



**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III**

**Final Decision and Response to Comments
Remedy Complete with Controls**

**U.S. Army Adelphi Laboratory Center
Adelphi, Maryland
EPA ID: MD8 213 822 762**

The United States Environmental Protection Agency (EPA) is issuing this Final Decision and Response to Comments (FDRTC) or 'Final Decision' regarding the U.S. Army Adelphi Laboratory Center (ALC), Adelphi, Maryland.

EPA issued a Statement of Basis (or remedy proposal) for public comment on August 30, 2018 in *The Prince George's Sentinel* newspaper. The 30-day comment period closed on September 29, 2018. EPA received no comments on the proposed remedy or Statement of Basis, therefore, the Final Remedy for the ALC Facility is **Remedy Complete with Controls**, consisting of maintenance of groundwater use restrictions, implemented through institutional controls and no further action for soils at the Facility.

Prepared by
U.S. EPA, Region III
Land and Chemicals Division
Office of Remediation

October 1, 2018

PURPOSE

This Final Remedy Decision is issued pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, U.S.C. Sections 6901, et. seq. EPA issued the Statement of Basis (SB), which summarized the information gathered from inspection documents, reports and correspondence ALC personnel. The SB is incorporated into this Final Remedy Decision as Attachment A.

FINAL DECISION

EPA's Final Remedy Decision for the ALC Facility is Remedy Complete with Controls under the RCRA Corrective Action Program.

DECLARATION

I have determined that the final remedy of Remedy Complete with Controls for the ALC Facility is protective of human health and the environment. This decision is based on the Statement of Basis (Attachment A) and the information compiled in the Administrative Record regarding the ALC Facility.



John A. Armstead, Director
Land and Chemicals Division
U.S. Environmental Protection Agency, Region III

Date: 10.1.18

ATTACHMENT A



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

**U.S. Army Adelphi Laboratory Center
Adelphi, Maryland**

EPA ID: MD8213822762

Prepared by
Office of Remediation
Land and Chemicals Division
August 2018

Table of Contents

Section 1: Introduction.....	1
Section 2: Facility Background.....	1
Section 3: Summary of Environmental History.....	2
Section 4: Proposed Remedy	6
Section 5: Environmental Indicators.....	6
Section 6: Public Participation.....	7
Section 7: Signature	7
Figure 1: Location Map.....	8
Figure 2: ALC Sites	9
Figure 3: CERCLA Sites	11
Figure 4: TCE Plume	12
Attachment 1: Administrative Record	13

Section 1: Introduction

The United States Environmental Protection Agency (EPA) prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for the U.S. Army Adelphi Laboratory Center (ALC) Facility, located in Adelphi, Maryland (Figure 1). EPA's proposed remedy for the Facility consists of no further action for soils and compliance with and maintenance of groundwater use restrictions to be implemented through institutional controls, or remedy complete with controls.

This Statement of Basis highlights the available information that EPA used as the 'basis' of its proposed decision. EPA's Administrative Record (AR) for this Facility contains all the documents EPA used to make its proposed decision. Attachment 1 lists the AR documents. To request a review of the AR documents, see Public Participation (Section 6).

ALC is subject to EPA's Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. §§ 6901 et seq. (Corrective Action Program). The purpose of the Corrective Action Program is to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and/or hazardous constituents that occurred at their property. The State of Maryland is not authorized to implement this Program under Section 3006 of RCRA, therefore, EPA currently implements the Corrective Action Program in Maryland.

EPA is providing thirty (30) days for public comment on this proposed remedy decision for ALC. EPA may modify its proposed decision based on comments received during the public comment period. EPA will evaluate comments received and issue a final remedy decision for ALC in a Final Decision and Response to Comments document.

Information on the Corrective Action Program and EPA's Facility Fact Sheet is located at: <https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-united-states-army-garrison-adelphi-laboratory>.

Section 2: Facility Background

The Adelphi Laboratory Center (ALC) is an active U.S. Army research and development Facility located at 2800 Powder Mill Road in Adelphi, Maryland, a suburb of Washington, D.C. Figure 1 depicts the 207-acre Facility boundaries. The ALC was formerly known as Harry Diamond Laboratories (HDL).

In 1969, HDL moved from its location in Washington, D.C. to 137 acres of undeveloped farmland in Adelphi, MD on land transferred from the adjacent U.S. Navy Naval Surface Warfare Center-White Oak Detachment (NSWC-WO) to the Army for the HDL Facility. The Navy transferred 70 more acres to HDL in the 1990's, for a total of 207 acres comprising HDL. HDL was renamed the Adelphi Laboratory Center (ALC) and in the mid-1990's, the adjacent NSWC-WO

facility was closed under the Base Realignment and Closure Act (BRAC). Environmental studies conducted at the adjacent NSWC-WO Facility as part of BRAC closure and other later investigations confirmed that contaminated groundwater from the NSWC-WO Facility had impacted the ALC property in a few locations. These locations are discussed in Section 3.3.

