

N62269.AR.000953
NAWC WARMINSTER
5090.3a

MEMORANDUM AND REQUEST FOR A REMOVAL ACTION FOR AREA A SOILS SITES 1, 2,
AND 3 NAWC WARMINSTER PA
06/03/1998
DEPARTMENT OF THE NAVY

126

MEMORANDUM

DATE: June 3, 1998

FROM: *JJM 6/9/98*
Orlando J. Monaco, Navy Remedial Project Manager

TO: Thomas C. Ames, BRAC Environmental Coordinator

SUBJECT: Request for a Removal Action for Area A Soils (Sites 1, 2, and 3)
Naval Air Warfare Center (NAWC) National Priorities List (NPL) Site
Warminster, Bucks County, Pennsylvania

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action described herein for Area A soils at the Naval Air Warfare Center (NAWC) National Priorities List (NPL) Site, Warminster, Bucks County, Pennsylvania. An assessment performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300, has identified a threat to human health and the environment. This is due to the presence of hazardous substances in surface soils, subsurface soils, and buried materials in the vicinity of Area A. These substances pose threats to nearby human populations, drinking water supplies, identified in both present and future land use plans. As a result of these conditions, a removal action pursuant to Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended, 42 U.S.C. Section 9604, is needed at the Site.

II. SITE CONDITIONS AND BACKGROUND

NAWC is located in the Township of Warminster, Bucks County, Pennsylvania, in a heavily populated suburban area. NAWC, which encompasses approximately 734 acres, is surrounded by private homes, commercial and industrial enterprises, and golf course. On-base areas include various buildings and other former Navy research and development/Naval operations facilities connected by paved roads, the runway and ramp area, mowed fields, and a small wooded area. The longest runway, which is no longer active, is located along the topographically highest area at the facility. Many of the former Navy operations buildings are located west of the airstrip, along Jacksonville Road.

A Navy-controlled housing development for military enlisted personnel is located within the southeastern portion of NAWC Warminster. Approximately 1,000 people reside at the enlisted personnel's housing area year round. Off-base residential development is located along the length of the southern property line and to a lesser extent, along the northern property line. The closest off-base residential dwelling is about 200 feet from the base property line. Industrial development is found along the west and northwest perimeter of the base.

Area A is located in the northwest corner of NAWC Warminster, between Jacksonville Road and the railroad tracks (SEPTA Warminster commuter line) west of the base, and generally north of the wastewater treatment plant, fuel farm area, and Parking Lot No. 2. Area A sites, Site 1 (Waste Burn Pit No. 1), Site 2 (Sludge Disposal Pit), and Site 3 (Waste Burn Pit No. 3) have been combined into one general study area for purpose of facilitating response actions. All Area A sites are within the fenced NAWC Warminster property and are found in the northwestern corner of the facility and border an industrial/commercial area north and west of Area A. Groundwater flow is to the north. Surface water runoff is to the northwest, entering an unnamed tributary of Little Neshaminy Creek, which flows to the Delaware River via the Neshaminy Creek.

A. Site Description

Site 1

Site 1 is located on a portion of the base lying west of Jacksonville Road north of the NAWC wastewater treatment plant (WWTP). The site is within 1,000 feet of an off-base food processing facility and within 300 feet of an unnamed tributary of Little Neshaminy Creek.

Based on remedial investigations, Site 1 was operated as a burn pit within an eroded ravine from approximately 1948 to 1950. Various wastes such as paints, oils, asphalt, roofing material, solvents, scrap metals, and unspecified chemicals were burned within this pit. Based on historical aerial photos, a trench, a ground scar, disturbed ground, and mounded material were identified in the pit area during the time period from the late 1950s to early 1970s. Collectively, these features comprise an area of about 17,000 square feet. The quantity of wastes deposited or burned is unknown. After use of Site 1 was discontinued, the area was covered with soil from an on-base source.

