DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
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Ms. Christine A. P. Williams
Federal Facilities Superfund Section
United States Environmental Protection Agency (EPA)
1 Congress Street, Suite 1100 (HBT)
Boston, MA 02114-2023

Ms. Claudia Sait
Maine Department of Environmental Protection (MEDEP)
Bureau of Remediation and Waste Management
State House, Station 17
Augusta, ME 04333-0017

Dear Ms. Williams and Ms. Sait:

SUBJECT: REVISED ACTION MEMORANDUM FOR TIME CRITICAL REMOVAL ACTION (TCRA) SITE 9, AT THE NAVAL AIR STATION BRUNSWICK (NASB), MAINE

As discussed and agreed to during the June 2007 NASB Stakeholder meetings, the Action Memorandum has been revised and signed. My email of June 20, 2007 forwarded a scanned copy of the document. The hard copy dated June 20, 2007 is enclosed and will be entered into the Administrative Record file.

If you have any questions or comments, please contact me at (215) 897-4915, or Lonnie Monaco at (215) 897-4911.

Sincerely,

Dawn Kincaid

Dawn Kincaid, P.E.
BRAC Environmental Coordinator
By direction of BRAC PMO

Enclosure:
Action Memo for NAS Brunswick Site 9, North of Neptune Drive

Copy to:
BRAC PMO NE distribution
Lisa Joy, Dale Mosher – NASB
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ACTION MEMORANDUM for NAS Brunswick Site 9, N rth f N ptune Driv

PURPOSE and PROGRAMMATIC HISTORY

The purpose of this Action Memorandum is to document, for the Administrative Record, the Department of the Navy's decision to undertake a time-critical removal action (TCRA) for ash landfill material at NAS Brunswick Site 9, north of Neptune Drive. The Department of Defense has the authority to undertake CERCLA response actions, including removal actions, under 42 USC 9604, 10 USC 2705 and federal Executive Order 12480.

The proposed action will substantially eliminate the identified pathways of exposure to hazardous substances and contaminants of concern in soils. This TCRA is anticipated to be the final cleanup action for soils, with continued monitoring of the groundwater.

The proposed TCRA for this site is deemed consistent with the factors set within the NCP 40 CFR Part 300. There are no nationally significant or precedent setting issues for this site.

This revision to the original Action Memorandum dated 11 April 2006 is necessary to incorporate into the document the existence of RCRA regulated hazardous waste not known to be present prior to the start of excavation in April 2006.

The following supplemental documentation was prepared with assistance from Orlando Monaco, PE, Remedial Project Manager, Naval Facilities Engineering Command, MidAtlantic.

SITE CONDITIONS AND BACKGROUND

Site Description

Site 9 is approximately 20 acres in size. The site is generally flat, although two steep-sided stream channels are located in the southern portion of the site. The streams are now partially flooded, creating two surface water impoundment ponds which form the southern boundary of Site 9. Buildings, roadways, parking areas, and lawn cover the majority of the site. No areas of archaeological or historical importance are known to be present.

The Site 9 area is underlain by fine to medium sand at depths ranging in thickness up to 40 ft. The sand unit decreases in thickness from east to south. Underlying the sand is a transition unit composed of fine sand and silt with clay. A clay unit underlies the transition unit and extends to an undetermined depth. The depth to bedrock at the site has not been determined.

Groundwater occurs at the site at a depth of less than 20 ft below ground surface, and is unconfined. Based on groundwater elevation data gathered during the Long-Term Monitoring Program, the groundwater flow direction is generally toward the northern unnamed stream and surface water impoundment ponds. Groundwater is believed to discharge to the unnamed stream and surface water impoundment ponds.

The Neptune Drive Disposal Site (Site 9) is located in the central portion of NAS Brunswick.

Site 9 was identified as a potential hazardous waste site in the Initial Assessment Study and was later included in the Pollution Abatement Confirmation Study (R.F. Weston Inc. 1983; E.C. Jordan Co. 1985). Site 9 has been defined as three areas of potential concern.

- The former location of an incinerator in what is now the northeast corner of the former location of Building 220, and an inactive ash landfill/dump area in the former location of Buildings 218 and 219 (military barracks north of Neptune Drive)

- A reported disposal area behind the former location of Building 201 (the dining facility south of Neptune Drive).

- Two streams/impoundment ponds bordering the recreational area east of the former location of Building 201, which have iron oxide staining characteristic of leachate.

