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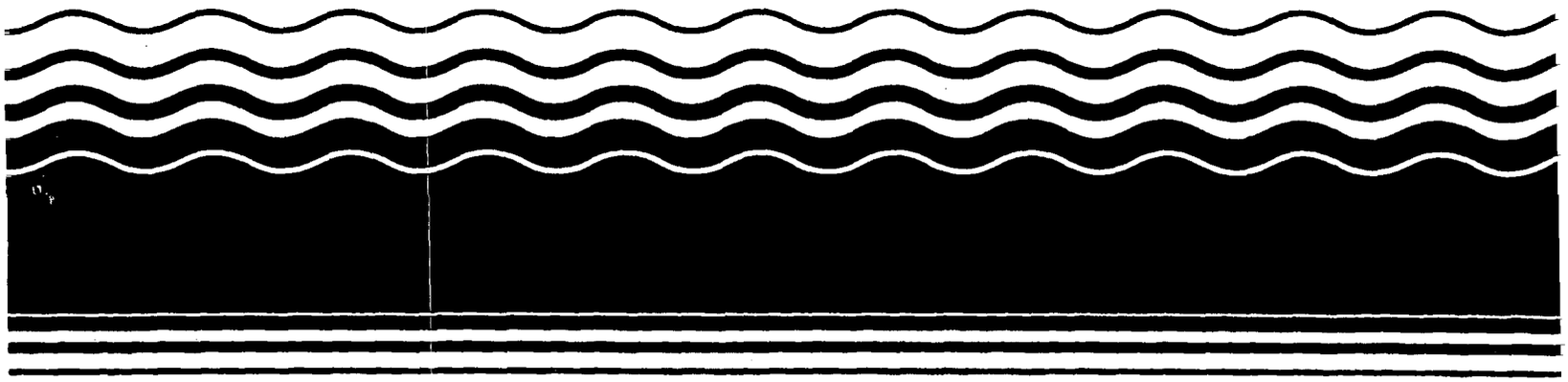
EPA/541/R-97/081
January 1998

EPA Superfund Record of Decision:

Naval Air Engineering Center OU 24 (Area K Groundwater) Lakehurst, NJ 7/7/1997



NAVAL AIR ENGINEERING STATION, Lakehurst, NJ

Final

Record of Decision for Area K Groundwater

West End of RSTS Test Tracks 1-3

7 May 1997

RECORD OF DECISION
DECLARATION STATEMENT
AREA K
NAVAL AIR ENGINEERING STATION

FACILITY NAME AND LOCATION

Naval Air Engineering Station
Lakehurst, New Jersey 08733

STATEMENT OF BASIS AND PURPOSE

This decision document presents the final remedy to address Area K groundwater at the Naval Air Engineering Station in Lakehurst, New Jersey. The selected alternative was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and, to the extent practicable, the National Oil and Hazardous Substance Pollution Contingency Plan.

This decision is based on information contained in the Remedial Investigation (RI) Report (October 1992), the Endangerment Assessment (EA) Report (October 1992), the Focused Feasibility Study for Area K Groundwater (31 July 1996), and the Proposed Plan for Area K Groundwater (5 February 1997). These reports and other information used in the remedy selection process are part of the Administrative Record file for Area K, which is available for public review at the Ocean County Library in Toms River, New Jersey.

This document provides background information on the Area, presents the selected alternative, reviews the public's response to the Proposed Plan and provides answers to comments raised during the public comment period.

Both the United States Environmental Protection Agency (USEPA), Region II Deputy Administrator and the Commissioner of the New Jersey Department of Environmental Protection (NJDEP) concur with the selected remedy.

DESCRIPTION OF THE SELECTED REMEDY

The selected alternative to address groundwater at Area K is: Limited pumping of groundwater with sprinkler irrigation and monitor contaminants through sampling and analysis.

The objectives of the proposed actions are to: 1) provide hydraulic containment of the highest levels of contamination; 2) treat higher levels of groundwater contamination via spray irrigation; 3) and, to monitor the levels of contaminant in the groundwater to monitor effectiveness.