Monitoring wells in the eastern part of this area have shown elevated levels of volatile organic compounds (VOCs), including trichloroethene (TCE), toluene, 1,1,1-trichloroethane (1,1,1-TCA), carbon tetrachloride (CCl₄), and tetrachloroethene (PCE). Site 1 groundwater remediation is underway as part of a remedy for Operable Unit 1 (OU-1), contaminated shallow groundwater attributable to Areas A and B.

Site 2

Site 2 is located southeast of Site 1 west of Jacksonville Road. The site reportedly consisted of two disposal trenches; each trench was approximately 12 feet wide by 200 feet long by 8 feet deep. This area is bordered by Site 1 to the west, the former jet fuel storage area to the south, the existing guardhouse to the east, the base fence (property) line to the north, and a parking lot to the southwest. Site 2 includes an area suspected to have received fill material between the estimated boundaries of Sites 1 and 2. Collectively, Site 2 comprises an irregular-shaped area of about 650 feet by 200 feet (approximately 130,000 square feet). A small stream flows toward the northwest adjacent to the northeastern side of Site 2.

Site 2 may have received industrial wastewater sludges from the surface impoundments of the WWTP. The available historical photos indicate that disposal locations within Site 2 were most likely active between 1942 and 1977. Upon closure, Site 2 was covered with 2 feet of fill, regraded, and seeded.

Monitoring wells in this general area have shown elevated levels of VOCs, including TCE, PCE, 1,1,1-TCA, cis-1, 2-DCE, and 1,1-DCA. Portions of this area are paved and others lie between the existing perimeter fence lines. Groundwater remediation in the general vicinity is planned as part of the remedy for OU-1.

Site 3

Site 3 is adjacent to Jacksonville Road east of Site 2. A parking lot is southwest of the site, and two Navy-controlled housing areas are 600 feet and 1,000 feet away. The site reportedly was used from 1955 to 1965 as a burn pit for solvents, paints, roofing materials, and other unspecified chemicals. The pit was approximately 20 feet wide by 30 feet long by 10 feet deep, and may have included a subsurface "cage" to enclose burning operations. Collectively, the features at Site 3 comprise an area of about 25,000 square feet. Residue from the pit was occasionally removed and deposited at an unknown area at the base.

Upon closure, Site 3 was reportedly backfilled with on-base soil and regraded. Scrub brush was allowed to grow at the site. Surface water drainage from the site is toward the northeast into the unnamed tributary near Sites 1 and 2. Groundwater flow is generally to the north in this area. No evidence of a pit or open burning was identified from aerial photo analysis; however, disturbed ground and open storage were noticed in the area. Available historical photos indicate that disposal activity at Site 3 was most likely between 1955 and 1978.

Monitoring wells in the eastern part of this area have not consistently shown high levels of VOCs found elsewhere in Area A wells, although both PCE and 1,1,1-TCA have been detected at concentrations less than 11 ug/l. Groundwater in the vicinity is being addressed as part of the remedy for OU-1.

B. Site Background

NAWC Warminster was originally the location of Brewster Aeronautical Corporation, a manufacturer of military aircraft. In 1944, the Navy assumed full control of the Brewster plant. The Naval Air Modification Unit was installed at the base to add design modifications to military aircraft produced at other locations. In 1949, the facility was designated the Naval Air Development Center (NADC) and its main mission, research, development, testing, and evaluation for Naval aircraft systems was established. The facility name was changed from NADC to Naval Air Warfare Center, Aircraft Division, on January 1, 1992. NAWC Warminster also conducted studies in anti-submarine warfare systems and software development.

NAWC Warminster was selected for realignment under the Base Realignment and Closure (BRAC) Program managed by the Department of Defense (DOD). The realignment was effected in September 1996, at which time all Navy research and development work at the base came to a end. The base was operationally closed in March 1997. A Navy Caretaker Staff is working with the Federal Lands Reuse Authority (FLRA) to implement their re-use plan for base property. Responsibility for Navy family housing facilities at NAWC Warminster was transferred to the Commanding Officer, Naval Air Station Joint Reserve Base, Willow Grove, and remains under Navy control.