ALC activities have included development of electronic fuses for projectiles (i.e., mortar, artillery, rockets, missiles) and associated electronic technology, research on fluidics and nuclear weapons effects technologies. Operations are conducted on a small or prototype scale rather than full scale production. Operations have included metal plating, printed circuit board production and impulse generator and photographic operations.

Section 3: Summary of Environmental History

3.1 Geologic Setting

ALC Facility is gently rolling to hilly with rock outcroppings. Paint Branch Creek flows across the Facility. The east coast Fall Line or transition zone between the rock Piedmont Province and the unconsolidated sediment of the Atlantic Coastal Plain is located beneath the Facility. The depth to groundwater is shallow, generally within 20 feet of the surface.

ALC is supplied by a public water utility (WSSC). There are no water supply wells on the ALC, but there are several private wells within 1,000 feet of the ALC boundaries. A few private wells located downgradient of ALC had some low-level Facility-related contaminants and had carbon filtration installed by NSWC-WO until owners were connected to the public water utility. Off-site groundwater contamination is discussed in Section 3.3.

3.2 RCRA Corrective Action Environmental History

In 1983, ALC (formerly Harry Diamond Laboratories) applied for a Resource Conservation and Recovery Act (RCRA) Part B Permit for on-site hazardous waste storage. In 1989, EPA conducted a Visual Site Inspection (VSI) at the Facility as part of an initial RCRA Corrective Action assessment. The VSI was followed by a RCRA Facility Assessment (RFA) in 1990. The RFA identified 28 Solid Waste Management Units (SWMUs) and four Areas of Concern (AOC). In the 1990 RFA EPA only recommended 3 SWMUs and 1 AOC for further action. Table 2 below provides a description of the 4 units and their current status.

Table 1 SWMUs/AOC Recommended for Further Action and Current Status		
SWMUs/AOC	Description in RFA	Status & Basis for No Further Action (NFA)
<p>SWMU 13 – Bldg. 101 Outdoor Drum Storage.</p> <p><u>EPA recommended that ALC provide secondary containment or move drum storage indoors, and soil sampling.</u></p>	<p>8 drums with waste oil and diesel stored outside Bldg. 101 on pallets on asphalt. Drums showed signs of minor corrosion and leakage at the time of the 1989 VSI visit.</p>	<p>As a result of the 1989 VSI, used oil & antifreeze generated by maintenance operations were moved inside Bldg. 101. ALC noted no evidence of releases at SWMU 13.</p> <p><u>EPA recommends NFA.</u></p>
<p>SWMU 24 – Stormwater Sewer System (SWSS).</p> <p><u>EPA recommended soil sampling downgradient of the Paint Branch Creek discharge.</u></p>	<p>The SWSS throughout ALC was buried concrete pipes that discharged to Paint Branch Creek. There were no release controls, however, there was no record of any releases.</p>	<p>After the VSI, ALC installed 4 SW ponds & 2 bio-retention devices at 2 bldgs. ALC states that SWSS is not a SWMU & no soil samples were taken. MDE NPDES permit issued for discharge to Paint Branch Creek.</p> <p><u>EPA recommends NFA.</u></p>
<p>SWMU 25 – Sanitary Sewer System (SSS).</p> <p><u>EPA recommended pipe integrity assessment & soil sampling if leaks apparent.</u></p>	<p>SSS handles sanitary & industrial wastewater. SSS buried pipes made of ductile steel & at Bldg. 403, acid-resistant material.</p>	<p>ALC maintains that SSS is not a SWMU according to regs. Testing & soil sampling was not conducted. No evidence of chemical releases.</p> <p><u>EPA recommends NFA.</u></p>
<p>AOC C – Bldg. 500 Vacuum Pump Spillage</p> <p><u>EPA recommended soil sampling.</u></p>	<p>Oily stain observed in soil in 3' x 5' area outside Bldg. 500. Stain was associated with vacuum system bleed off pipe for diffusion pump oil. Pump oil was non-hazardous.</p>	<p>ALC sampled soil in 1996, with only a phthalate compound found. No human exposure risks. Discontinued bleed off pipe use in 1995. EPA recommends NFA.</p>

The 1998 ALC RCRA Facility Update from ALC identified a few locations where contaminated groundwater plumes from the former NSWC-WO Facility had migrated onto ALC property, particularly in the Building 500 area (see Figure 4). The following Section 3.3 outlines the history of clean-up activities completed by the Army and the Navy at ALC.

3.3 ALC and NSWC-WO Facility Actions under CERCLA and RCRA

Prior to 1969 when the initial 137 acres of land was transferred to the Army from the Navy, construction began on the Gamma Ray Simulation Facility or Building 500. To build the foundation of Building 500 and two above ground storage tanks (ASTs), 20 to 30 feet of alluvial soil was excavated to reach bedrock. Building 500 and the tank farm required an extensive underfloor drainage system to keep the building and tank farm from flooding due to the shallow water table in the area. Groundwater (GW) collected by the drainage/dewatering system flowed through a network of buried storm drain pipes to the ALC property line, through to an open channel on a private residential property and discharged to Paint Branch Creek, a tributary to the Anacostia River.

