because the contamination was determined not to be related to the Site.

Table 2: Summary of Implemented Institutional Controls (ICs)

Media, Engineered Controls and Areas that do not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Soil	Yes	Yes	00290091	Prevent exposure to any remaining lead contaminated soil.	City Ordinance (1996-56) enacted January 1, 1997. “No person shall excavate any soils located within the Abex Superfund site OU1 area, prior to obtaining an environmental compliance excavation permit for such excavation from the city engineer or his/her designee.”
			00290090		
			00290010		
			00170020		
			00290011		
			00290012		
			00290013		
			00430010		
			00430020		
			00430030		
			00430031		
			00430060		
			00310340		
			00310350		
			00310360		
			00310370		
			00310380		
			00310390		
			00310400		
			00310410		
			00310421		
			00310420		
			00310430		
			00310422		
00330011					
00330012					
00330790					
00330800					

* These parcels were cleaned up during the OU1 remedial action, institutional controls are not required by EPA because the contamination is not related to the Site: 00330470, 00330480, 00330490, 00330500, 00330510, 00330520, 00330530, 00330540, 00330550, 00330560, 00330561, 00330580, 00330590

Figure 3: Institutional Control Map



0 150 300 600
 Feet

Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, the GIS User Community, U.S. Census, 2012 FYR Figure 1 and Haley & Aldrich OU-1 Remediation Areas Map.

Legend

- Area Covered by City Ordinance 1996-56
- Assumed Ordinance Boundary Connections
- 700-foot Radius from Former Foundry
- ▨ Lincoln Street Block
- Excavation to 1 foot
- Excavation to 1.5 feet
- Excavation to 2 feet
- Excavation to 4 feet
- Excavation to 4 feet (MSL)
- Excavation to Water Table



Abex Corp. Superfund Site
 City of Portsmouth, Suffolk County, Virginia

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site. This figure is from the 4th FYR.

Systems Operations/Operation & Maintenance

There is minimal required on-site monitoring for the OU1 remedy; decision documents require maintenance of permanent covers and implementation of institutional controls. Permanent covers (such as perimeter sidewalks, some buildings, parking lots and driveways) were left in place over potentially contaminated soil as part of the remedy. No equipment or systems associated with the remedial work for OU1 remain on the Site. The OU1 remedy does require FYRs, which includes an on-site inspection.

III. PROGRESS SINCE THE PREVIOUS REVIEW

The table below includes the protectiveness determinations and statements from the previous FYR as well as the recommendations from the previous FYR and the current status of those recommendations.

Table 3: Protectiveness Determinations/Statements from the 2017 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy at OU-1 has been completed and is protective. Long-term protectiveness of the remedy will be ensured through the continued use of the "environmental" permitting process of the City of Portsmouth to ensure that the excavation or disturbance of any soil within OU-1 is conducted in such a way as to protect human health and the environment. EPA will also continue to conduct Five-Year Reviews to ensure that the remedy remains protective.

There were no issues identified in the previous FYR.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by a newspaper posting, in the *Virginian Pilot Newspaper*, on 02/08/2022, stating that the FYR was underway and inviting the public to submit any comments to EPA. No comments were received. The results of the review and the report will be made available at the Site's information repository, Portsmouth Public Library, located at 601 Court Street in Portsmouth, Virginia. During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. Interviews were conducted on November 18 and 30, 2021. Interviewees included Jeff Harper, from the City of Portsmouth Engineering Department, and representatives of the Nansemond Indian Nation. Additionally, EPA received written responses to interview questions from VADEQ and William Dunnell of Viridian, site contractor.

Overall, most interviewees believe that the remedy is effective and is protective of human health and the environment. The remedy is performing as intended and there have been few complaints and inquiries in the last five years. Most notably, during the interview with Jeff Harper, a discussion regarding a past request from a City Council member for EPA to participate in a council meeting was mentioned. EPA did participate in a city council meeting to provide past, current, and future efforts at the Abex Superfund Site. Specifically, EPA took questions regarding potential redevelopment at a parcel located on or near Operable Unit 1. To date, there are no new plans for redevelopment at this location. Redevelopment is likely in many areas of OU1. At the time this FYR, part of the former Washington Housing property was on the market to be sold. The Nansemond Indian Tribe offered their support, help, and guidance as EPA continues to work closely with the Portsmouth community on environmental justice.

Additionally, EPA met with representatives of the Nansemond on March 29, 2022 to discuss the FYR draft and answer questions about the site. EPA answered questions about future site requirements, redevelopment, and history of the site. The Nansemond offered support of future environmental health workshops as well.

In 2017, as EPA was working on the previous FYR, the community shared their desire for more opportunity to better understand the conditions of their soil in the surrounding Abex community. In response, EPA took the lead initiative to hold the first ever Portsmouth Environmental Health Workshop. On Saturday, September 8, 2018 EPA held the workshop at the Wesley Community Service Center from 11am to 4pm. The workshop included free soil lead screening and free blood lead screening for children. Additionally, several local, state, and federal partners presented and had one on one discussions with community members about important environmental topics, including nearby Superfund Sites. More than 12 children received free blood lead screening, and over 90 soil samples were screened for lead. Community members, and all the partners involved, were very pleased with this fun, educational, empowering, and collaborative effort. Partners included: EPA, Virginia Department of Environmental Quality, Virginia Department of Health, Portsmouth Department of Health, Hampton Roads Community Health Center, Agency for Toxic Substances and Disease Registry, Virginia Cooperative Extension: Portsmouth Master Gardeners, Elizabeth River Project, and others. Outreach for the workshop included distribution of a workshop flyer, postcards to more than 2,000 nearby residents, and an EPA news release. Local news outlets such as The Virginian Pilot and After News 3 CBS, produced television and online stories highlighting the workshop.

Data Review

The remedy implemented involved removal of surface soil and capping in place, thus does not require ongoing sample collection. Therefore, there is not additional data to review during this FYR.

Site Inspection

The site inspection took place on September 16, 2021. In attendance were EPA RPM Lisa Denmark and VADEQ RPM Angela McGarvey. The purpose of the inspection was to assess the protectiveness of the remedy. For a full list of site inspection activities, see the Site Inspection Checklist in Appendix D. Site photographs are available in Appendix F.

Site inspection began at the Site through the parking lot of the Dollar General, along Effingham Street. Site inspection participants walked north along Effingham Street viewing the Dollar General and Fire Station. The RPMs continued along the sidewalk east on Race Street. RPMs observed the stormwater pond where geese were located on the water. The area is fenced and vegetated. RPMs continued around the corner heading south on 7th Street. RPMs verbally requested access to the parking lots of the trucking facilities. The RPMs walked the parking lot and noted that it was well paved and no monitoring wells or other features were seen. Walking south along 7th Street, the back of the fire station, the Portsmouth Police Mounted Patrol Headquarters and the Portsmouth Sheriff's Office Training Academy (also known as Charles A. Fisher Memorial Academy) were seen. Participants also viewed the back of the Dollar General and 7-Eleven properties from Green Street. Participants then walked west along Lincoln Street, viewing Southside Plaza at the corner of Lincoln and Seventh streets. It was noted that the Hampton Roads Community Health Center occupied all of the office fronts that were leased. There were several vacant store fronts. Participants walked north along Effingham Street, observing the fire station, Dollar General and 7-Eleven redevelopment at the Site. A virtual site inspection was then conducted with the PRP to discuss site conditions. No current issues with the site remedy components were noted.

Due to Covid-19 restrictions, EPA staff did not visit the designated site repository, Portsmouth Public Library, located at 601 Court Street in Portsmouth. However, documents were confirmed via email on August 23, 2021. The repository file was recently updated in 2021 due to the OU2 Public Comment Period for the Preferred Remedial Alternative Plan (PRAP).