Historically, wastes at the facility were generated during aircraft maintenance and repair, pest control, firefighting training, machine and plating shop operations, spray painting, and various materials research and testing activities in laboratories at the facility. These wastes included paints, solvents, sludges from industrial wastewater treatment, and waste oils.

At least eight sites on current NAWC Warminster property have been identified as sites used for the disposal of wastes containing hazardous substances. None of the sites are currently used for waste disposal. For investigative purposes, Sites 1, 2 and 3 have been grouped into Area A; Sites 5, 6 and 7 have been grouped into Area B; Sites 4 and 8 comprise Area C; and Area D consists of potential sources and hazardous substance releases west of the main building complex at the base.

In 1990, the Navy began RI activities for groundwater contamination associated with Area A. To date, the RI field work for Area A groundwater, specifically the extent of off-base groundwater contamination, has not yet

been completed. The Navy prepared RI and FS reports addressing the results of completed investigations and evaluating remedial alternatives for shallow groundwater contamination in the vicinity of Area A. The Navy designated shallow groundwater within and adjacent to Areas A and B as OU-1 and pursued an expedited interim remedy for this contamination.

Any hazardous substance releases from the eight sites identified to date and from other unidentified sites at NAWC Warminster potentially affect the Stockton Formation aquifer, which provides water for more than 100,000 people within the vicinity of the facility. Local surface water bodies are used for recreation and industrial purposes.

C. Quantities and Types of Hazardous Substances Present

Human health risk assessment and ecological risk screening were performed to determine potential risks to humans and environmental receptors. Risk-based target clean-up levels for the chemicals of concern associated with Area A soils are presented in the draft Area A Removal Site Evaluation (RSE) Report (B&R Environmental, April 1998). Information regarding the approximate areas and the estimated volume of soils and other debris associated with these areas are also presented in the Area A RSE Report.

Based on an anticipated industrial development future land use scenario, a calculation of potential impact to groundwater, and the potential erosion and run-off of contaminated soils to the nearby unnamed tributary to Little Neshaminy Creek, preliminary remediation goals (PRGs) were determined. In cases where the observed concentration of compounds in a site-specific medium (e.g., surface soil, subsurface soil) exceed PRGs for those compounds, the approximate area and/or volume of soil has been calculated based on the results presented in the Phase III RI and RSE reports.

Site 1

Surface Soil

PRGs were not exceeded in Site 1 surface soil.

Subsurface Soil

PRGs protective of human health and impacts to groundwater were exceeded. Compounds exceeding PRGs include the metals antimony, cadmium and chromium (exceeded human health PRGs) and TCE which exceeded the protection of groundwater PRG. Aroclor-1254 and iron contributed to an estimated human

health risk above guidelines. Approximately 1,000 cubic yards of subsurface soil contaminated with these compounds are present at Site 1.

Site 2

Surface Soil

PRGs protective of human health and ecological receptors were exceeded. Compounds exceeding PRGs include the metals antimony, cadmium, copper, lead, silver and zinc, and the organics acenaphthene, anthracene, chrysene, benz(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3,-cd)pyrene, naphthalene, and pyrene. Approximately 710 cubic yards of surface soil contaminated with these compounds are present at Site 2.

Subsurface Soil

PRGs protective of impacts to groundwater were exceeded. PRGs were exceeded for the organics bromomethane, methylene chloride and trans-1,3-dichloropropene. Approximately 745 cubic yards of subsurface soil contaminated with these compounds are present at Site 2.

Site 3

Surface Soil

PRGs protective of sediment ecological receptors were exceeded. PRGs were exceeded for anthracene, benz(a)anthracene, benzo(a)pyrene and fluoranthene. Approximately 107 cubic yards of surface soil contaminated with these compounds are present at Site 3.