STATUTORY DETERMINATIONS

This final action for Area K is protective of human health and the environment. The results of this action will attain Federal and State applicable or relevant and appropriate requirements (ARARs).

28 April 1997

Captain Leroy Farr (Date)
Commanding Officer
Naval Air Engineering Station
Lakehurst, New Jersey

With the concurrence of:

7-7-97

Jeanne Fox (Date)
Regional Administrator
U.S. Environmental Protection Agency, Region II

DECISION SUMMARY
RECORD OF DECISION
AREA K
NAVAL AIR ENGINEERING STATION

SITE DESCRIPTION

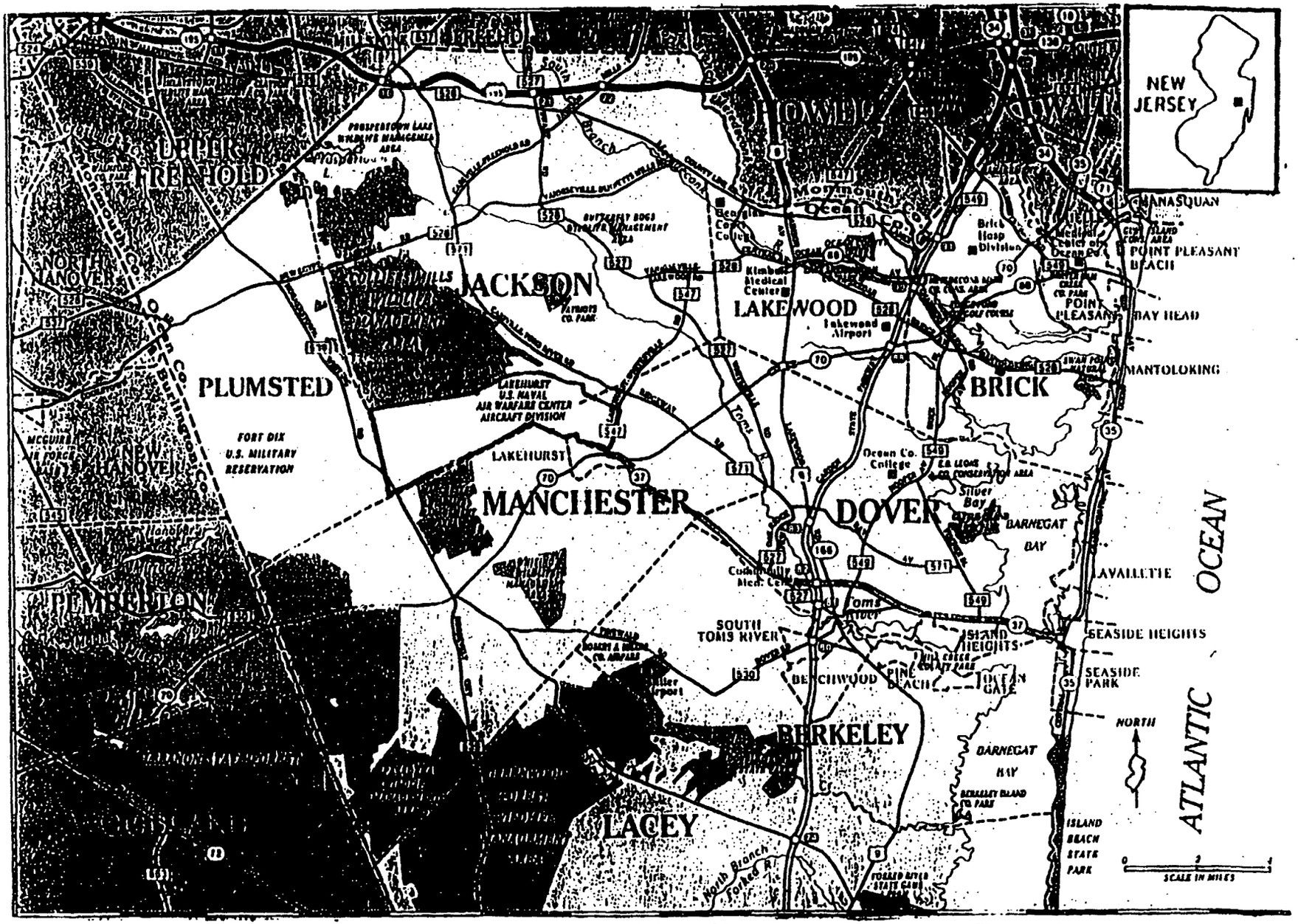
The Naval Air Engineering Station (NAES) is located in Jackson and Manchester Townships, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean (Figure 1). NAES is approximately 7,400 acres and is bordered by Route 547 to the east, the Fort Dix Military Reservation to the west, woodland to the north (portions of which are within Colliers Mill Wildlife Management Area), Lakehurst Borough and woodland, including the Manchester Wildlife Management Area, to the south. NAES and the surrounding area are located within the Pinelands National Reserve, the most extensive undeveloped land tract of the Middle Atlantic Seaboard. The groundwater at NAES is currently classified by NJDEP as Class I-PL (Pinelands).