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

According to the 2009 Remedial Action Report, the remedial area was cleaned up until the average lead concentration in soil was below 400 mg/kg; all surficial soil above remediation goals has been removed. Decision documents require ongoing O&M measures in the form of maintaining permanent covers and institutional controls.

For OU1 commercial and industrial properties, the remedy requires institutional controls in the form of one or more of the following: a city ordinance, deed provisions or underground “warning liners” either to the depth of excavation or on the vertical walls surrounding excavations, depending on remaining soil condition. Commercial/industrial parcels have at least one layer of institutional controls required by the decision documents. The parcels are included in City Ordinance 1996-51; some have warning liners, some include property notes in their city planning department parcel information sheets and some parcels have references to the site use restrictions in the deeds. The Portsmouth City Planning Department noted that any attorney doing a title search on the property would find the City Ordinance through the Engineering Department or the Planning Department and would make potential purchasers aware of site restrictions. Site restrictions would also show up during a Phase 1 or Phase 2 environmental assessment at the property; such assessments are common practice for commercial and industrial properties. While it is possible that the property could be purchased without a title search, it is unlikely. Once a stakeholder, owner, developer, etc. is interested in excavating site property, they must contact the City and a city engineer who is familiar with the process will work them through the environmental compliance permitting process which includes notifying EPA (see Appendix G for Jeff Harper’s interview and Appendix I for the environmental compliance permitting process).

The Lincoln Street block was remediated to residential standards during the OU1 remedial action, but the contamination was not related to the foundry and EPA did not require institutional controls for the area. However, on-site buildings were left in place during excavation efforts.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Summary:

Although most of the exposure assumptions and toxicity data are still valid, there have been some changes as discussed below.

The lead residential soil screening level (RSL) is 400 mg/kg. According to the Site’s 1994 ROD Amendment, the 500 mg/kg value was applied as a 'not-to-be-exceeded' value such that the post-remediation average concentration results in an average lead concentration below 400 mg/kg. According to the 2009 Remedial Action Report, confirmation sample lead concentrations, depending on the area of the Site, ranged between 100 to 300 mg/kg, all below the original cleanup goal as well as the most-recent lead RSL of 400 mg/kg. These concentrations indicate that remedy construction achieved protective concentrations for lead in soil and that the remedy remains protective. The acceptable blood lead level of 10 µg/dL is currently under review by EPA and it may be revised based on recommendations from the Centers for Disease Control and Prevention. If EPA lowers the acceptable target blood lead level below 10 µg/dL, EPA will reassess the protectiveness of the lead cleanup level in accordance with any updated guidance, as appropriate. There are no current exposures to lead at the Site. All areas with lead concentrations below 1,000 mg/kg were covered with clean soil as part of the Site’s cleanup. The

cleanup currently remains protective. Lead remains the main COC because of its toxicity and its former prevalence across the Site. The remedial investigation found that the other COCs were always co-located with lead such that the ROD Amendment and future decision documents (ESDs) focus on cleanup criteria for lead. It should be noted that OU-1 does not currently have any parcels zoned as residential. The reuse and redevelopment have all been commercial and industrial. The only exception is the Lincoln Street block which was not included in the remedy though cleaned up to the same standards.

In August 2004, EPA issued new dermal guidance, RAGS E, Supplemental Guidance for Dermal Risk Assessment, which recommends a soil-to-skin adherence factor of 0.2 milligram per centimeter for a child resident. In addition, the Integrated Exposure Uptake Biokinetic (IEUBK) Model changed the default parameters for rate of soil ingestion, background concentration in air and background dietary exposure to lead and extended the age for analysis to seven years. EPA also issued the Exposure Factors Handbook, which recommends varying inhalation rates based on age and sex.² However, these changes have not resulted in any changes to the current residential lead screening level for soil of 400 mg/kg. Thus, the RAOs and cleanup criteria remain valid.

The EPA site toxicologist has reviewed site data and based on past remaining historical concentrations between 100 ppm to 300 ppm in OU1, these concentrations remain within EPA's acceptable concentrations for industrial lead exposure. EPA believes the FYR is consistent with current science and policy at this time. EPA is currently reviewing its existing policy on human health risks from lead contamination in soil. If EPA revises its national lead policy resulting in a lower cleanup concentration for residential properties, then EPA will determine if the selected residential lead-in-soil cleanup concentration for this Site needs to be modified to be consistent with the revised national guidance and to ensure that the remedy is protective.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

Question C Summary:

Climate change impacts in Virginia include higher temperatures, an increase in precipitation events and sea level rise. The Site is in the 100/500-year flood plain and the Active River Zone. The Site is also vulnerable to the possible storm surge from a Category 2 or greater hurricane. Since the average lead concentrations range from 100 to 300 mg/kg and higher levels may be found at depth or under buildings, future flooding events would not appear to impact the protectiveness of the remedy for OU1.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1

² EPA first published the Exposures Factors Handbook in 1989, updated it in 1997 and most recently updated it in 2011.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement	
<i>Operable Unit: 1</i>	<i>Protectiveness Determination: Protective</i>
<i>Protectiveness Statement:</i>	
<p>The remedy at OU1 has been completed and is protective of human health and the environment. All surficial soil above remediation goals has been removed in accordance with remedial requirements. Long-term protectiveness of the remedy will be ensured through the continued use of the “environmental” permitting process of the City of Portsmouth to ensure that the excavation or disturbance of any soil within OU1 is conducted in such a way as to prevent exposure and protect human health and the environment. EPA will also continue to conduct FYRs to ensure that the remedy remains protective.</p>	

VIII. NEXT REVIEW

The next FYR Report for OU1 of the Abex Corp. Superfund site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

- Explanation of Significant Differences, Abex Superfund Site, Portsmouth, Virginia, Operable Unit 1, EPA, August 2002.
- Explanation of Significant Differences, Abex Superfund Site, Portsmouth, Virginia, EPA, October 1995.
- Feasibility Study, Abex Corporation, Portsmouth, Virginia, GEO Engineering Inc. for Abex Corporation, October 1991.
- Final Design, Abex Superfund Site, Portsmouth Virginia, Volume I of II, Haley & Aldrich Inc. for Pneumo Abex Corporation, April 1998.
- Final Design, Abex Superfund Site, Portsmouth, Virginia, Volume II of II, Haley & Aldrich Inc. for Pneumo Abex Corporation, April 1998.
- Five-Year Review Report for Operable Unit 1, Abex Superfund Site, Portsmouth, Virginia, EPA, September 2002.
- Fourth Five-Year Review Report for Abex Superfund Site, Suffolk County, Virginia, EPA, May, 2017.
- Integrated Exposure Uptake Biokinetic Model (IEUBK), EPA, Windows Version, February 2001.
- Portsmouth City Ordinance, City of Portsmouth, October 1996.
- Pre-Final Design, Abex Superfund Site, Portsmouth, Virginia, GEO Engineering Inc. for Abex Corporation, April 1997.
- Record of Decision Amendment, Abex Corporation Superfund Site, Portsmouth, Virginia, EPA, August 1992.
- Record of Decision, Abex Corporation Superfund Site, Portsmouth, Virginia, EPA and the Virginia Department of Waste Management, September 1992.
- Remedial Action Completion Report Addendum, Operable Unit-1, Washington Park Housing Area Remediation and Soil Storage and Treatment Pad Demolition and Removal, Volume I of III, Haley & Aldrich Inc. for Pneumo Abex LLC, December 2007.
- Remedial Action Completion Report Addendum, Operable Unit-1, Washington Park Housing Area Remediation and Soil Storage and Treatment Pad Demolition and Removal, Volume II of III, Haley & Aldrich Inc. for Pneumo Abex LLC, December 2007.
- Remedial Action Completion Report Addendum, Operable Unit-1, Washington Park Housing Area Remediation and Soil Storage and Treatment Pad Demolition and Removal, Volume III of III, Haley & Aldrich Inc. for Pneumo Abex LLC, December 2007.
- Remedial Action Completion Report for Areas of Operable Unit One, Abex Superfund Site, Portsmouth, Virginia, Haley & Aldrich Inc. for Pneumo Abex Corporation, July 2004.
- Remedial Action Report, Abex Corporation Superfund Site, Portsmouth, Suffolk County, Virginia, Remediation of Contaminated Soils/Structures, 700-Foot Radius of Former Abex Foundry Operable Unit 1, EPA, September 2009.
- Remedial Investigation Report/Remedial Action Work Plan (RIR/RAWP), Former Washington Park Housing, Abex Superfund Site, Portsmouth, Virginia, Haley & Aldrich Inc. for Pneumo Abex Corporation, May 2004.
- Remediation Investigation Report, Abex Corporation, Portsmouth, Virginia, GEO Engineering Inc. for Abex Corporation, October 1991.
- Response Action Plan for Abex Corporation Site, Portsmouth, Virginia, Maecorp, Inc. for Pneumo Abex Corporation, April 1992.