Subsurface Soil

The PRG protective of impacts to groundwater was exceeded for methylene chloride. Approximately 366 cubic yards of subsurface soil contaminated with this compound are present at Site 3.

D. NPL Status

EPA officially recognized the waste disposal locations at NAWC Warminster as possibly needing investigation in September 1979. On October 4, 1989, NAWC Warminster was placed on the final NPL.

That same year, EPA submitted a draft Interagency Agreement to the Navy for formalizing and scheduling remedial activities. The contents of this agreement were negotiated in 1990.

To date, the NAWC Warminster sites are being addressed by the Navy in four long-term remedial phases. Four remedial investigations (RI) (Phase I, Phase II, focused RI for groundwater, and Phase III) have been conducted at the base since October 1989.

Phase I RI was performed between October 1989 and April 1991. Phase I involved mapping VOCs in soil gas and detecting magnetic and conductive anomalies through electromagnetic surveys. Approximate site boundaries were identified and confirmation of site contamination was made through soil borings, installation of monitoring wells, and groundwater sampling and analysis. In addition, test pits were excavated, local wells were inventoried, and a fracture-trace analysis was conducted.

Phase II RI was performed between May 1992 and April 1993. This phase helped determine the nature and extent of groundwater contamination, evaluate groundwater flow and add to the hydrogeologic database, and ascertain possible remedial alternatives. Phase II involved installing additional overburden and shallow bedrock monitoring wells, sampling and analyzing groundwater, and evaluating aquifer characteristics through water-level monitoring and a pumping test. Four off-base wells were also sampled. At the end of Phase II, the Navy and EPA selected a remedy for Operable Unit 1 (OU-1), which is contaminated shallow groundwater attributable to Areas A and B at the base. This was the first clean-up plan selected for NAWC Warminster. The Navy initiated construction of the OU-1 remedy in January 1995 and work is expected to be completed by the fall of 1998.

Focused RI activities for other groundwater contamination at the base began in October 1993 for Area B, January 1994 for Area C, and February 1994 for Areas A and D. The RI field work for Area C groundwater was completed in May 1994. During this investigation, the Navy addressed groundwater contamination associated with Area C that was not completely evaluated during the earlier studies. The Navy prepared RI and FS reports addressing the results of this investigation and evaluating remedial alternatives for shallow groundwater contamination in the vicinity of Area C. Both reports were completed in August 1994. In March 1995, the Navy and EPA selected a remedy for OU-3, which is contaminated groundwater attributable to Area C. The Navy combined this remedy with the remedy for OU-1. Construction of the OU-3 remedial action was completed in July 1996 and the remedy is currently operating as planned.

In a similar manner, the Navy completed RI and FS reports in October 1996 for groundwater problems in the vicinity of Area D. In September 1997, the Navy and EPA selected a remedy for OU-4, which is contaminated groundwater attributable to Area D. Construction of the OU-4 remedial action is scheduled to begin in 1998.

The Phase III RI/FS began in January 1995 and will identify the full nature and extent of contamination, both on and off base, for the rest of the facility. The Navy is currently conducting additional environmental studies at the base and is planning to investigate other media associated with NAWC Warminster under the RI/FS process, including groundwater in deep bedrock aquifers, wastes, soils, sediment and surface water. Additional remedial actions will be proposed and selected as soon as adequate information exists to support the selection of a remedy for a particular media or group of media.

E. Other Actions to Date

After the Phase II RI was completed, the Navy initiated other environmental investigations to more fully determine the nature and extent of groundwater contamination attributable to NAWC Warminster. In April 1993, the Navy, in coordination with EPA, initiated a well testing program in the vicinity of the base to assess the impact of contaminated groundwater possibly attributable to NAWC Warminster. Between April and August 1993, the Navy sampled more than 250 off-base residential, commercial, and municipal wells. The test results indicated that the levels of some VOCs found in residential wells exceeded federal drinking water standards [i.e., Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act]. To address these levels, the Navy conducted a CERCLA removal action, installing a water treatment system in each residence where either EPA Removal Action Levels or MCLs had been exceeded.