NAES lies within the Outer Coastal Plain physiographic province, which is characterized by gently rolling terrain with minimal relief. Surface elevations within NAES range from a low of approximately 60 feet above mean sea level in the east central part of the base, to a high of approximately 190 feet above mean sea level in the southwestern part of the base. Maximum relief occurs in the southwestern part of the base because of its proximity to the more rolling terrain of the Inner Coastal Plain. Surface slopes are generally less than five percent.

NAES lies within the Toms River Drainage Basin. The basin is relatively small (191 square miles) and the residence time for surface drainage waters is short. Drainage from NAES discharges to the Ridgeway Branch to the north and to the Black and Union Branches to the south. All three streams discharge into the Toms River. Several headwater tributaries to these branches originate at NAES. Northern tributaries to the Ridgeway Branch include the Elisha, Success, Harris and Obhanan Ridgeway Branches. The southern tributaries to the Black and Union Branches include the North Ruckles and Middle Ruckles Branches and Manapaqua Brook. The Ridgeway and Union Branches then feed Pine Lake; located approximately 2.5 miles east of NAES before joining Toms River. Storm drainage from NAES is divided between the north and south, discharging into the Ridgeway Branch and Union Branch, respectively. The Paint Branch, located in the east-central part of the base, is a relatively small stream which feeds the Manapaqua Brook.

Three small water bodies are located in the western portion of NAES: Bass Lake, Clubhouse Lake, and Pickerel Pond. NAES also contains over 1,300 acres of flood-prone areas, occurring primarily in the south-central part of the base, and approximately 1,300 acres of prime agricultural land in the western portion of the base.

There are 913 acres on the eastern portion of NAES that lie within Manchester Township and the remaining acreage is in Jackson Township. The combined population of Lakehurst Borough, Manchester and Jackson Townships, is approximately 65,400, for an area of approximately 185 square miles. The average population density of Manchester and Jackson Townships is 169 persons per square mile.



Naval Air Engineering Station Vicinity Map Figure 1

The areas surrounding NAES are, in general, not heavily developed. The closest commercial area is located near the southeastern section of the facility in the borough of Lakehurst. This is primarily a residential area with some commercial establishments but no industry. To the north and south are State wildlife management areas which are essentially undeveloped. Adjacent to and south of NAES are commercial cranberry bogs, the drainage from which crosses the southeast section of NAES property.

For the combined area of Manchester and Jackson Townships, approximately 41 percent of the land is vacant (undeveloped), 57 percent is residential, one percent is commercial and the remaining one percent is industrial or farmed. For Lakehurst Borough, 83 percent of the land is residential, 11 percent is vacant, and the remaining 6 percent commercially developed.