Based on the results of groundwater, surface water, and sediment samples collected during 25 monitoring events completed to date, the Long-Term Monitoring Program at Site 9 has been focused on site groundwater north of the unnamed streams. Groundwater is impacted by several VOCs, particularly vinyl chloride, which has been reported in samples from site monitoring wells.

Former Incinerator and Ash Landfill/Dump Area

The Initial Assessment Study (R.F. Weston, Inc. 1983) identifies this area as the "first dump area used at the Air Station." The incinerator was apparently operated during a period commencing on or after April 1943 when Naval Air Station was commissioned, until the fall of 1946 when the Air Station was demobilized. The incinerator could have been used as late as 1953, when the barracks that used to occupy the location of the former incinerator were built. The Initial Assessment Study states that during the period the incinerator was in operation, solid wastes were burned and the ash was placed in the dump. Wastes disposed of at this location reportedly included solvents that were burned on the ground, paint sludge, and possibly wastes from the Metal Shop. Current land use is a vacant lot following demolition of the barracks.

NPL Status

EPA officially recognized the waste disposal locations at NAS Brunswick as possibly needing investigation in 1983. During the late 1980s, NAS Brunswick was placed on the National Priorities List. The Federal Facility Agreement between the EPA, MEDEP, and the Navy, was negotiated and signed in 1990.

PREVIOUS INVESTIGATIONS

Site History

The Navy conducted field activities and environmental sampling in 1988 as part of the remedial investigation for Site 9 to determine the geologic and hydrologic conditions and the distribution of contamination at this site. The focus of these investigations was on the area

south of Neptune Drive, including Building 201 and the two unnamed str ams. The results of these investigations are presented in the Draft Final Remedial Investigation Report (E.C. Jordan Co. 1990). The Navy conducted additional investigations in 1990 at Site 9, including test pitting and soil and groundwater sampling. Data from this program did not uncover evidence of a solvent burning or disposal area(s) near Building 201.

In 1991, NAS Brunswick personnel learned of the presence of a septic system east of Building 201. This septic system was installed in 1952 when Building 201 was built, and was used until 1972 when Building 201 was connected to the base-wide sewer system (E.C. Jordan Co. 1991). The septic system, located upgradient of the most highly contaminated monitoring wells, was then speculated to be the primary source of groundwater contamination at Site 9, prompting further investigation of this area.

In January-March 1993, the Navy conducted additional investigations to evaluate the Building 201 septic system as a potential source of contamination and to address data gaps identified by EPA and MEDEP concerning the northern portion of Site 9. The results of these investigations are summarized in the Technical Memorandum (ABB-ES 1994c). Results of sampling and analysis in 1993 indicate that the septic system and subsurface soil around the septic system are not acting as a current source of groundwater contamination. As such, remedial actions developed and presented in the Feasibility Study report for removing, containing, or treating the septic system or subsurface soil were no longer considered necessary (E.C. Jordan Co. 1992).

In 2003, the Navy conducted an additional direct-push investigation to address data gaps identified in response to MEDEP and EPA comments regarding the Site 9 Long-Term Monitoring Program. The objectives of this direct-push investigation included the following:

Assess the potential for a contributing source of 1,2-dichloroethene and other VOCs in groundwater, which have been detected at MW-NASB-227

Collect geological data to assess the nature, lateral extent, and depth of the ash landfill/dump area at Site 9.

From May through June 2003, 9 direct-push borings were completed to sample groundwater and assess whether VOCs may be entering the site from the west. Borings were advanced until each encountered the Presumpscot Clay. Groundwater samples were collected from each of the 9 direct-push borings, ranging from 2 to 4 sample intervals per boring location. A total of 30 groundwater samples were collected and sent for laboratory analysis of VOCs by EPA Method 8260B. Two VOCs were detected in 3 of 30 groundwater samples. The results of this investigation did not indicate that significant concentrations of VOCs are entering the site from the west.

A total of 30 direct-push borings were advanced in the area of the ash landfill/dump area underlying the former Barracks Buildings 218 and 219 at Site 9 to delineate the actual extent of debris that may be present. Waste material was encountered in 17 of 30 borings and included brick, glass, cinders, electrical wiring, asphalt, and trace amounts of ash and fly ash. It is estimated that the ash material accounted for less than 5 percent of the total waste matrix. The lateral extent of the ash landfill/dump material covers approximately 1.3 acres

and varies from 1 to 8 ft in thickness. The ash landfill/dump material was encountered from 4 to 19 ft below ground surface. The estimated volume of the ash landfill/dump area (excluding the overlying material) is approximately 16,000 yd^3 (EA 2004). Soil samples were collected from several of the borings for VOCs by EPA Method 8260B (field preserved by EPA Method 5035), semi-volatile organic compounds (SVOCs) by EPA Method 8270C, and Target Analyte List metals by EPA Method 6010/7000 Series. Two soil samples were also collected and submitted for laboratory analysis of dioxins by EPA Method 8290 Tetra-Octa(1) from one boring location (S9-ASH-SB-2).