The Navy and EPA determined this off-base groundwater contamination constituted an imminent threat to human health. Therefore, the Navy and EPA conducted additional CERCLA removal action work by connecting residences affected by groundwater contamination in the vicinity of Casey Village and Kirk Road to a public water-supply system between June and December 1994. As such, OU-2 consists of contaminated groundwater associated with residential wells located on Kirk Road north of Area C and residential wells in the vicinity of the Casey Village area southeast of Area B.

In addition to the work being performed under CERCLA, the Navy has undertaken environmental baseline survey work to help identify and prioritize parcels of land at NAWC Warminster that can be transferred to the FLRA.

As part of a separate removal action, the Navy began excavating soils and buried debris at Site 4 in July 1996. During the removal, more than 22,200 tons of non-hazardous soil and other debris were excavated, transported, and disposed at an off-base landfill. The excavated areas were backfilled with clean material, covered with 4 inches of topsoil, regraded, and seeded. All work was completed in July 1997, and a vegetative cover was established over disturbed areas. Removal of contaminated soils and debris at Site 4 ensured the protection of human health and the environment from risks posed by the site.

In May 1997, the Navy began a removal action at selected disposal trenches and pits within Site 6. The site was apparently used for the disposal of construction-type debris and household trash and industrial wastes. Previous investigations conducted at the site revealed the presence of general debris, including scrap metal, wire, wood, paint cans, crushed drums, concrete, insulation, and other trash. These materials were encountered from the ground surface to a depth of about 6 feet.

Three separate locations were excavated during the initial Site 6 removal action. The Navy excavated contaminated soils and buried materials at the site and disposed of them at a municipal waste landfill. A small volume of soils (50 tons) containing polychlorinated biphenyls (PCBs) was sent to a hazardous waste facility, and surface debris was removed from several areas. Clean fill was used to restore the excavated areas. About 3,650 tons of materials were removed.

The Navy plans to evaluate the risks posed by those disposal locations that were not excavated during the initial removal work at Site 6. This evaluation should be completed by the end of 1998.

F. EPA, State and Local Authorities' Roles

Representatives from the Navy, the United States Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (PADEP) have discussed the above information during BRAC Cleanup Team (BCT) and Technical Subcommittee (TSC) meetings and have agreed on this course of action. EPA officials will continue to coordinate Area A activities with all appropriate State and local officials. A Restoration Advisory Board (RAB), which consists of representatives of the Navy, the United States Environmental Protection Agency (EPA), the Pennsylvania Department of Environmental Protection (PADEP), the Bucks County Health Department, the Northampton Township Municipal Authority, the Warminster Township Municipal Authority, and Upper Southampton Township has assisted in the planning and has reviewed and agreed with these activities.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at Area A warrant a removal action. Field investigation results indicate unacceptable levels of hazardous substances in surface soils and subsurface soils. Although the current industrial land use at Area A restricts access by the general public, workers at the Site could have some exposure. The planned reuse for Area A is for industrial purposes per the FLRA Reuse Plan.

Section 300.415 of the NCP identifies the factors that must be considered when determining the appropriateness of a removal action. Paragraphs (b) (2) (i), (ii), (vii), and (viii) of Section 300.415 directly apply as follows to the conditions associated with Area A:

- A. Section 300.415 (b) (2) (i)** "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants."

Potential human and environmental exposure pathways identified under current or future land use scenarios for Area A include dermal, incidental ingestion, and fugitive dust inhalation exposure to soil contaminants. In addition, contaminants leaching from buried trench materials to groundwater is a potential exposure pathway because of infiltrating precipitation, and erosion of contaminated surface soils with overland runoff transport to nearby surface water (i.e., an unnamed tributary of Little Neshaminy Creek) is also possible. Groundwater may also migrate into adjacent surface water via both overburden and shallow bedrock aquifers or from the shallow bedrock aquifer beneath the Site into deeper bedrock aquifers.