In the vicinity of NAES, water is generally supplied to the populace by municipal supply wells. Some private wells exist, but these are used primarily for irrigation and not as a source of drinking water. In Lakehurst Borough there is a well field consisting of seven 50-foot deep wells, located approximately two-thirds of a mile south of the eastern portion of NAES. Three of the seven wells (four of the wells are rarely operated) are pumped at an average rate of 70 to 90 gallons per minute and supply drinking water for a population of approximately 3,000. Jackson Township operates one supply well in the Legler area, approximately one-quarter mile north of NAES, which supplies water to a very small population (probably less than 1,000) in the immediate vicinity of NAES.

The history of the site dates back to 1916, when the Eddystone Chemical Company leased property from the Manchester Land Development Company to develop an experimental firing range for the testing of chemical artillery shells. In 1919, the U.S. Army assumed control of the site and named it Camp Kendrick. Camp Kendrick was turned over to the Navy and formally commissioned Naval Air Station (NAS) Lakehurst, New Jersey on June 28, 1921. The Naval Air Engineering Center (NAEC) was moved from the Naval Base, Philadelphia to Lakehurst in December 1974. At that time, NAEC became the host activity, thus, the new name NAEC. In January 1992, NAEC was renamed the Naval Air Warfare Center Aircraft Division Lakehurst (NAWCADLKE), due to a reorganization within the Department of the Navy. In January 1994, the NAWCADLKE was renamed the Naval Air Engineering Station (NAES), due to continued reorganization within the Department of the Navy.

Currently, NAES's mission is to conduct programs of technology development, engineering, developmental evaluation and verification, systems integration, limited manufacturing, procurement, integrated logistic support management, and fleet engineering support for Aircraft-Platform Interface (API) systems. This includes terminal guidance, recovery, handling, propulsion support, avionics support, servicing and maintenance, aircraft/weapons/ship compatibility, and takeoff. The Station provides, operates, and maintains product evaluation and verification sites, aviation and other facilities, and support services (including development of equipment and instrumentation) for API systems and other Department of Defense programs. The Station also provides facilities and support services for tenant activities and units as designed by appropriate authority.

NAES and its tenant activities now occupy more than 300 buildings, built between 1919 and 1996, totaling over 2,845,000 square feet. The command also operates and maintains: two 5,000-foot long runways, a 12,000-foot long test runway, one-mile long jet car test track, four one and one-quarter mile long jet car test tracks, a parachute jump circle, a 79-acre golf course, and a 3,500-acre conservation area.

In the past, the various operations and activities at NAES required the use, handling, storage and occasionally the on-site disposal of hazardous substances. During the operational period of the facility, there have been documented, reported or suspected releases of these substances into the environment.