In 1973, the Gamma Ray Simulation Facility at Building 500 was put into service and required 1.5 million gallons of dielectric fluid for operations. The fluid was a non-PCB light naphthenic petroleum distillate stored in two ASTs tanks of 890,000-gallon capacity each. During start up, large amounts of dielectric fluid were spilled and flowed directly to Paint Branch Creek. As a result, ALC installed an oil/water separator in 1973 and continued using the o/w separator under a MDE NPDES Permit as an acceptable way to remove residual oil from GW prior to discharge to the Creek.

In 1995, the Gamma Ray Simulation Facility mission ended. The dielectric oil was removed along with the two ASTs. Upon removal it was clear that the tank floors had failed, releasing unknown quantities of oil to GW. ALC removed approximately 346 tons of contaminated soil and MDE determined that the removal was sufficient and the on-going flushing of the oil-water mixture through the o/w separator was acceptable. In 2000, ALC requested that MDE terminate their NPDES Permit for SW discharge because monitoring results showed no oil constituents for seven months, indicating that GW clean-up had been achieved. MDE terminated ALC's SW discharge Permit.

In 1989, ALC discovered GW contamination on-Site which originated from historic NSWC-WO chemical waste disposal practices. Contaminants were found at two NSWC-WO Sites:

- (1) Site 8 – solvents (chlorinated volatile organic compounds-cVOCs) and metals;
- (2) Site 9 - cVOCs, metals and explosives compounds.

NSWC-WO completed contaminated soil removal actions at both Sites in 1996, however GW was not investigated at that time. In 1994, the Army investigated ALC and found that ALC's GW contaminants were the same found at NSWC-WO Sites 8 and 9. Table 2 describes the two ALC Sites (HDL-40 and -41) associated the two NSWC-WO GW Sites. Figure 2 shows the general locations of Table 2 sites.

Table 2			
Adelphi Laboratory Center and NSWC-WO Sites			
ALC Site	NSWC-WO Site	Contaminants	Comments
HDL-40: Hillandale Area	<u>NSWC-WO Site 8</u> : Abandoned Hazardous Waste Disposal Pit.	cVOCs in GW, SW, seds. Navy removed Waste Pit & soil in 1996.	ALC MNA sampling ended. Navy does long-term GW MNA ¹ .
HDL-41: Bldg. 500 Area	<u>NSWC-WO Sites 9 & 46</u> : Industrial Wastewater Disposal Area.	Solvents, petroleum, metals, explosives in GW, SW, sediment & 2 off-site private wells.	Active GW treatment & LT MNA. Off-site wells switched to public water, Site 9 plume no longer on ALC.
HDL-42: Bldg. 107 PCB release	ALC (HDL) Site, not associated with NSWC-White Oak.	PCBs in soil in a limited 2'x10' area, up to 2' deep.	NFA - Soil levels below EPA's clean up level at that time.

¹ MNA – Monitored Natural Attenuation of GW contaminants.

In 1998, EPA issued an Order to NSWC-WO to conduct: (1) further environmental investigations; (2) interim remedial measures, and, (3) propose clean-up options. Prior to EPA's Order, the Navy initiated investigations on ALC and NSWC-WO properties as part of NSWC-WO's BRAC closure responsibilities. With NSWC-WO's closure, nine contaminated sites from NSWC-WO had been transferred, in whole or in part to ALC, with the Navy retaining responsibility for investigation and clean-up of those sites.

ALC conducted their own Remedial Investigations in 1996 and 1997 at HDL-40 and HDL-41. Clean-up actions at the two sites is described below.

(1) HDL-40 Hillandale Area (White Oak Site 8): Formerly a part of NSWC-WO. Chlorinated volatile organic compounds (cVOCs) were detected in GW, surface water (SW) and sediments at this Site. In 1996, NSWC-WO investigated extent of soil contamination and removed contaminated soil associated with the former Hazardous Waste Disposal Pit during a CERCLA Interim Remedial Action (IRA). ALC monitored GW at one monitoring well and one SW/sediment location at this Site. In 2000, all contaminants of concern were below regulatory limits on ALC property.

(2) HDL-41 Building 500 Area (near NSWC-WO Sites 9 and 46): Beginning in 1999, the Navy removed contaminated soil at former NSWC-WO sites under CERCLA. These sites were sources of contamination to GW, SW and sediment in areas up-gradient, on and down gradient of ALC (see Figure 3). NSWC-WO investigations showed that GW, portions of Paint Branch Creek and two offsite properties were contaminated with some or all the following contaminants: at Site 9 – tetrachloroethylene (PCE), trichloroethylene (TCE), perchlorate, explosive chemicals (RDX) and iron; at Sites 4/46 - petroleum hydrocarbons (PHCs), cVOCs, metals and low level RDX.