- Risk Assessment Guidance for Superfund, EPA, Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment), July 2004.
- Second Five-Year Review Report for Operable Unit 1, Abex Superfund Site, Portsmouth, Suffolk County, Virginia, EPA, September 2007.
- Site Sampling Plan for the Abex Site, EPA, December 1992.
- Third Five-Year Review Report for Abex Superfund Site, Suffolk County, Virginia, EPA, May 2012.

APPENDIX B – SITE CHRONOLOGY

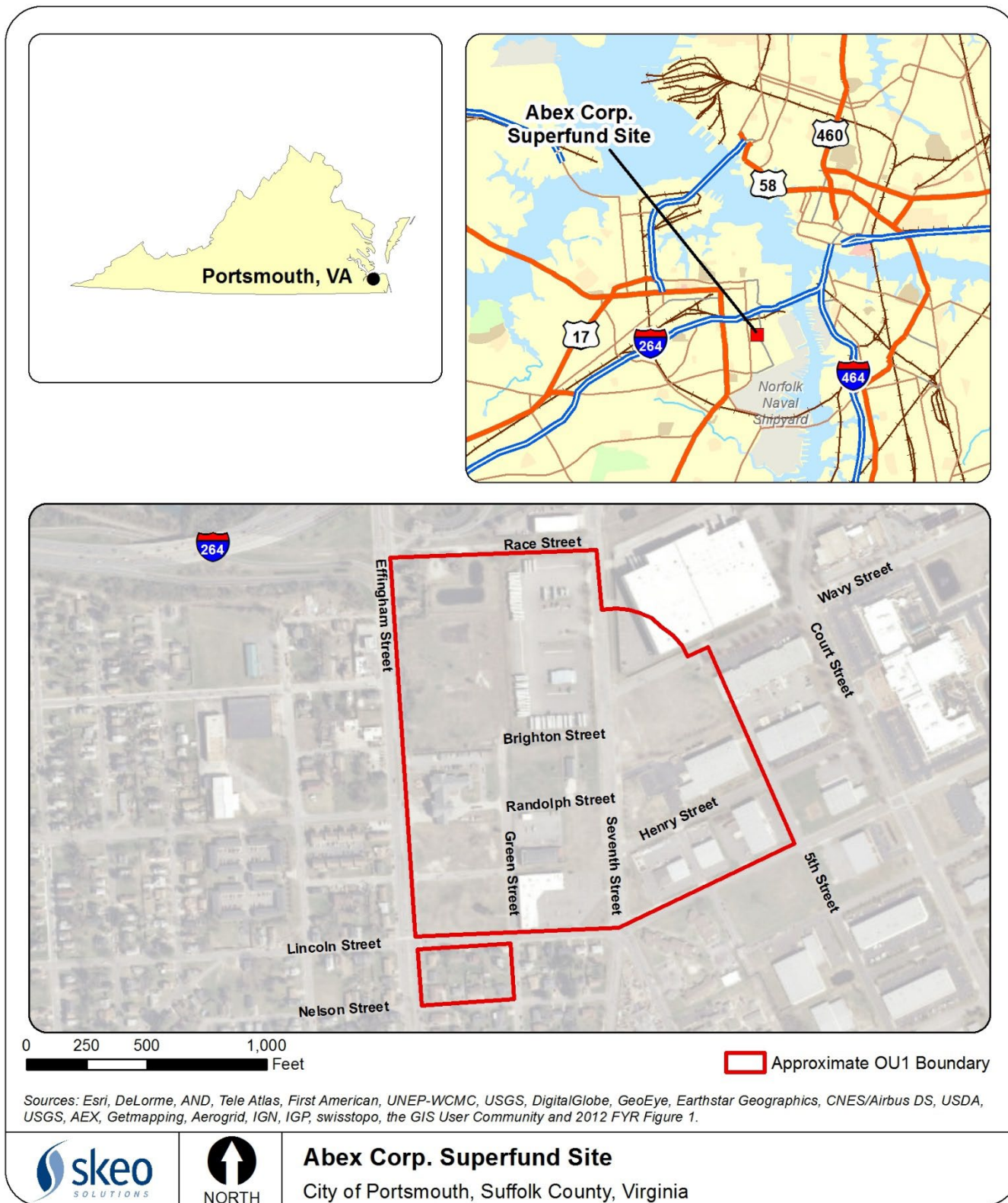
Table B-1: Site Chronology

Event	Date
Corporate predecessors of Pneumo Abex operated a brass and bronze foundry at the Site to recycle railroad journal bearings	1928 - 1978
EPA began preliminary assessment and site inspection, including sampling at WPH area and properties adjacent to the former Abex foundry	January 1983 - April 1986
Portsmouth Health Department conducted soil sampling and blood screening in WPH area	May 1986
EPA, VADEQ, the Portsmouth Health Department and Abex collected wipe and paint samples to evaluate airborne contaminants at homes of children with high blood-lead levels	July 1986
EPA and Abex signed Consent Order requiring Abex to remove 6 to 12 inches of lead-contaminated soil from residential areas	August 1986
Abex began removal action under CERCLA requirements	October 1986 - January 1989
EPA proposed the Site for listing on the Superfund program's National Priorities List (NPL)	June 1988
EPA listed the Site on the NPL	August 30, 1990
VADEQ (lead agency) and Abex signed a Consent Order requiring that Abex conduct the Site's remedial investigation and feasibility study (RI/FS)	October 1989
EPA issued a Unilateral Administrative Order for an interim removal action at Effingham Playground, the Effingham Residential Area and the WPH area in response to contaminant levels detected during the RI	March 1992
Abex conducted interim removal action to address soil contamination	June - September 1992
EPA issued the Site's ROD and requested a plan to address collapsing Foundry Building 13 on foundry property	October 1992
Abex began demolition of Foundry Building 13	March 1993
EPA issued ROD Amendment and selected remedy for OUI	August 15, 1994
EPA issued ESD describing minor change in remedy in the ROD Amendment, providing that permanent city facilities (fire station and playground) will be deemed "permanent cover" if ESD deadlines are met	October 5, 1995
EPA, Abex, the City of Portsmouth and PRHA entered into a Consent Decree establishing framework for design and implementation of remedy defined in the 1994 ROD Amendment and the 1995 ESD	April 1996
Abex temporarily relocated 70 WPH residents, and demolished the former foundry, three support buildings and several adjacent row homes	April - June 1997
Abex began demolition of 20 Effingham Residential Area homes	August 1998
Abex began major soil excavation, treatment and disposal work in and near WPH area. Total of 82,000 cubic yards of soil excavated; 30,000 cubic yards treated prior to disposal	January 1999 - April 2000
Abex disposed of soil off site at Subtitle D landfill and relocated about 120 residents in nearby housing (WPH structures and private homes) in three phases during cleanup work	January 1999 - April 2000
EPA began removal action to remove contaminated dust from the heating units and duct work at all 160 units at the WPH area (plus the rental office and the community center)	July 1999 - January 2000
EPA and Abex halted remedial work to allow for a civil rights lawsuit in April 2000 that resulted in a Consent Decree that required relocation of WPH residents, demolition of WPH structures, rezoning and modification of the remedy	April 2000