Site Hydrogeology

Shallow groundwater at Site 9 occurs in the overburden soil and varies in depth between 10 and 14 ft below ground surface. Overburden soil at Site 9 is a stratified formation consisting of a sand layer, transition layer, and clay layer overlying bedrock. Depth to bedrock has not been determined at this site. The elevation of ground surface at the site is approximately 40-50 ft above mean sea level. The top of clay has been interpreted from boring logs and shows a general slope from north to south with a trough, which bisects the site. One monitoring well (MW-NASB-227) was installed on 9 November 1998, to delineate the westward extent of VOCs in groundwater. Thirteen monitoring wells at the Navy Exchange Service Station have been added to the gauging program at Site 9 to collect data related to upgradient groundwater flow patterns (MW-NASB-008, MW-NASB-009, MW-NASB-010, MW-NASB-023, MW-NASB-024, MW-NASB-025, MW-NASB-026, MW-NASB-225, MW-NASB-226, MW-NASB-250, MW-NASB-251, MW-NASB-252, and MW-B27-DP-4). The shallow groundwater flow at the site is to the south and southeast. Historical groundwater flow patterns indicate that the shallow groundwater discharges to the two streams (now flooded). Groundwater levels in these wells and the adjacent stream support the assumption that the stream is a discharge area for shallow groundwater.

Results of Previous Investigations

The results of the 1988, 1990, and 1993 field investigations at Site 9 indicate the presence of vinyl chloride and 1,2-dichloroethene in groundwater both south and north of Neptune Drive at concentrations in excess of their respective MCLs, MCL guidelines, and MEGs; 1,1-dichloroethane was detected in groundwater south of Neptune Drive at concentrations in excess of its respective MEG.

The former ash landfill/dump area, north of Neptune Drive, was identified and soil and groundwater samples were collected for analysis. Polycyclic aromatic hydrocarbons were detected in the ash material; however, these compounds were not detected in groundwater immediately downgradient from this area. Vinyl chloride was detected in one monitoring well located downgradient from the disposal area, but was not detected in ash or soil samples. Elevated concentrations of inorganics were detected in groundwater downgradient of the ash disposal area, and the presence of these analytes may be due to past disposal activities in this area. Inorganics and polynuclear aromatic hydrocarbons were detected in seep and/or sediment samples. The presence of these contaminants has been attributed to the ash or other non-point source runoff from the roadways or parking lots.

During 2003, the Navy complet d a direct-push investigation to coll ct additional subsurface data to address data gaps identified by MEDEP and EPA. The results of the direct-push sample data from the 9 borings at Site 9 are summarized as follows:

Direct-Push Groundwater Results

Two VOCs were detected in 3 of 30 groundwater samples collected during this task. No significant concentrations of VOCs were noted outside the site boundary. Vinyl chloride was detected in boring S9-B8 at two different intervals (14-18 and 22-26 ft below ground surface) at a concentration of 7.1 µg/L and 7.1 µg/L, respectively, which exceeds the MEG of 0.15 µg/L and the MCL of 2 µg/L. These concentrations are similar to what has been observed in nearby monitoring wells. Trichloroethene was detected at S9-B6 (sample interval of 47-51 ft below ground surface) at a concentration of 7.3 µg/L, which exceeds the MEG (5 µg/L) and MCL (5 µg/L).

Direct-Push Soil Borings at Barrack Buildings 218 and 219 Results

Several VOCs (vinyl chloride, carbon disulfide, cis-1, 2-pdichloroethene, 1, 2-dichloroethene, and toluene) were detected at trace concentrations ranging from 3J µg/kg to 15 µg/kg. Several SVOCs were detected in the soil samples at various concentrations. The reported SVOCs are polycyclic aromatic hydrocarbons, which are combustion by-products often found in materials containing ash and asphalt.

Investigation and subsequent events

A direct-push investigation was conducted at Site 9 in 2003 (EA 2004) which identified soil impacted beneath the Barracks buildings with chlorinated volatile organic compounds.