Site 9 - In 2003, the Navy injected sodium lactate into GW and excavated Building 318's sump in 2005, also adding sodium lactate in the excavation before backfilling. GW has been monitored continuously from 2006 and all contaminant levels have decreased to meet clean-up goals or are just above clean-up levels. GW on ALC is not impacted from Site 9.

Site 46 – by 2000, the Navy was operating 3 GW pump and treat systems on ALC property in the Bldg. 500 area. In 1997, the Navy installed an air stripper to ALC's oil removal system to remove cVOCs from GW. The Navy also installed a larger air stripper at ALC Bldg. 50, downgradient of Bldg. 500. This air stripper treated GW and runoff from a larger area and the clean water discharged to a channel on an adjacent residential property (Irby property), which then flowed to Paint Branch Creek. Later, the Navy added enhanced in-situ bioremediation by injecting emulsified vegetable oil into GW in Sites 4 and 46, located upgradient and on ALC (see Figure 3), and injecting sodium lactate into GW at upgradient Site 9.

The Navy's remedies included soil removal and active groundwater remediation which has reduced the contaminated GW plume on ALC significantly. Figure 4 shows the extent of the remaining trichloroethylene (TCE) plume on ALC in 2016. The plume is located north of the Building 500 Area. The plume does not pose a potential vapor intrusion impact to indoor air because the nearest building is located more than 300 feet from the plume, which consists primarily of low-level PCE. The Navy conducts annual GW monitoring to document reduction of contaminant levels long-term and to evaluate effectiveness of the remedy in accordance with the CERCLA Site 4

Record of Decision (September 2005) and the Site 4 Long-Term Monitoring Plan, including Site 46.

ALC's Bldg. 500 leak of dielectric oil contributed to the PHC GW contamination in a limited area of HDL-41. This plume was much smaller than the more extensive PHC and cVOC plume attributed to NSWC-WO. ALC's PHC plume was successfully treated, as discussed on Page 4.

(3) Site HDL-42, Building 107 PCB release: Building 107 was ALC's main electrical substation. ALC received an anecdotal report in 1994 that previous technicians had tested PCB dielectric fluid in Building 107 and routinely discarded the samples onto a grassy area by an entrance on the north side of Building 107. This practice reportedly continued for many years. ALC investigated soil on the north side and found some PCB levels limited to a 2 by 10 feet area, about 2 feet deep. The highest PCB level was 2.65 parts per million (ppm) which was lower than EPA's risk based concentration of 2.90 ppm at the time. ALC proposed no further action (NFA) for this Site and MDE accepted the NFA decision after no comments were received during the public comment period.

Section 4: Proposed Remedy

Based on the available information, EPA's proposed remedy for the ACL Facility consists of no further action for soils and compliance with and maintenance of groundwater use restrictions to protect the integrity of the NSWC-WO CERCLA ROD being implemented at the ACL facility.

The Navy is implementing the GW remedy in ALC's Building 500 Area until GW meets clean-up levels in accordance with the CERCLA Site 9 Record of Decision (2004) (ROD) and Site 4 ROD (2005) and the property transfer agreement between the Army and the Navy. MDE is providing oversight of the Navy's remedy implementation on ALC.

Land use controls are implemented by ALC's Installation Action Plan that prohibits the use groundwater for potable purposes. ALC is also implementing NSWC-WO LUCs or institutional control, by reviewing all infrastructure improvements as submitted to ensure that GW is not used as a source for drinking water. EPA's proposed remedy is remedy complete with controls.

Section 5: Environmental Indicators

EPA set national goals to measure progress toward meeting the nation's environmental goals for facilities. Under EPA's Corrective Action Program, EPA evaluates two key environmental indicators for each facility: (1) current human exposures to contamination is under control and (2) migration of contaminated groundwater is under control. EPA determined that the ALC Facility met the current human exposures under control by signing the indicator form on June 27, 2018 and the migration of contaminated groundwater under control indicator form was signed on July 17, 2018.

Section 6: Public Participation


Before EPA makes a final decision on the proposed remedy, the public may participate in the decision selection process by reviewing this SB and documents contained in the Administrative Record (AR) for the Facility. The AR contains all information considered by EPA in reaching this proposed remedy. AR documents are available for public review during normal business hours at:

U.S. EPA Region III
1650 Arch Street (3LC10)
Philadelphia, PA 19103
Contact: Barbara Smith
Phone: (215) 814-5786
Fax: (215) 814-3113
Email: smith.barbara@epa.gov

The public comment period will last thirty (30) calendar days from the date that the notice is published in a local newspaper. You may submit comments by mail, fax, or e-mail to Ms. Barbara Smith. EPA will hold a public meeting to discuss this proposed remedy upon request. Public meeting requests should be made to Ms. Smith.