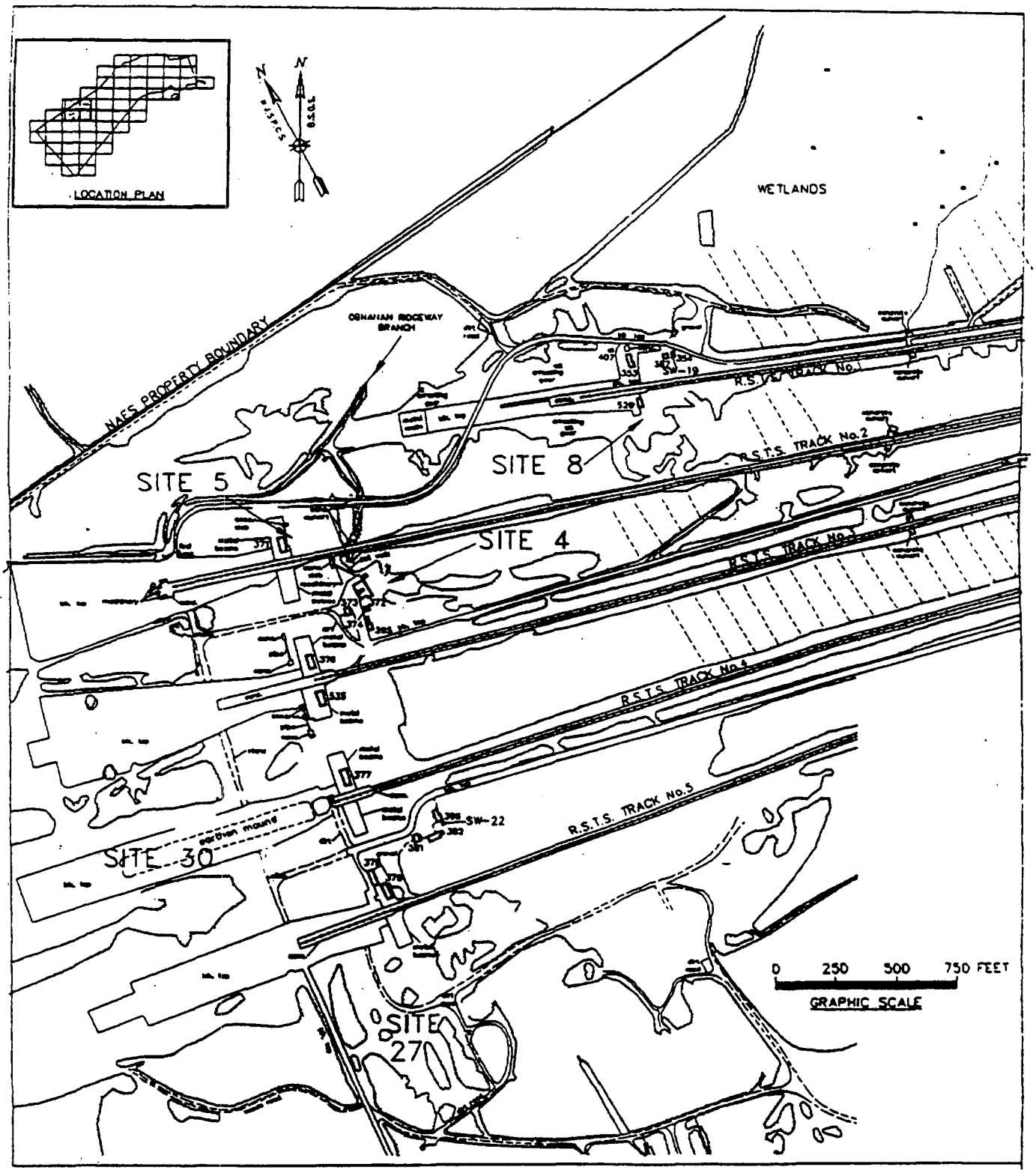
SITE HISTORY

Area K is located in the northwestern portion of NAES and includes Sites 4, 5, 8, 27 and 30 (See Figure 2). Area K encompasses the receiving ends of the five Recovery Systems Test Sites (RSTS) test tracks. The tracks are used to test arresting gear and barricade systems. A weighed cart is propelled by a jet car into the arresting system. The tracks are generally surrounded by grass-covered and wooded areas. A wetland area is present in the north/northeast portion of Area K and the NAES property line forms the northern boundary of Area K. The Obhanan Ridgeway Branch flows through the northern section of Area K, near the facility boundary. The general direction of groundwater flow in Area K is to the northeast. Two non-potable water supply wells are located in Area K. SW-22 in the southern portion of the Area, at the end of Track 4, and SW-19 in the northeastern portion of the Area, at the end of Track 1.

The results of previous investigations and removal actions at former Sites 5, 27 and 30 in Area K have documented the absence of any significant soil contamination posing a threat to human health or the environment. Proposed Plans of "no further action" were prepared for these sites and released for public comment. Following the 30 day public comment period, the Navy with the concurrence of the USEPA and NJDEP, issued "no further action" Records of Decision for these sites dated September 16, 1991 and December 10, 1991.