Event	Date
EPA issued Administrative Order on Consent for RI/FS and removal response actions to Abex to investigate and remediate lead-contaminated soil from the former Abex Foundry outside of the 700-foot radius of the former Abex Foundry (OU1); this area now constitutes OU2	August 2000
PRHA permanently relocated WPH residents	2001 - 2002
Abex submitted Remedial Action Completion Report for OU1 remedial work to EPA	December 2001
EPA issued ESD to change soil cleanup criteria in former WPH area from residential to commercial/industrial use standards	August 27, 2002
EPA completed first Abex OU1 FYR	September 13, 2002
The City of Portsmouth and PRHA began demolition of WPH facilities following relocation of residents in accordance with settlement of civil rights lawsuit	June 4, 2003
PRHA completed demolition of former WPH structures	November 2003
Abex conducted soil investigation in areas of former WPH buildings and submitted Remedial Investigation Report/Remedial Action Work Plan (RIR/RAWP) to EPA	February 2004 - May 2004
Abex submitted revised OU1 Remedial Action Completion Report in response to EPA comments on original Report	July 2004
Revised Remedial Action Completion Report submitted to EPA by Abex in July 2004	November 9, 2004
EPA accepted Abex methodology for distinguishing lead from the former foundry from other urban lead sources in environmental media by means of microscopic and chemical "fingerprinting"	December 2004
Abex submitted remediation specifications for RIR/RAWP to EPA	September 2005
Abex conducted soil remediation in former WPH area in accordance with 2004 RIR/RAWP	November 2005 - March 2006
Abex submitted plan to demolish and dispose of SSTP materials and restore the area, formerly used for lead-contaminated soil remediation work at the Site	May 2006
Abex demolished and removed SSTP materials and restored the area	August 2006 - December 2006
PRHA removed foundations of previously demolished housing units at former WPH area in conjunction with development of a commercial transportation/parking facility	August 2006 - August 2007
EPA completed second Abex OU1 FYR	September 13, 2007
Abex and EPA conducted final site inspection for completion of remedial action at OU1	July 20, 2009
Abex certified the completion of the remedial action for OU1 at the Site to EPA	August 14, 2009
EPA issued Remedial Action Report to close out OU1	September 30, 2009
EPA completed third Abex OU1 FYR	May 10, 2012
EPA completed fourth Abex OU1 FYR	May 8, 2017
EPA released the OU2 Preferred Remedial Action Plan for Public Comment	August 25- September 27, 2021
EPA signed the OU2 Record of Decision	April 13, 2022

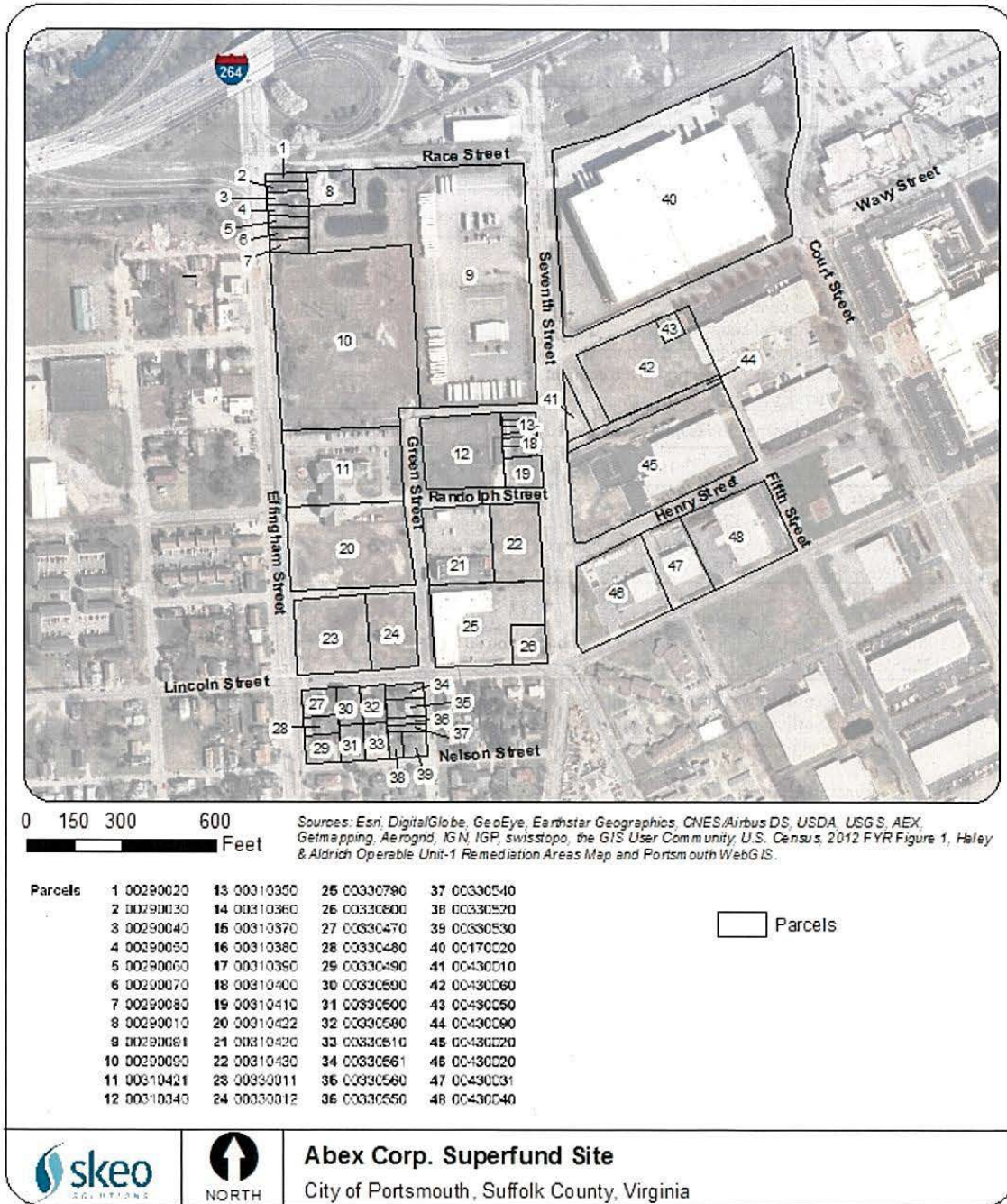
APPENDIX C – SITE MAPS

Figure C-1: Site Vicinity Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site. This Figure is from the 4th FYR.