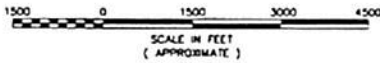
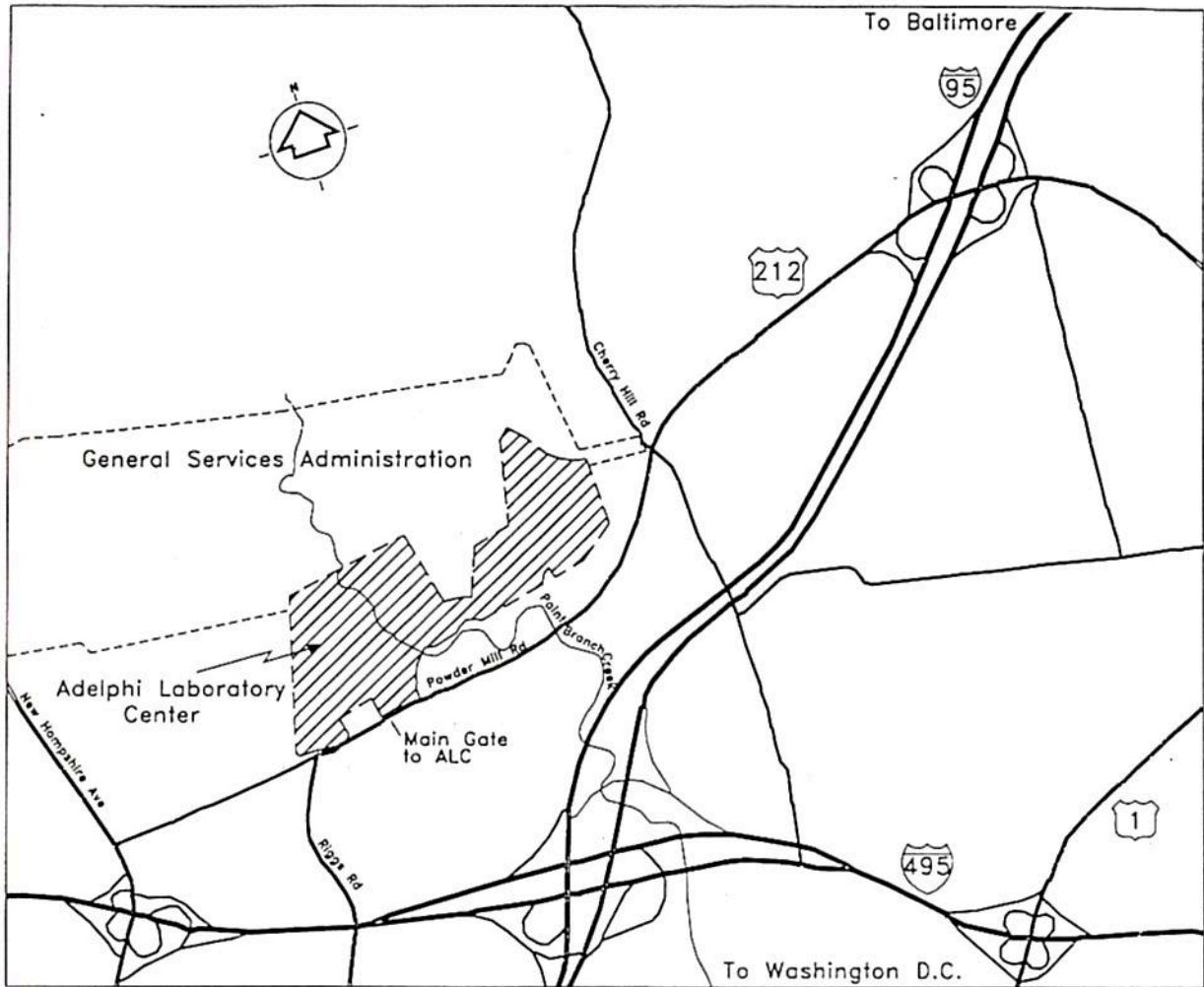
EPA will respond to all relevant comments received during the comment period. If EPA determines that new information warrants a modification to the proposed remedy, EPA will modify the proposed remedy or select an alternative based on the new information and/or public comments. EPA will announce its final decision and rationale for any changes in a document entitled the Final Decision and Response to Comments (FDRTC). All persons who comment on this proposed remedy will receive a copy of the FDRTC. Others may obtain a copy by contacting Ms. Barbara Smith at the address listed above.


Section 7: Signature



John A. Armstead, Director
Land and Chemicals Division
US EPA, Region III

Date: 8.23.18



 US Army Corps of Engineers	VICINITY MAP	DATE: DEC 1998
	ADELPHI LABORATORY CENTER ADELPHI, MARYLAND	SCALE: AS SHOWN
		FIGURE 1

