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NAWC WARMINSTER
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MEMORANDUM REGARDING THE REQUEST FOR A REMOVAL ACTION AT SITE 8 NAWC
WARMINSTER PA
02/04/1999
DEPARTMENT OF THE NAVY

MEMORANDUM

FROM: Orlando J. Monaco, Remedial Project Manager,
NORTHNAVFACENGCOM

TO: Thomas C. Ames, BRAC Environmental Coordinator

SUBJECT: Request for a Removal Action at Site 8
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 in and around the vicinity described as Site 8 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 due to the presence of hazardous substances in surface soils around Site 8. These substances pose threats to nearby human populations and future land use plans. As a result of these conditions, a removal action is needed at the Site pursuant to Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. Section 9604.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

The Site is situated mostly in the Township of Warminster, Bucks County, Pennsylvania, in a heavily populated suburban area. Private homes, several commercial and industrial enterprises, and a golf course surround the facility, which encompasses approximately 840 acres. On-base areas include various buildings and other complexes connected by paved roads, the former runway

and ramp area, mowed fields, and a small wooded area. The longest runway, which is no longer active, is generally located along the topographically highest area at the facility. Many of the primary facility buildings are located west of Jacksonville Road. A housing development for military enlisted personnel is within the southeastern portion of the site.

NAWC Warminster was disestablished on 30 September 1996, and is now known as the North American Technology Center. The military enlisted personnel living at the facility are the nearest population center. These personnel work primarily at the Naval Air Station Joint Reserve Base Willow Grove, PA. NAS/JRB Willow Grove manages the military housing complex. The closest off-base home is about 200 feet from the base property line. Residential development is located along the length of the southern property line and, to a lesser extent, along the northern property line. Industrial development is found along the western and northwestern perimeters of the base.

B. Site Background

The former 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. After World War II, activities at the base were altered; 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. NAWC Warminster also conducted studies in anti-submarine warfare systems and software development. The facility name was changed from NADC to Naval Air Warfare Center, Aircraft Division, on January 1, 1992. The future use of the facility is detailed in a Reuse Plan approved by the Federal Lands Reuse Authority of Bucks County (FLRA) in 1997. The Reuse

Plan consists of multiple uses including parks and recreation, business campus/industrial and residential. The FLRA's Reuse Plan was presented to each of the three municipalities (Ivyland Borough, Warminster Township and Northampton) in 1997. Each board of elected officials gave unanimous concurrence to the FLRA's Reuse Plan. The Site 8 reuse is included in the FLRA's Economic Development Conveyance (EDC) application as business campus/industrial. The realignment has resulted in the relocation of NAWC Warminster activities to Patuxent River, Maryland and the closure of the base. Navy family housing assets have been transferred to Commanding Officer, Joint Reserve Base, Willow Grove, PA and will remain in place.

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. These wastes included paints, solvents, sludge from industrial wastewater treatment, and waste oils.

To date, 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. Any hazardous substance releases from the eight sites identified to date and from other unidentified sites 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 recreational and industrial purposes.

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.

C. Physical Location and Description

Site 8 is defined as two distinct, but related, operations that took place adjacent to each other - the fire-fighting training area and a temporary structure identified as S1.

The fire-fighting training area was in an open grassy area north of the main airstrip at the northeastern end of an abandoned runway, 500 feet from the fence line and 1000 feet from base housing. A cement drainage culvert receives runoff from the site and discharges to the north. Scattered single-family homes are located northeast of Werner Park. A footbridge connects the homes directly to Werner Park, indicating that exposure could occur in the unnamed creeks in this area.

The training area consisted of a 75- by 75-foot portion of the runway surrounded on three sides by a double berm. The berms were approximately 3 to 5 feet high. The site was used for fire training exercises from 1961 to 1988. Typically, flammable liquids were poured onto the runway, ignited, and extinguished to simulate fire-fighting procedures. In the past, surface water (about 6 to 12 inches) was observed to collect within this area. Aviation fuel, scrapped cars and aircraft and other debris were reportedly stored and burned within the area.

The temporary structure, S1, was also on the abandoned runway. It was a corrugated metal structure located to the south of the fire-fighting training area and was used to test the durability of flight suits. The floor of the structure contained water on top of which was placed a flammable liquid. Once ignited, a flight suit, attached to a mechanical arm, was passed through the flames in order to test the suit's ability to withstand fire. Temporary Structure S1 was dismantled and removed in 1997 by Navy Caretaker Site Office personnel after the Federal Lands Reuse Authority advised the Navy that the structure was not suitable for reuse. The temporary structure was dismantled and the

materials placed in dumpsters. The contents of the dumpsters were disposed of off-site.

By 1988, the soil berms had been removed. NAWC Warminster personnel reported that these berms, along with residue, trapped liquids, and soil from eroded areas, had been analyzed and removed. The removed material was deposited in an area adjacent to Site 8, and the site regraded.

D. Quantities and Types of Hazardous Substances Present

Remedial Investigations conducted to date has consisted of soil gas surveys, surface water, sediment sampling and analysis, surface and subsurface sampling and analysis, wetlands assessment and a geophysical survey. A summary of these findings are presented in the draft Phase III RI Report by Brown & Root Environmental dated November 1996. Results of subsequent investigations were presented in a letter from Tetra Tech NUS, Inc dated October 20, 1998. The results of these findings indicated the possibility of metals contamination, principally lead and arsenic, in the surface soils along the western edge of the former Site 8 location.