Figure C-2: Site Parcel Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

APPENDIX D – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST																																																																																																
I. SITE INFORMATION																																																																																																
Site Name: <u>Abex Corp.</u>	Date of Inspection: <u>09/16/2021</u>																																																																																															
Location and Region: <u>Portsmouth, Virginia, Region 3</u>	EPA ID: <u>VAD980551683</u>																																																																																															
Agency, Office or Company Leading the Five-Year Review: <u>Region 3</u>	Weather/Temperature: <u>low 80s and sunny</u>																																																																																															
Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Landfill cover/containment <input type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input checked="" type="checkbox"/> Other: <u>Excavation, OU2 ROD has not been issued yet.</u> </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls </td> </tr> </table>		<input checked="" type="checkbox"/> Landfill cover/containment <input type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input checked="" type="checkbox"/> Other: <u>Excavation, OU2 ROD has not been issued yet.</u>	<input type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls																																																																																													
<input checked="" type="checkbox"/> Landfill cover/containment <input type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input checked="" type="checkbox"/> Other: <u>Excavation, OU2 ROD has not been issued yet.</u>	<input type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls																																																																																															
Attachments: <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached																																																																																																
II. INTERVIEWS (check all that apply)																																																																																																
1. O&M Site Manager <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">Name</td> <td style="width: 30%; text-align: center;">Title</td> <td style="width: 10%; text-align: center;">Date</td> </tr> <tr> <td>Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone</td> <td colspan="2">Phone: _____</td> <td></td> </tr> <tr> <td colspan="4">Problems, suggestions <input type="checkbox"/> Report attached: _____</td> </tr> </table>			Name	Title	Date	Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone	Phone: _____			Problems, suggestions <input type="checkbox"/> Report attached: _____																																																																																						
	Name	Title	Date																																																																																													
Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone	Phone: _____																																																																																															
Problems, suggestions <input type="checkbox"/> Report attached: _____																																																																																																
2. O&M Staff <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">Name</td> <td style="width: 30%; text-align: center;">Title</td> <td style="width: 10%; text-align: center;">Date</td> </tr> <tr> <td>Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input checked="" type="checkbox"/> by phone</td> <td colspan="2">Phone: <u>973-746-7600</u></td> <td></td> </tr> <tr> <td colspan="4">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> </table>			Name	Title	Date	Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input checked="" type="checkbox"/> by phone	Phone: <u>973-746-7600</u>			Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																																						
	Name	Title	Date																																																																																													
Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input checked="" type="checkbox"/> by phone	Phone: <u>973-746-7600</u>																																																																																															
Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																																																
3. Local Regulatory Authorities and Response Agencies (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply. <table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">Agency <u>VADEQ</u></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 10%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td>Contact</td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>Angela McGarvey</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>Remediation</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>12/15/2021</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>804-698-4084</u></td> </tr> <tr> <td></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Name</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Project Manager Title</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Date</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Phone No.</td> </tr> <tr> <td colspan="5">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> <tr><td colspan="5"> </td></tr> <tr> <td>Agency <u>City of Portsmouth</u></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact</td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>Jeff Harper</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>Senior Civil</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>11/30/2021</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>757-393-8592</u></td> </tr> <tr> <td></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Name</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Engineer Title</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Date</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Phone No.</td> </tr> <tr> <td colspan="5">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> <tr><td colspan="5"> </td></tr> <tr> <td>Agency <u>Nansemond Indian Nation</u></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact</td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>Keith Anderson</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>Chief</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>11/18/2021</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;"><u>757-620-7521</u></td> </tr> <tr> <td></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Name</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Title</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Date</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Phone No.</td> </tr> <tr> <td colspan="5">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> <tr><td colspan="5"> </td></tr> <tr> <td>Agency _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">_____</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">_____</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">_____</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">_____</td> </tr> <tr> <td></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Name</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Title</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Date</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">Phone No.</td> </tr> <tr> <td colspan="5">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> </table>		Agency <u>VADEQ</u>					Contact	<u>Angela McGarvey</u>	<u>Remediation</u>	<u>12/15/2021</u>	<u>804-698-4084</u>		Name	Project Manager Title	Date	Phone No.	Problems/suggestions <input type="checkbox"/> Report attached: _____										Agency <u>City of Portsmouth</u>					Contact	<u>Jeff Harper</u>	<u>Senior Civil</u>	<u>11/30/2021</u>	<u>757-393-8592</u>		Name	Engineer Title	Date	Phone No.	Problems/suggestions <input type="checkbox"/> Report attached: _____										Agency <u>Nansemond Indian Nation</u>					Contact	<u>Keith Anderson</u>	<u>Chief</u>	<u>11/18/2021</u>	<u>757-620-7521</u>		Name	Title	Date	Phone No.	Problems/suggestions <input type="checkbox"/> Report attached: _____										Agency _____					Contact	_____	_____	_____	_____		Name	Title	Date	Phone No.	Problems/suggestions <input type="checkbox"/> Report attached: _____				
Agency <u>VADEQ</u>																																																																																																
Contact	<u>Angela McGarvey</u>	<u>Remediation</u>	<u>12/15/2021</u>	<u>804-698-4084</u>																																																																																												
	Name	Project Manager Title	Date	Phone No.																																																																																												
Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																																																
Agency <u>City of Portsmouth</u>																																																																																																
Contact	<u>Jeff Harper</u>	<u>Senior Civil</u>	<u>11/30/2021</u>	<u>757-393-8592</u>																																																																																												
	Name	Engineer Title	Date	Phone No.																																																																																												
Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																																																
Agency <u>Nansemond Indian Nation</u>																																																																																																
Contact	<u>Keith Anderson</u>	<u>Chief</u>	<u>11/18/2021</u>	<u>757-620-7521</u>																																																																																												
	Name	Title	Date	Phone No.																																																																																												
Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																																																
Agency _____																																																																																																
Contact	_____	_____	_____	_____																																																																																												
	Name	Title	Date	Phone No.																																																																																												
Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																																																

Agency _____ Contact _____ Name _____ Title _____ Date _____ Phone No. _____	Problems/suggestions <input type="checkbox"/> Report attached: _____
4. Other Interviews (optional) <input type="checkbox"/> Report attached: Yes	
III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)	
1. O&M Documents <input type="checkbox"/> O&M manual <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> As-built drawings <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Maintenance logs <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
2. Site-Specific Health and Safety Plan <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Contingency plan/emergency response plan <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
3. O&M and OSHA Training Records <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
4. Permits and Service Agreements <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Other permits: _____ <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
5. Gas Generation Records <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
6. Settlement Monument Records <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
7. Groundwater Monitoring Records <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
8. Leachate Extraction Records <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
9. Discharge Compliance Records <input type="checkbox"/> Air <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Water (effluent) <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A Remarks: _____	
10. Daily Access/Security Logs <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A	

Remarks: _____			
IV. O&M COSTS			
1.	O&M Organization		
	<input type="checkbox"/> State in-house	<input type="checkbox"/> Contractor for state	
	<input type="checkbox"/> PRP in-house	<input checked="" type="checkbox"/> Contractor for PRP	
	<input type="checkbox"/> Federal facility in-house	<input type="checkbox"/> Contractor for Federal facility	
	<input type="checkbox"/> _____		
2.	O&M Cost Records		
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	
	<input type="checkbox"/> Funding mechanism/agreement in place	<input checked="" type="checkbox"/> Unavailable	
	Original O&M cost estimate: _____ <input type="checkbox"/> Breakdown attached		
	Total annual cost by year for review period if available		
	From: _____ Date	To: _____ Date	_____ <input type="checkbox"/> Breakdown attached Total cost
	From: _____ Date	To: _____ Date	_____ <input type="checkbox"/> Breakdown attached Total cost
	From: _____ Date	To: _____ Date	_____ <input type="checkbox"/> Breakdown attached Total cost
	From: _____ Date	To: _____ Date	_____ <input type="checkbox"/> Breakdown attached Total cost
	From: _____ Date	To: _____ Date	_____ <input type="checkbox"/> Breakdown attached Total cost
3.	Unanticipated or Unusually High O&M Costs during Review Period		
	Describe costs and reasons: _____		
V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Fencing			
1.	Fencing Damaged	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A
	Remarks: <u>No damage to fencing was noted. Not all portions of the site are fenced or require fencing.</u>		

B. Other Access Restrictions			
1.	Signs and Other Security Measures		<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A
	Remarks: <u>Signage prohibits trespassing on restricted areas due to site operations.</u>		
C. Institutional Controls (ICs)			