On 30 June 2005, USA Environmental, a Navy construction contractor, completed demolition of three barracks buildings and one small auxiliary building. The buildings were removed down to 1 ft below ground surface, and the building foundations were left in the ground as to not disturb or come into contact with the contaminated soils.

A follow on Navy contractor, Oak Environmental, is now under contract to excavate and remove the contaminated soil, lying between 4 and 19 ft below ground surface, and to backfill with clean fill. The work plan for this effort was approved by EPA and MEDEP, and excavation began in April 2006. Chemicals of concern described in the work plan were consistent with those characterized as special wastes found in the direct-push investigation; however, sampling of 2 ash material piles revealed the presence of hazardous waste . These hazardous waste (HW) piles were combined and stockpiled on site while the excavation continued. The Navy directed the contractor to stop work in July 2006 to correct deficiencies and develop a revised work plan to address the handling/disposal of known quantities of RCRA regulated HW and any that may be encountered in the future. The work resumed in April 2007 and the Navy anticipates completing this contract by the end of 2007.

EPA, State, and Local Authorities' Roles

The EPA, MEDEP, and Local Stakeholders have had an opportunity to review and comment

on the EE/CA, the proposed removal action, the contractor's work plan, and the revised letter work plan which is presently being finalized. The final work plan was approved and addresses procedures and confirmatory sampling protocols for completing the removal action. EPA and MEDEP were invited to attend the preconstruction conference for the removal action at Site 9 and continued oversight will be coordinated throughout the removal action via NAS Brunswick and NAVFAC's Construction Office. The Navy has an independent 3rd party contractor (ECC) that will perform some additional oversight, monitoring, and confirmatory sampling during the removal action.

Threats to Public Health or The Environment and Statutory and Regulatory Authorities

The current conditions at Site 9 warrant continuation of the removal action. Field investigation results, as well as those from the excavation work, indicate unacceptable levels of hazardous substances in sub-surface soils at Site 9. Present military control, along with institutional controls, currently restricts access to the site. However, while the next use of this property is not currently known, this property will likely be transferred outside the Federal Government as a result of BRAC. The property including Site 9 could potentially b developed for commercial and/or private use.

REGULATORY REQUIREMENTS

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 9 conditions:

A. Section 300.415 (b) (2) (i) "Actual or potential exposure to nearby human populations, animals, or the rood chain from hazardous substances or pollutants or contaminants." Potential human and environmental exposure pathways identified under current or future land use scenarios for Site 9 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."

Groundwater downgradient of Site 9 may potentially be used for private and public water supply purposes. Although the present remedy for groundwater indicates that VOC contamination levels in groundwater are improving, it is possible that contaminants from the ash material, now that the barracks have been demolished, may result in groundwater contamination in the future.

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 the environment."

The presence of contaminated ash material at Site 9 will impact future land use for this area, including non-residential land use.

ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from Site 9, if not addressed by the response action selected in this Action Memorandum, may present an endangerment to public health, welfare, or the environment. If action should be delayed or not taken, xposure of human populations to the ash landfill material will continue from exposure via soil, surface water, and groundwater. Contamination will most likely spread from the site to nearby areas from wind erosion, surface runoff, etc. This spread of contamination would result in an increased health risk to the exposed population. Delayed action will also increase public health risks to the adjacent population through prolonged exposure via dermal, inhalation, and ingestion pathways.

PROPOSED ACTION AND ESTIMATED COSTS

A. Actions

The action proposed for Site 9 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 wastes at Site 9. Municipal waste landfills are engineered to provide controls for protecting human health and the environment. Buried wastes that cannot be disposed in a municipal landfill will be disposed in a hazardous waste landfill.

B. Estimated Costs

The Navy's estimate of $2,000,000 was considered fair and reasonable to carry out the recommended removal action at Site 9, excluding annual monitoring costs; however, unforeseen conditions are expected to raise this estimated cost.

C. Contribution to Remedial Performance

Per the Federal Facility Agreement signed by the Navy, EPA, and MEDEP, 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 ash material presenting unacceptable risks.

Protect groundwater quality by reducing infiltration of, into, and through the contaminated ash material.

Prevent the release of hazardous substances at Site 9 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.

D. Recommendation

This decision document represents the selected removal action for Site 9, NAS Brunswick, developed in accordance with CERCLA as amended and is not inconsistent with the NCP. This decision is based on the administrative record for the site.

Dawn Kincaid June 20, 2007

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