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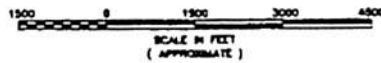
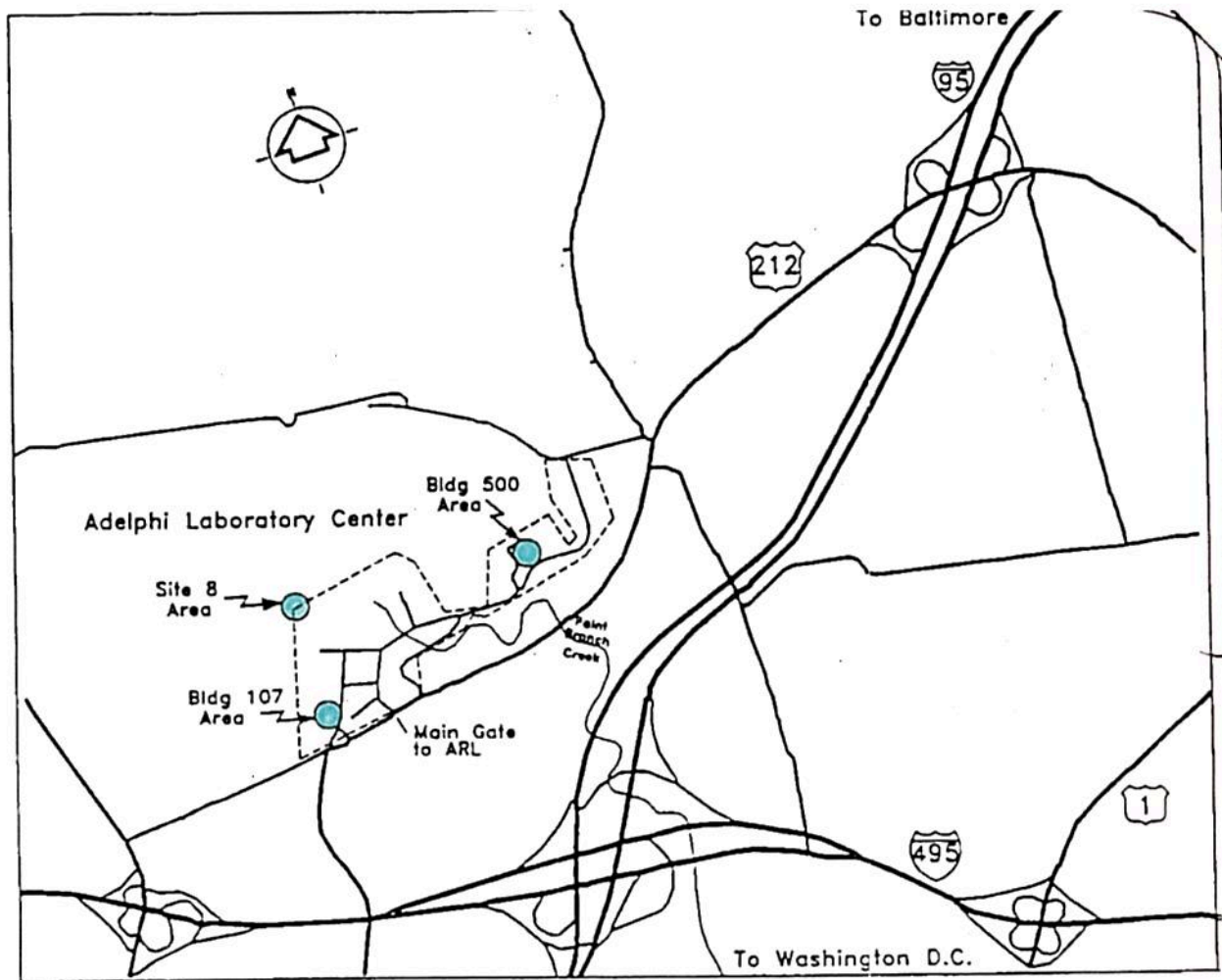