1. Implementation and Enforcement			
Site conditions imply ICs not properly implemented	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Site conditions imply ICs not being fully enforced	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Type of monitoring (e.g., self-reporting, drive by): <u>FYRs and regular visits as part of OU2 remedial work</u>			
Frequency: <u>every five years or as needed.</u>			
Responsible party/agency: <u>Abex with EPA and VADEQ oversight</u>			
Contact	<u>William Dunnell (see above)</u>	_____	_____
Name	Title	Date	Phone no.
Reporting is up to date	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Reports are verified by the lead agency	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Specific requirements in deed or decision documents have been met	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Violations have been reported	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Other problems or suggestions: <input type="checkbox"/> Report attached			
2. Adequacy <input checked="" type="checkbox"/> ICs are adequate <input type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A			
Remarks: _____			
D. General			
1. Vandalism/Trespassing <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No vandalism evident			
Remarks: _____			
2. Land Use Changes On Site <input checked="" type="checkbox"/> N/A			
Remarks: <u>Site continues to be used for commercial and industrial purposes.</u>			
3. Land Use Changes Off Site <input checked="" type="checkbox"/> N/A			
Remarks: _____			
VI. GENERAL SITE CONDITIONS			
A. Roads <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1. Roads Damaged <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A			
Remarks: _____			
B. Other Site Conditions			
Remarks: _____			
VII. LANDFILL COVERS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Landfill Surface <i>(The on-site covers are permanent building structures and paved areas such as parking lots and sidewalks.)</i>			
1. Settlement (low spots) <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident			
Aerial extent: _____		Depth: _____	
Remarks: _____			
2. Cracks (See Remarks) <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Cracking not evident			
Lengths: _____		Depths: _____	
Widths: _____			

Remarks: RPMs did not identify any significant changes or issues with the various covers. Improved cover with the redeveloped areas included asphalt parking lots and vegetated areas that were clearly maintained.		
3.	Erosion Aerial extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident Depth: _____
4.	Holes Aerial extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident Depth: _____
5.	Vegetative Cover <input checked="" type="checkbox"/> No signs of stress Remarks: <u>OUI has vegetated cover with redeveloped areas including landscaped areas around parking lots.</u>	<input checked="" type="checkbox"/> Grass <input type="checkbox"/> Trees/shrubs (indicate size and locations on a diagram) <input checked="" type="checkbox"/> Cover properly established
6.	Alternative Cover (e.g., armored rock, concrete) Remarks: (The on-site covers are permanent building structures and paved areas such as parking lots and sidewalks.)	<input type="checkbox"/> N/A
7.	Bulges Aerial extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Bulges not evident Height: _____
8.	Wet Areas/Water Damage <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks: _____	<input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map Aerial extent: _____ <input type="checkbox"/> Location shown on site map Aerial extent: _____ <input type="checkbox"/> Location shown on site map Aerial extent: _____ <input type="checkbox"/> Location shown on site map Aerial extent: _____
9.	Slope Instability <input checked="" type="checkbox"/> No evidence of slope instability Aerial extent: _____ Remarks: _____	<input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map
B. Benches <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	Flows Bypass Bench Remarks: _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
2.	Bench Breached Remarks: _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay
3.	Bench Overtopped	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay

Remarks: _____			
C. Letdown Channels <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	Settlement (Low spots) <input type="checkbox"/> Location shown on site map Arial extent: _____ Remarks: _____	<input type="checkbox"/> No evidence of settlement Depth: _____	
2.	Material Degradation <input type="checkbox"/> Location shown on site map Material type: _____ Remarks: _____	<input type="checkbox"/> No evidence of degradation Arial extent: _____	
3.	Erosion <input type="checkbox"/> Location shown on site map Arial extent: _____ Remarks: _____	<input type="checkbox"/> No evidence of erosion Depth: _____	
4.	Undercutting <input type="checkbox"/> Location shown on site map Arial extent: _____ Remarks: _____	<input type="checkbox"/> No evidence of undercutting Depth: _____	
5.	Obstructions Type: _____ <input type="checkbox"/> Location shown on site map Arial extent: _____ Size: _____ Remarks: _____	<input type="checkbox"/> No obstructions	
6.	Excessive Vegetative Growth Type: _____ <input type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map Arial extent: _____ Remarks: _____		
D. Cover Penetrations <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Gas Vents <input type="checkbox"/> Active <input type="checkbox"/> Passive <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____		
2.	Gas Monitoring Probes <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____		
3.	Monitoring Wells (within surface area of landfill) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition		

<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> N/A
Remarks: _____		
4. Extraction Wells Leachate		
<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled
<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> Good condition
Remarks: _____		
5. Settlement Monuments		
<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input type="checkbox"/> N/A
Remarks: _____		
E. Gas Collection and Treatment		
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1. Gas Treatment Facilities		
<input type="checkbox"/> Flaring	<input type="checkbox"/> Thermal destruction	<input type="checkbox"/> Collection for reuse
<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	
Remarks: _____		
2. Gas Collection Wells, Manifolds and Piping		
<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	
Remarks: _____		
3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)		
<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> N/A
Remarks: _____		
F. Cover Drainage Layer		
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1. Outlet Pipes Inspected		
<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks: _____		
2. Outlet Rock Inspected		
<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks: _____		
G. Detention/Sedimentation Ponds		
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1. Siltation Area extent: _____ Depth: _____ <input type="checkbox"/> N/A		
<input type="checkbox"/> Siltation not evident		
Remarks: _____		
2. Erosion Area extent: _____ Depth: _____		
<input type="checkbox"/> Erosion not evident		
Remarks: _____		
3. Outlet Works		
<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks: _____		
4. Dam		
<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks: _____		
H. Retaining Walls		
<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		

1.	Deformations	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident
	Horizontal displacement: _____	Vertical displacement: _____	
	Rotational displacement: _____		
	Remarks: _____		
2.	Degradation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident
	Remarks: _____		
I. Perimeter Ditches/Off-Site Discharge		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Siltation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident
	Area extent: _____	Depth: _____	
	Remarks: _____		
2.	Vegetative Growth	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
	<input type="checkbox"/> Vegetation does not impede flow		
	Area extent: _____	Type: _____	
	Remarks: _____		
3.	Erosion	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Erosion not evident
	Area extent: _____	Depth: _____	
	Remarks: _____		
4.	Discharge Structure	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
	Remarks: _____		
VIII. VERTICAL BARRIER WALLS		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	Settlement	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
	Area extent: _____	Depth: _____	
	Remarks: _____		
2.	Performance Monitoring	Type of monitoring: _____	
	<input type="checkbox"/> Performance not monitored		
	Frequency: _____	<input type="checkbox"/> Evidence of breaching	
	Head differential: _____		
	Remarks: _____		
IX. GROUNDWATER/SURFACE WATER REMEDIES		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
A. Groundwater Extraction Wells, Pumps and Pipelines		<input type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	Pumps, Wellhead Plumbing and Electrical		
	<input type="checkbox"/> Good condition	<input type="checkbox"/> All required wells properly operating	<input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A
	Remarks: _____		
2.	Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances		
	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	
	Remarks: _____		