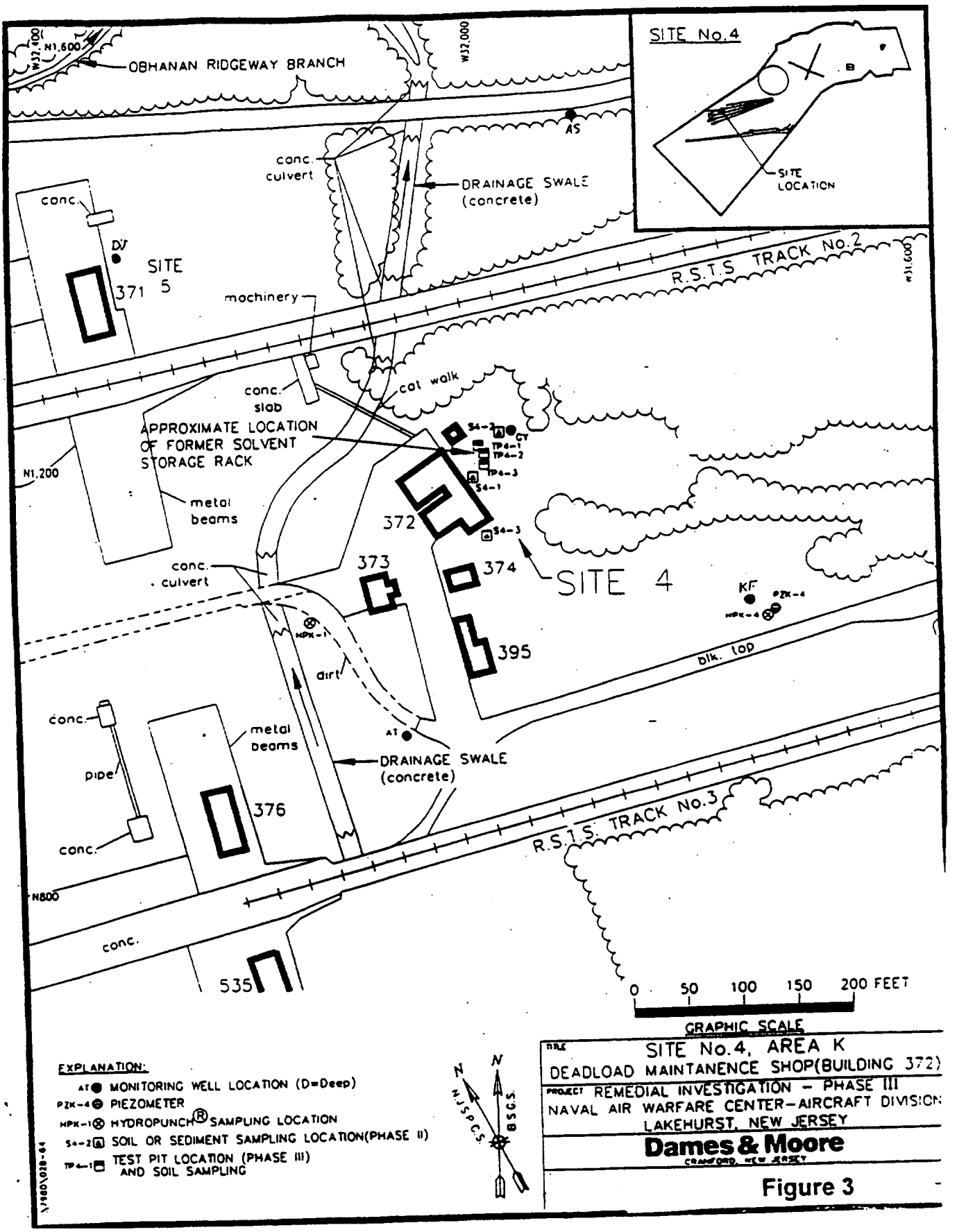
DESCRIPTIONS OF REMAINING SITES

SITE 4, "Deadload Maintenance Shop (Building 372), Arresting End of Track 2. A solvent storage rack was located at this site, directly behind (to the northeast of) Building 372, the Deadload Maintenance Shop, between the arresting ends of test tracks Nos. 2 and 3 (Figure 3). Between 1958 and 1980, 55 gallon drums containing dry cleaning solvent and lubricating oil were stored at this site. Barrels reportedly leaked while in storage, creating a 10-foot by 20-foot black discoloration of the soil immediately below the rack. The total amount of leakage is unknown. In the early 1980s, a secondary containment was constructed for storage of hazardous material/wastes. All stained soil was removed and replaced with clean fill. It was reported that propylene glycol may have also been used at the site.