FIGURE 2
LOCATION MAP
SITES HDL-40, 41, & 42



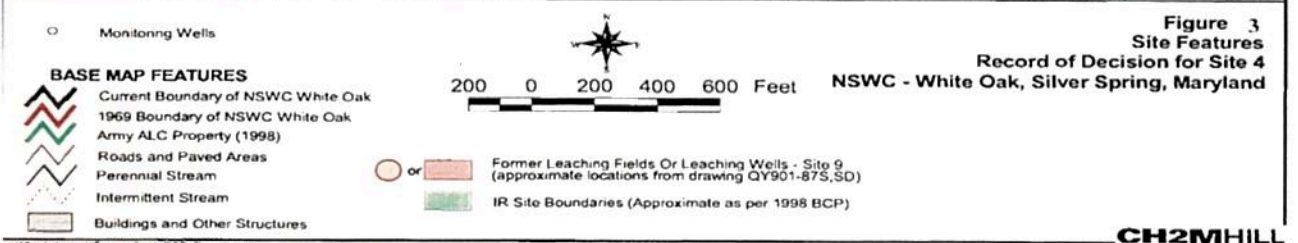
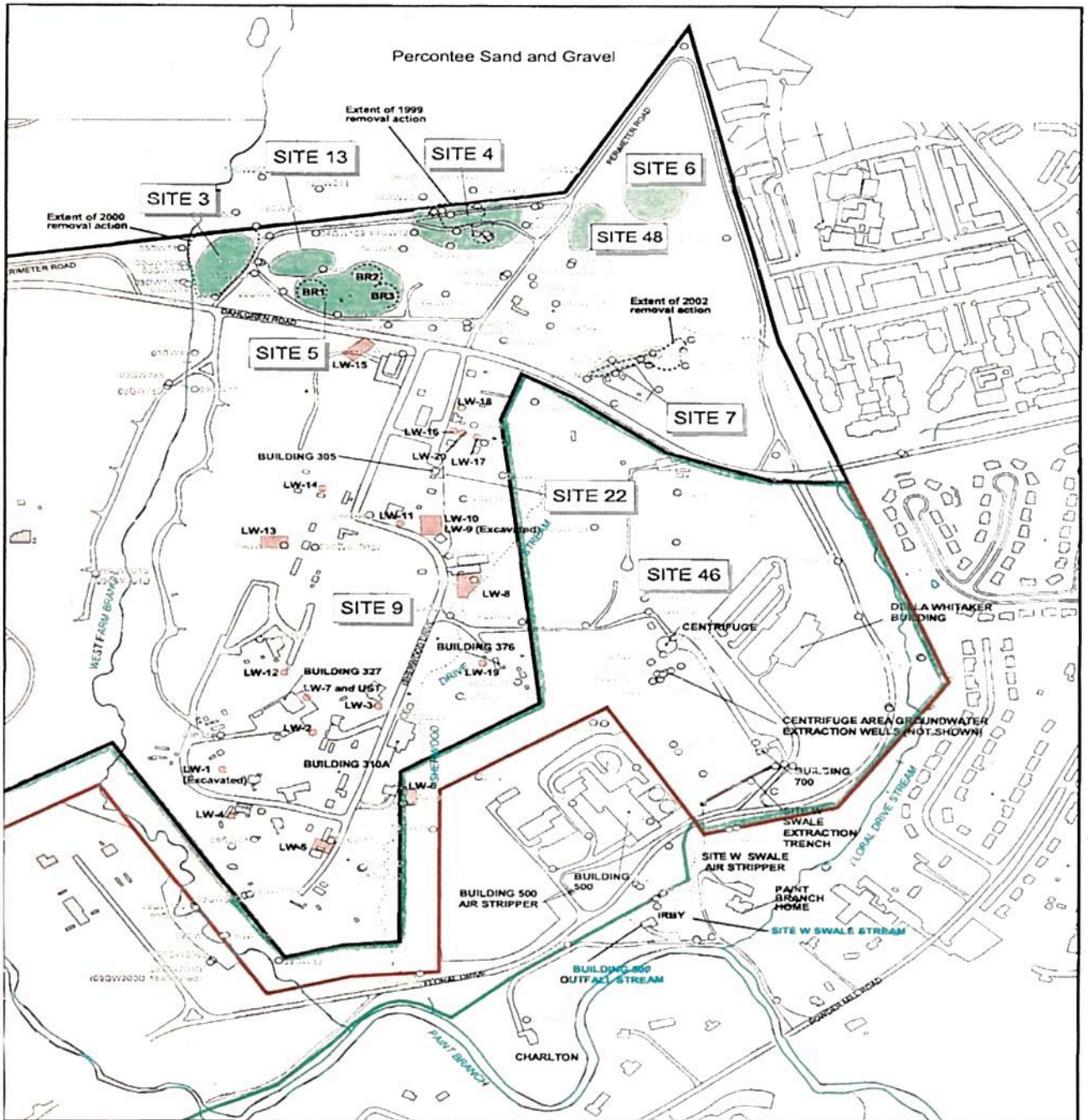
US Army Corps
 of Engineers