<p>3. Spare Parts and Equipment</p> <p><input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided</p> <p>Remarks: _____</p>
<p>B. Surface Water Collection Structures, Pumps and Pipelines <input type="checkbox"/> Applicable <input type="checkbox"/> N/A</p>
<p>1. Collection Structures, Pumps and Electrical</p> <p><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>2. Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances</p> <p><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>3. Spare Parts and Equipment</p> <p><input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided</p> <p>Remarks: _____</p>
<p>C. Treatment System <input type="checkbox"/> Applicable <input type="checkbox"/> N/A</p>
<p>1. Treatment Train (check components that apply)</p> <p><input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation</p> <p><input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers</p> <p><input type="checkbox"/> Filters: _____</p> <p><input type="checkbox"/> Additive (e.g., chelation agent, flocculent): _____</p> <p><input type="checkbox"/> Others: _____</p> <p><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p><input type="checkbox"/> Sampling ports properly marked and functional</p> <p><input type="checkbox"/> Sampling/maintenance log displayed and up to date</p> <p><input type="checkbox"/> Equipment properly identified</p> <p><input type="checkbox"/> Quantity of groundwater treated annually: _____</p> <p><input type="checkbox"/> Quantity of surface water treated annually: _____</p> <p>Remarks: _____</p>
<p>2. Electrical Enclosures and Panels (properly rated and functional)</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>3. Tanks, Vaults, Storage Vessels</p> <p><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>4. Discharge Structure and Appurtenances</p>

<input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____
5. Treatment Building(s) <input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks: _____
6. Monitoring Wells (pump and treatment remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____
D. Monitoring Data
1. Monitoring Data <input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality
2. Monitoring Data Suggests: <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining
E. Monitored Natural Attenuation
1. Monitoring Wells (natural attenuation remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____
<p style="text-align: center;">X. OTHER REMEDIES</p> If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
<p style="text-align: center;">XI. OVERALL OBSERVATIONS</p>
A. Implementation of the Remedy Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions). <u>The remedy, excavation to certain depths, installation of warning liner and clean soil on top, and institutional controls, has been effective. The current institutional controls at the Site appear to be adequate for short-term protection.</u>
B. Adequacy of O&M Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. <u>Ongoing O&M at the Site is minimal for OU1; the primary remedial action is complete (excavation) and institutional controls prevent unsafe use.</u>
C. Early Indicators of Potential Remedy Problems Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. <u>There are no O&M costs associated with the Site during the last five years.</u>
D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.
There is a continued need to work with the City of Portsmouth to ensure the Institutional Controls are followed. Redevelopment continues and the future property owner needs to know where it may or may not be safe to dig if the previous owner removed soil.

APPENDIX E – PRESS NOTICE

Client Name: / PO# Abex FYR Ad
 Advertiser: Walga MTE LLC
 Section/Page/Zone: Main News_VM/A012/Pilot
 Description: Abex FYR Ad

Ad Number: 7133426-1
 Insertion Number:
 Size: 2 x 4
 Color Type: B&W

The Virginian-Pilot

Publication Date: 02/08/2022

This E-Sheet(R) is provided as confirmation that the ad appeared in The Virginian-Pilot on the date and page indicated. You may not create derivative works, or in any way exploit or repurpose any content.

Advertise 1-2-3 it's that easy!

- Selling an item
- Hiring an employee
- Celebrating a loved one
- Announcing an event

- Schedule
- Layout
- Review & Submit

Self-Service Print and Online Display and Classified Ads See Your Options:
 Visit: placeanad.tribpub.com

TRIBUNE PUBLISHING

Classified Advertising Classified Circulation Classified Revenue
 Classified Department Classified Services Classified Sales

ASSISTED LIVING NON-DEPT CARE INDEPENDENT LIVING HOME CARE

aPlace for Rose

Find the right senior living option for your mom or dad with our free personalized process

- 1 Connect with a local advisor
- 2 Review a tailored list of recommendations
- 3 Evaluate, tour and decide with confidence

A Place for Mom helps thousands of families like Rose's each year and simplifies the process of finding senior living with customized guidance at no cost to your family.

Our service is free, as we're paid by our participating communities and providers.

aPlaceforMom.com
 THE PLACE FOR SENIOR LIVING ADVICE

Connect with us at: 866.403.6931

ASSISTED LIVING NON-DEPT CARE INDEPENDENT LIVING HOME CARE

AdoptUSKids

I asked what kind of family Amina wanted. She said, 'A family like yours.' That's when I knew I had to adopt her.

Dennis, adopted 7-year-old Amina

LEARN ABOUT ADOPTING A TEEN YOU CAN'T IMAGINE THE REWARD

ADOPTUSKIDS.ORG

EPA PUBLIC NOTICE

EPA REVIEWS CLEANUP
 ASBEX CORPORATION SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is reviewing the Cleanup that was conducted at the Asbex Corporation Superfund Site located in Portsmouth, Virginia. EPA conducts Five-Year Reviews to ensure that cleanups continue to protect public health and the environment. EPA conducted the previous Five-Year Review in 2017 and concluded that the remedy is protective of human health and the environment. EPA will make the findings from this Five-Year Review available in May 2022.

To access site information, including the Five-Year Review, visit: www.epa.gov/superfund/cleanups

For questions or to provide site-related information for the review, contact:
 Alexander Marshall, EPA Community Involvement Coordinator
 215-874-4477 or marshall.alexander@epa.gov

Get more out of your subscription by logging up your digital account. It's easy to start your online access. Visit: go.activists.com

TRIBUNE PUBLISHING

DISNEY WORLD AT 50
 THE HISTORY OF ONE WALT'S KINGDOM BECAME MAGICAL IN ORLANDO

AVAILABLE AS A BOOK FOR PRE-ORDER!

Disney World at 50

Celebrate the rich and fascinating history of Disney World with this stunning retrospective, featuring original coverage and over 100 photos from our archives.

TRIBUNE PUBLISHING

Stop to wait
tribpub.com/disneybook
 or call (866) 543-3334

*Available for pre-order only. Books will begin to ship on or before 2/28/22.

APPENDIX F – SITE INSPECTION PHOTOS



On Effingham, looking east at City of Portsmouth Fire Station



Front of City of Portsmouth Fire Station on Effingham St.



Fence along Effingham Street looking south



Looking east at vacant parcel along Effingham St.



Looking north along Effingham to corner at Race St.



House at corner of Effingham St and Race St.



From Effingham St, looking east along Race St.



South side of Race St. at the Stormwater Detention Basin



Stormwater Detention Basin on Race St.



Stormwater Detention Basin on Race St.



Looking east along Race St.



Parking lot of beverage distribution facility



Looking south from truck parking lot towards horse corrals



Looking west on 7th St. at horse corrals



Seventh and Randolph Streets intersection



Lincoln and Seventh Streets looking south.



On Lincoln Street facing west at shopping center



Southside Plaza on Lincoln Street



Looking west on Lincoln Street towards 7-11 on Effingham St.



Dollar General on Effingham Street



7-11 from corner of Lincoln and Effingham Streets



Looking north From Green Street

APPENDIX G – INTERVIEW FORMS

Abex Corp. Superfund Site

Five-Year Review Interview Form

Site Name: Abex Corp. EPA ID No.: VAD980551683
Interviewer Name: Lisa Denmark Affiliation: EPA
Subject Name: Angie McGarvey Affiliation: VADEQ
Subject Contact Information: 804-698-4084, angela.mcgarvey@deq.virginia.gov
Time: N/A Date: 12/15/2021
Interview Location: E-mail
Interview Format (circle one): In Person Phone Mail Other: e-mail
Interview Category: State Agency

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The Abex Superfund Site OU1 response actions were completed using the CERCLA process and are working nicely, as expected.

2. What is your assessment of the current performance of the remedy in place at the Site?

Response actions have resulted in the remedy being protective for human health and the environment. Contaminated soil was either excavated or is buried under 2 ft clean soil or permanent covers and is managed with institutional controls to prevent future exposures.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

In 2018, DEQ received 9 letters from current or former residents of Portsmouth, VA sharing concerns about health issues potentially related to lead exposures. DEQ prepared response letters to each letter. DEQ's Tidewater Regional Office received several phone calls related to environmental contamination of Abex and other properties in the area.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

The DEQ Office of Remediation Programs, CERCLA Program, continues to provide site oversight with EPA. In Virginia, EPA is the lead agency and DEQ is the support agency for Superfund sites. We have participated in site visits and outreach efforts.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

The review process should verify that the deed restrictions and permitting process are adequately managing the soil on the site.