- B. Section 300.415 (b) (2) (ii)** "Actual or potential contamination of drinking water supplies or sensitive ecosystems."

Analytical data from nearby municipal, residential, and commercial wells have indicated contamination of drinking water above Removal Action Levels which is at least partially attributable to Area A. Contaminants leaching from buried trench materials may result in potential groundwater contamination in the future. Potential contamination of sensitive ecosystems is also possible if a response action is not taken.

- C. Section 300.415 (b) (2) (vii)** "The availability of other appropriate federal or state response mechanisms to respond to the release."

The availability of response mechanisms can be met through the Navy's IR Program.

- D. Section 300.415 (b) (2) (viii)** "Other situations or factors that may pose threats to public health or welfare or the environment."

The presence of buried materials and contaminated soils at Area A may hinder the intended industrial land use for this area once this property is turned over to the community by the Navy.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from Area A soils, if not addressed by implementing the response action selected in this Action Memorandum, may present an endangerment to public health, welfare, or the environment.

V. PROPOSED ACTION AND ESTIMATED COSTS

A. Actions

The action proposed for Area A soils is to excavate and/or cap contaminated soils and buried wastes, placement of clean fill in the areas excavated, followed by the placement of a vegetated soil cover and stabilization of nearby stream banks. Excavated contaminated soils and waste will be disposed with or without treatment at a municipal or hazardous waste landfill. Landfilling is a cost-effective action for addressing the excavated soils and wastes at Area A. Municipal and hazardous waste landfills are engineered landfills that provide controls for protecting human health and the environment. Capping of small areas that exceed groundwater protection PRGs is a cost-effective action that will limit the availability of the contamination to migrate to the groundwater. A groundwater pump and treat remedy has been selected for this area. Vegetated soil cover is a cost-effective action to address the human health risks associated with direct contact and ingestion of surface soils. Future land use will be restricted to industrial uses and the actions to be taken are protective for this future land use. Institutional controls in the form of Deed Restrictions will be implemented to restrict future use of the land. The deed restriction is consistent with planned re-use and consistent with the implementation of the selected groundwater remedy for the area.

Proposed actions include:

Site 1 Subsurface - Approximately 1,000 cubic yards of subsurface material will be excavated and disposed off-site. The area will be back-filled with clean fill and the entire area of Site 1, approximately 27,230 square feet, will be covered with native soils and top soil (brought in from an approved offsite source), graded and vegetated. Eighteen inches of soil and 6 inches of top soil (approximately 2,017 total cubic yards) will be used to cover the area.

Site 2 Surface Soils – Identify which soils exceed PRGs and require treatment and/or disposal. If the alternative to cover with native soils and topsoil, grade and vegetate is chosen, any remaining contaminants will be compared to subsurface criteria to determine a course of action .

Site 2 Subsurface - That area exceeding groundwater PRGs will be addressed through removal or by providing a two foot compacted clay cap.

Site 3 Surface Soils – Identify which soils exceed PRGs and require treatment and/or disposal. If the alternative to cover with native soils and topsoil, grade and vegetate is chosen, any remaining contaminants will be compared to subsurface criteria to determine a course of action.

Site 3 Subsurface - That area exceeding groundwater PRGs will be addressed through removal or by providing a two foot compacted clay cap.

Erosion Control - Approximately 600 linear feet of the southern bank of the unnamed tributary of Little Neshaminy Creek will be lined with filter fabric and stone. Approximately 31,200 square feet of filter fabric and 1,155 cubic yards of 6 inch stone will be required to complete this action.

Clean-up levels, information regarding the approximate excavation areas, and the estimated volume of soils and debris to be removed are presented in the Area A RSE Report. Off-site disposal will be at a municipal waste landfill or at a hazardous waste landfill according to applicable laws and regulations.