ADELPHI LABORATORY CENTER
ADELPHI, MARYLAND

DATE: DEC 1997

SCALE: AS SHOWN

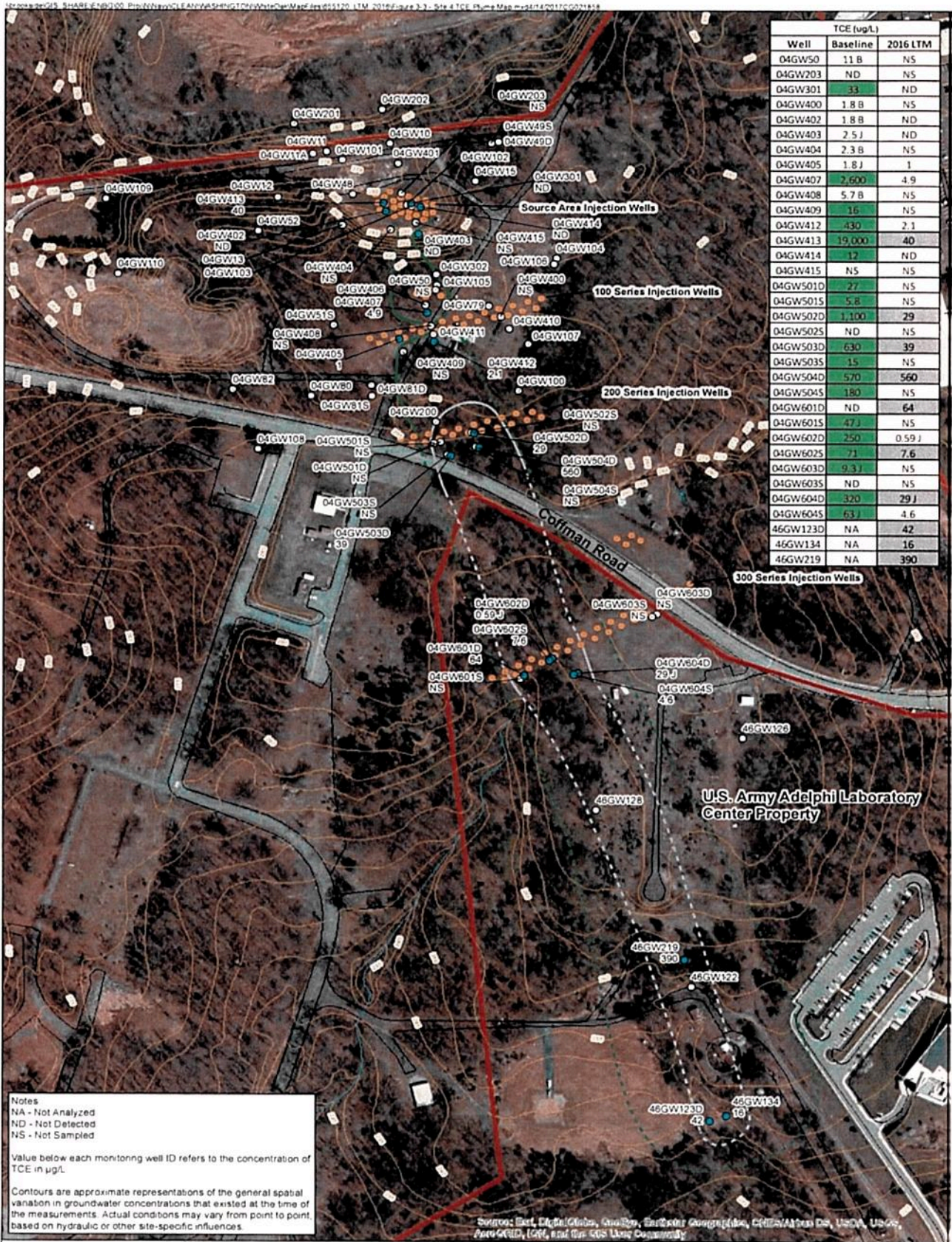
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From CERCLA OU-09 ROD, September 28, 2005

CH2MHILL



- Legend**
- 2016 Long Term Monitoring Well
 - Monitoring Well
 - Injection Well
 - Topographic Contours (ft msl)
 - Former NSWC - White Oak Facility Boundary
 - TCE Plume Boundaries**
 - 2016 above PRG (5 $\mu\text{g/L}$)
 - Baseline above PRG (5 $\mu\text{g/L}$)

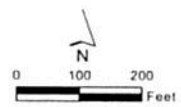


Figure 4
 Site 4 TCE Plume Boundaries
 Basewide Long-term Monitoring Report
 Former NSWC-White Oak
 Silver Spring, Maryland

Attachment 1

Index to Administrative Record

- 1990, February; *Phase II RCRA Facility Assessment (RFA) Report of Harry Diamond Laboratories, Adelphi Laboratories, Adelphi Maryland (RFA)*, A.T. Kearney, Inc. for EPA.
- 1990, December; *Final RCRA Facility Assessment (RFA) Report of Harry Diamond Laboratories, Adelphi Laboratories, Adelphi Maryland (RFA)*, A.T. Kearney, Inc. for EPA.
- 1992, May 18; *Ground-Water Quality Survey No. 38-26-KF66-92 Evaluation of Solid Waste Management Units, U.S. Army Adelphi Laboratory Center, Adelphi, Maryland*, U.S. Army Environmental Hygiene Agency.
- 1998, December; *RCRA Facility Assessment Update, Adelphia Laboratory Center, Adelphia, Maryland*, Army Research Laboratory.
- 1999, May; *Proposed Plan-Building 107 Polychlorinated Biphenyls Spill Site, Adelphia Laboratory Center, Adelphia, Maryland*, Army Research Laboratory.
- 2000, February; *Installation Action Plan for Adelphi Laboratory Center*.
- 2000, September; *Long Term Monitoring Report #5-Sampling Event-June 2000 at the Building 500 and Site 8 Areas*, U.S. Army Engineer District, Baltimore.
- 2005, September 28; *EPA Superfund Record of Decision, USN Naval Surface Warfare Center-White Oak-OU-09*, EPA.
- 2017, October; *Final Basewide Long-term Monitoring Report 2016, Former Naval Surface Warfare Center White Oak, Silver Spring, Maryland*, CH2M.
- 2018, June 27; *Environmental Indicators for Current Human Exposures Under Control and Migration of Contaminated Groundwater Under Control*.
- 2018, July 17; *Environmental Indicators for Migration of Contaminated Groundwater Under Control*.