7. Are you aware of any changes in projected land use(s) at the Site?

No. Part of the former Washington Housing property is on the market to be sold.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

No.

Abex Corp. Superfund Site

Five-Year Review Interview Form

Site Name: Abex Corp.

EPA ID No.: VAD980551683

Interviewer Name: Lisa Denmark

Affiliation: VAD980551683

Subject Name: Nansemond Tribe

Affiliation: EPA

Subject Contact Information:

Time: N/A.

Date: 11/2021

Interview Location: TEAMS

Interview Format (circle one): In Person Phone E-Mail Other: Online

Interview Category: Interested Federally Recognized Tribe

Summary of Discussion is in the text.

Abex Corp. Superfund Site

Five-Year Review Interview Form

Site Name: Abex Corp.

EPA ID No.: VAD980551683

Interviewer Name: Lisa Denmark

Affiliation: VAD980551683

Subject Name: William Dunnell

Affiliation: EPA

Subject Contact Information: 973-746-7600, William@viridianinc.com

Time: N/A.

Date: 01/2022

Interview Location: E-mail

Interview Format (circle one): In Person Phone E-Mail Other:

Interview Category: **Potentially Responsible Parties (PRPs)**

1. What is your overall impression of the remedial activities at the Site?

They were implemented as designed and approved and appear effective to me.

2. What have been the effects of the Site on the surrounding community, if any?

The remedy has had little to no impact over the last five years because it had been previously implemented. It impacts new developments because of necessary controls, but only new developments.

3. What is your assessment of the current performance of the remedy in place at the Site?

Performing as executed.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

No. The hotline for OUI is operational and receives no calls. It was set up in 1988-89, with no calls received since the last FYR.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

Yes, he is the project manager for the PRP. Nothing that EPA can do better, the website might need updating when the FYRs happen.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

None, we look forward to completing the project.

Abex Corp. Superfund Site

Five-Year Review Interview Form

Site Name: Abex Corp.

EPA ID No.: VAD980551683

Interviewer Name: Lisa Denmark/Alex Mandell

Affiliation: EPA

Subject Name: Jeff Harper

Affiliation: City of Portsmouth

Subject Contact Information: 757-393-8592

Time: 2:00 p.m.

Date: 11/30/2021

Interview Location: TEAMs Call

Interview Format (circle one): In Person Phone Mail Other:

Interview Category: Local Government

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. Do you feel well-informed regarding the Site’s activities and remedial progress? If not, how might EPA convey site-related information in the future?

Yes.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

Not that I know of. Several years ago a contractor went out to add handicap curb ramps at one of the site intersections; the permitting process caught this and the City was notified.

4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site’s remedy?

No.

5. Are you aware of any changes in projected land use(s) at the Site?

Not now.

6. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

I have not heard any complaints about information lacking. I think the permitting process is effective.

7. Do you have any comments, suggestions or recommendations regarding the project?

For franchise utilities (e.g., Cox Cable or Verizon), the permitting process in place will catch cables proposed to be added underground. Jeff explains the situation to these utility companies, and that they have to either go overhead, don’t do it at all or do it somewhere else.

8. Did any questions or concerns arise with permittees?

Some developers grumble now and then, but once they understand, they are okay with it; not many are scared off. Dollar General development added soil fill because the property is in the floodplain; they didn't need to dig at all for the Dollar General development. They did install surface water drainage systems because the property is so elevated.

APPENDIX H – ADDITIONAL BACKGROUND INFORMATION

Confirmatory Sampling

In residential areas and the Abex lot, soil exceeding 500 mg/kg was excavated to the water table. Confirmation soil sampling was performed to test the floors and sidewalls of the excavated areas. In certain instances (for both residential and industrial areas), EPA-approved pre-excavation delineation sampling was performed to delineate the lateral and vertical extents of excavation. In these instances, this sampling was used in lieu of post-excavation confirmatory sampling that would have occurred concurrently with excavation activities. According to the 2009 OU1 Remedial Action Report, Abex removed lead-contaminated soil and debris, replaced the removed soil with uncontaminated soil, and left permanent covers, such as buildings parking lots, sidewalks and streets on former foundry properties, in place. The 2009 Remedial Action Report concluded that site-wide remedy implementation resulted in lowering the average lead concentration in these OU1 area soils to between 100 mg/kg and 300 mg/kg, well below the residential screening level of 400 mg/kg. The use of average lead concentrations is based on EPA's 2007 Office of Solid Waste and Emergency Response (OSWER) Directive 9200.1-78 Estimating the Soil Lead Concentration Term for the Integrated Exposure Uptake Biokinetic (IEUBK) Model. The 2009 Remedial Action Report indicated that remediation of lead-contaminated soils also lowered the risk of other soil contaminants to within acceptable ranges.

During and after excavation, an elevation survey confirmed that required depths and lateral extent of excavation had been achieved. Backfilled areas were surveyed to make sure the grades met or improved pre-existing drainage patterns.

Wipe samples evaluated interior and exterior lead-dust concentrations at each residential unit immediately prior to and immediately after the excavation in all areas, except for the Lincoln Street block area where only exterior samples were collected. Residential units with high concentrations of lead (greater than applicable HUD standards in effect at the time of the remedial action), either prior to or after excavation activity, were cleaned prior to the residents' return.

Areas contaminated with lead in the Lincoln Street block at concentrations greater than 500 mg/kg to a depth of 18 inches were removed. Delineation sampling did not indicate lead-contamination greater than 500 mg/kg at greater depths.

The 2009 Remedial Action Report documented site cleanup activities, the amounts of contaminated media and site conditions following completion of the remedial action.

APPENDIX I – ENVIRONMENTAL COMPLIANCE EXCAVATION PERMIT

Environmental Compliance Excavation Permit Abex Superfund Site Operable Unit 1

Permit Process Requirements per City of Portsmouth Code Chapter 11

Area where permit is required:

- Bounded by Race, Fifth, Lincoln, and Effingham Streets.

1. Applicant must provide the following:

A. Written application to city (copy EPA) with following information:

- (1) Description of the purpose and location of the proposed excavation; dates on which such excavation shall take place; depth of such excavation and equipment to be used for excavation.
- (2) Name, address and telephone number of applicant.
- (3) Name, address and telephone number of any person who will perform the excavation (if other than the applicant).
- (4) The professional or other qualifications, if any of the applicant, or such other person who will perform the excavation.

B. Proof of receipt of written notice of the information in A.(1) through A.(4) above by EPA.

C. Proof of publication in local newspaper of a brief description of purpose and location of the proposed work; and the name of the applicant and person performing the work.

Note: Notice to EPA and in newspaper should indicate that applicant is proposing to do the excavation and is applying to the city to do the same.

2. City must notify EPA of intent to issue permit.

3. City must notify public of intent to issue permit in local newspaper. Applicant shall pay for notice. Notice shall have:

- A. Statement of city's intention to issue permit.
- B. Name of applicant and person who will perform work.
- C. Purpose and location of excavation.

4. City must wait 5 days after notification of EPA and publication of city notice in local paper before issuing permit.

5. Permit must have required wording from code section 11-44

6. All notices to EPA should be addressed to:

U. S. Environmental Protection Agency
Director, Hazardous Site Cleanup Division
1650 Arch Street
Philadelphia, PA 19103-2029

Copy to Ms. Lisa Denmark at same address

Inquiries to Jeffrey Harper, City of Portsmouth Engineering Department, 393-8592