AREA K

Figure 2


SITE No.4
SITE LOCATION
OBHANAN RIDGEWAY BRANCH
W32,400
N1,600
W32,000
AS
conc. culvert
DRAINAGE SWALE (concrete)
conc.
DV
SITE 371 5
R.S.T.S TRACK No.2
W31,600
machinery
conc. slab
cat walk
APPROXIMATE LOCATION OF FORMER SOLVENT STORAGE RACK
S4-2
CY
TP4-1
TP4-2
TP4-3
S4-1
N1,200
metal beams
372
S4-3
373
374
SITE 4
conc. culvert
KF
PZK-4
HPK-4
HPK-1
395
blk. top
dirt
conc.
metal beams
AT
DRAINAGE SWALE (concrete)
pipe
376
R.S.T.S. TRACK No.3
conc.
N800
conc.
535
0 50 100 150 200 FEET
GRAPHIC SCALE
EXPLANATION:
AT● MONITORING WELL LOCATION (D=Deep)
PZK-4⊖ PIEZOMETER
HPK-1⊗ HYDROPUNCH® SAMPLING LOCATION
S4-2▣ SOIL OR SEDIMENT SAMPLING LOCATION(PHASE II)
TP4-1▣ TEST PIT LOCATION (PHASE III) AND SOIL SAMPLING
N
N.J.S.P.C.S.
N.S.G.S.
SITE No.4, AREA K
DEADLOAD MAINTANENCE SHOP(BUILDING 372)
REMEDIAL INVESTIGATION – PHASE III
NAVAL AIR WARFARE CENTER-AIRCRAFT DIVISION
LAKEHURST, NEW JERSEY
Dames & Moore
CRANFORD, NEW JERSEY
Figure 3

Special features include:

- There is a shallow groundwater table at Site 4 at a depth of approximately 9 feet below the ground surface.
- Groundwater flow is in a generally northeast direction, parallel to the northern NAES boundary.
- The Obhanan Ridgeway Branch is located approximately 400 feet north (sidegradient) of Site 4. A concrete drainage swale, which discharges into the Obhanan Ridgeway Branch, passes within about 100 feet of Site 4.

Site 8, "Arresting End of RSTS Track No. 1, Building 529": This site is located five feet northeast of Building 529 at the end of RSTS Track No. 1, and comprises a 5 by 5 feet area (see Figure 4). Maintenance activities at RSTS Track No. 1 produced unknown wastes which were reportedly disposed of by pouring onto the dirt next to Building 529. A small solvent storage facility was also located next to Building 529 which operated continuously between 1957 and 1981. Some leakage of containers reportedly occurred at this site. However, no visible signs of soil contamination were present during a 1980-1981 site investigation. In 1981, a secondary containment facility was constructed for storage of hazardous material/wastes.