Verification soil samples will be collected during the removal work to gauge the completeness of the response action. The sample analysis results will be compared to the risk-based target clean-up levels. Verification sampling will ensure that any exceedances of the clean-up levels will be followed by additional excavation of the area from which the sample is collected. After additional excavation, verification samples will again be obtained and analyzed to ensure that sufficient soils or debris have been removed. As such, the actual areas and volumes of soils/debris requiring excavation will be determined during the removal action, in conjunction with the verification sampling and analysis program. The sample results will be used to evaluate if any remaining risks are posed by Area A soils or buried materials.

The proposed action was selected from three of the most appropriate removal action alternatives, including

- No action.
- Excavation; Off-site Treatment and/or Disposal; Erosion Control; Institutional Controls.
- Excavation; Capping; Native Soil Cover; Erosion Control; Institutional Controls.

These alternatives are described in the Area A RSE Report.

At this time, it is estimated that the entire project will be completed within 12 months and under the \$2 million (*maximum anticipated cost is \$1,112,000*) ceiling for removal actions, barring any unforeseen circumstances or disposal restrictions.

B. Estimated Costs

The Navy estimates that up to \$1,112,000 will be needed to carry out the recommended removal action at Area A. This cost includes \$1,069,000 of capital costs, and \$20,000 of periodic (every 5 years for 30 years) O&M costs.

C. Contribution to Remedial Performance

The interim Record of Decision (ROD) for groundwater contamination in the vicinity of Area A was signed in September 1993; pumping and treating the groundwater of concern is the selected remedy. This remedy does not mitigate the threats posed to nearby residents, on-site workers, sensitive ecosystems, and future land use plans caused by exposure to soils through dermal contact or inhalation.

The proposed removal action will meet the following objectives:

- Eliminate risks associated with exposure or potential exposure to contaminated soils and wastes.
- Protect groundwater for current and future use by reducing contaminated soils and associated waste concentrations.
- Prevent potential contamination of nearby surface water and sensitive ecosystems.

The proposed removal action is consistent with accepted removal practices and is expected to abate the threats that meet the NCP removal criteria. The proposed removal action is not anticipated to impede future remedial or removal actions contemplated at Area A.

D. Compliance with Applicable or Relevant and Appropriate Requirements

The proposed removal action will comply with all applicable or relevant and appropriate environmental and health requirements (ARARs) or "To be Considered" (TBC) criteria, to the extent practicable considering the exigencies of the situation. The Navy has contacted PADER and EPA to request ARARs for this removal action and has allowed the State and EPA the opportunity to comment on the ARARs pertinent to this removal action.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Possible exposure of residents to contamination from hazardous substances in drinking water is expected to continue should action be delayed or no action be taken at Area A. In addition, transfer of Area A to the FLRA for reuse planning would be delayed or impeded.

VII. OUTSTANDING POLICY ISSUES

The Base Realignment and Closure (BRAC) Act of 1990 directed the closure or realignment of activities at NAWC Warminster. A proposed BRAC Implementation Plan was prepared by the Navy in 1994. The area of work for this project lies within the portion of the base that has been closed. Operations at Area A ceased in September 1996.

There are no other outstanding policy issues pertaining to Area A at the NAWC Warminster NPL Site.

VIII. ENFORCEMENT

The United States Navy, Naval Facilities Engineering Command, Northern Division, is the lead agency for this project. The U.S. Environmental Protection Agency is the support agency. The removal action will not be financed through Superfund. All funding will be provided by the Navy with BRAC funds. Based on this scenario, enforcement strategies do not apply to this removal action.

IX. RECOMMENDATION

Because conditions at Area A meet the NCP Section 300.415 criteria for a time-critical removal action, I recommend approval of this request for \$1,112,000. Please indicate your approval or disapproval by signing below. I recommend your approvals to initiate response actions because of the nature of the threats described herein.

For U.S. Navy

Approved/Disapproved: Thomas C. Ames Date: 6/10/98