Lead levels above the State's direct contact value of 1000 mg/kg for non-residential land use were detected in 5 out of 17 surface soil samples ranging from 1000 to 3130 mg/kg. The highest concentrations were identified in surface samples collected at SS-08-21, located about 70 feet from the former Structure S1. None of the samples contained arsenic levels greater than the State's direct contact value for non-residential land use. Samples collected from the entrance to the drainage channel northwest of Site 8 did not reveal any significant metal levels.

The volume of contaminated soils at Site 8 is estimated to be 330 cubic yards. The approximate area of contamination is 4500 square feet. Based on site characterization information,

contaminated soils have not significantly migrated from Site 8. This conclusion is supported by the lack of significant metals contamination in groundwater in the vicinity of the Site, along with the lack of subsurface contamination. The final Record of Decision for Operable Unit 3 addresses groundwater contamination from Area C, which includes Site 8.

E. 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 was performed between October 1989 and April 1991. Phase I involved mapping volatile organic compounds (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 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 Phases I and 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.

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 Site 4 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. The OU-3 remedial action has been operational since July 1996.

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. Additional removal or remedial actions are being proposed to support the selection of a remedy for a particular medium or group of media.

F. 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 that 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 Federal Lands Reuse Authority - Bucks County (FLRA-BC). The proposed removal action for Site 8 will help to support the transfer of property to the community by identifying the most appropriate response option to mitigate potential exposure to Site 8 contaminants.

G. State and Local Authorities' Roles

The Department of Defense (DOD), as part of President Clinton's five part program to speed economic recovery at communities where military bases are closing, has established a BRAC Cleanup Team (BCT) to implement "Fast Track" cleanup initiatives. The BCT consists one representative from DOD, one representative from the U.S. Environmental Protection Agency Region III (EPA) and one representative from the Pennsylvania Department of Environmental Protection (PADEP). The BCT acts as the primary forum in which issues affecting the execution of the cleanup to facilitate reuse are addressed. A Restoration Advisory Board (RAB), which consists of representatives of the Navy, the United States Environmental Protection Agency (EPA), PADEP, the Bucks County Health Department, the Northampton Township Municipal Authority, the Warminster Township Municipal Authority, and Upper Southampton Township, local businesses and concerned citizens has assisted in the planning and review of these activities.

As part of the nationwide BRAC legislation, NAWC Warminster has pledged to give top priority to early re-use of the base's land and buildings. FLRA-BC is responsible for recommending strategies for reuse of the base to best utilize the resources of NAWC Warminster and its people to the greatest benefit of surrounding communities.

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

The conditions at Site 8 warrant a removal action. Field investigation results indicate unacceptable levels of hazardous substances in surface soils at Site 8. Present military control restricts access to Site 8. However, upon lease and/or transfer to the community as part of the closure process for NAWC, the property including Site 8 may potentially be used for non-residential purposes.

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), (iv), and (vii) of Section 300.415 directly apply as follows to Site 8 conditions:

- 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 Site 8 include dermal, incidental ingestion, and fugitive dust inhalation exposure to soil contaminants.

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

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Groundwater downgradient of Site 8 may potentially be used for private and public water supply purposes. Although the present remedy provided by OU-3 indicates that VOC contamination levels in groundwater are improving, it is possible that lead contaminants from surface soils near Site 8 may result in groundwater contamination in the future. Contaminated groundwater attributable to releases within an area which includes Site 8 (i.e., Area C) is being addressed by a pump and treat system which went into operation during Spring 1996.

- 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 contaminated soils at Site 8 will hinder future land use for this area, including non-residential land use, when the Navy turns over this property to the community.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from Site 8, if not addressed by 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 Site 8 is to excavate contaminated soils and dispose of these material without treatment at a waste landfill. Landfilling is a cost-effective alternative for addressing the buried soil and wastes at Site 8. Municipal waste landfills are engineered to provide controls for protecting human health and the environment. If necessary, any soils or buried wastes that cannot be disposed in a municipal landfill will be disposed in a hazardous waste landfill.

The contaminated soils are present along the western edge of the Site. Available information suggests that these materials are confined to the area described above. The proposed action would excavate these surface soils.

At this time, it is estimated that the entire project will be completed within 12 months and under the \$2 million ceiling for removal actions, barring any unforeseen circumstances or disposal restrictions.

B. Estimated Costs

The Navy estimates that \$30,000 will be needed to carry out the recommended removal action at Site 8, excluding annual operation and maintenance (O&M) costs.

C. Contribution to Remedial Performance

Per the Federal Facility Agreement signed by the Navy and EPA, this removal action shall, to the extent practicable, contribute to the efficient performance of any long term remedial action with respect to the release or release(s) or threatened release(s) of concern.

The proposed removal action will meet the following objectives:

- Prevent exposures (or potential exposures) to contaminated soils presenting unacceptable risks.
- Protect groundwater quality by reducing infiltration of water into and through contaminated soils of concern.
- Prevent the release of hazardous substances at Site 8 to nearby surface water, sensitive ecosystems, and other media.

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 is not expected to impede future remedial or removal actions contemplated for Site 8.

D. RECOMMENDATION

Because conditions at Site 8 meet the NCP Section 300.415 criteria for a non-time-critical removal action, I recommend approval of this request for \$30,000. Please indicate your approval or disapproval by signing below. I recommend your approval to initiate response actions because of the nature of the threats described herein.

ORLANDO J. MONACO, P.E.
Remedial Project Manager

For U.S. Navy

Approved/~~Disapproved~~:

2/4/99

Date:

Thomas C. Ane