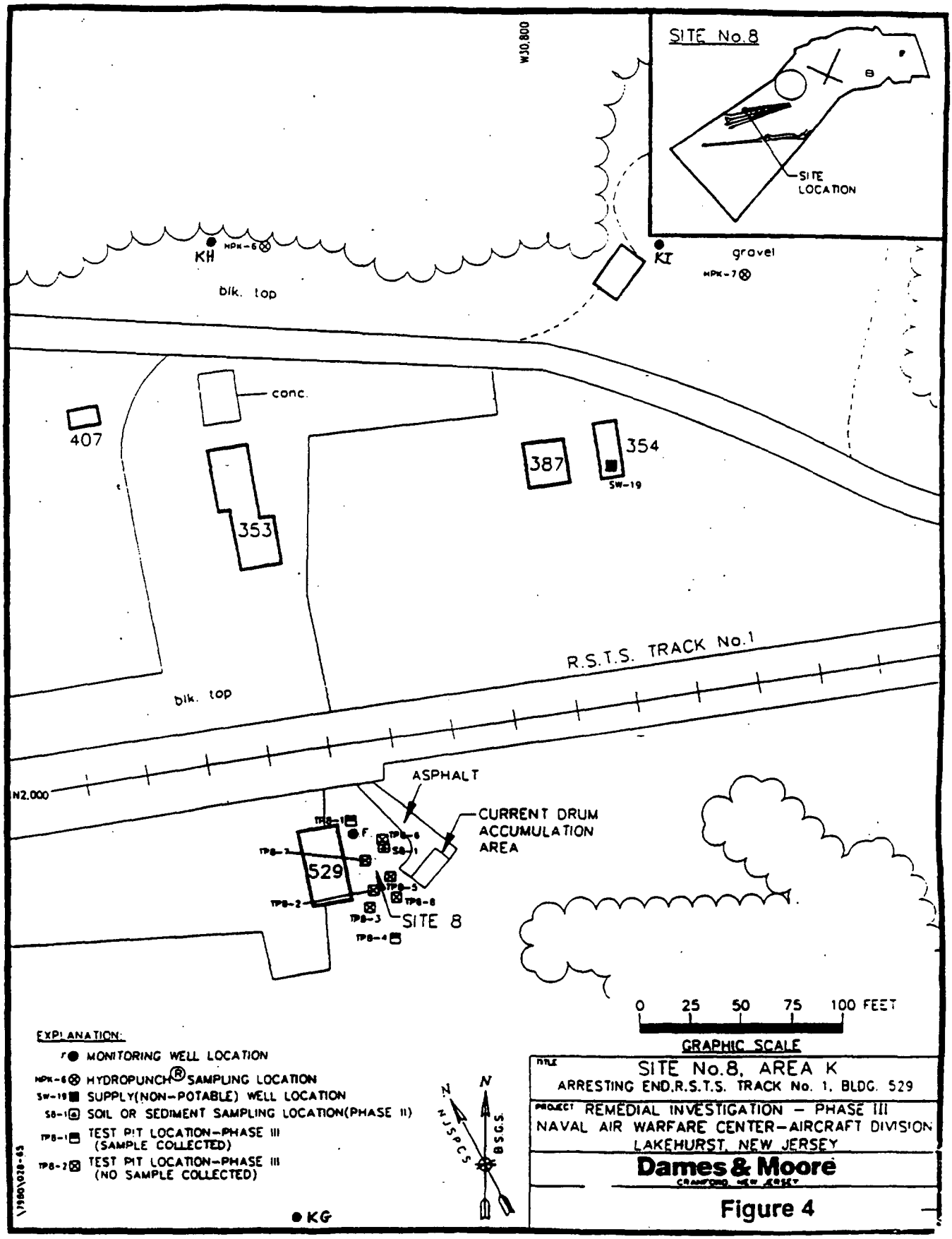
Special features include:

- Site 8 is located approximately 2,000 feet from the nearest (northern) NAES boundary.
- There is a shallow groundwater table at Site 8 at a depth of approximately 6 feet below the ground surface.
- The general direction of groundwater flow at the site is to the northeast.
- The Obhanan Ridgeway Branch is located approximately 300 feet north of Site 8.
- There is a non-potable water supply well, SW-19, located underneath Building 354 which supplies water for the Track 1 restroom facility. Bottled drinking water is supplied to personnel at the site.

INITIAL INVESTIGATIONS

As part of the DOD Installation Restoration Program and the Navy Assessment and Control of Installation Pollutants (NACIP) program, an initial Assessment Study was conducted in 1983 to identify and assess sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations.

Based on information from historical records, aerial photographs, field inspections, and personnel interviews, the study identified a total of 44 potentially contaminated sites. An additional site, Bomarc, was also investigated by NAES. The Bomarc Site is the responsibility of the U.S. Air Force and is located on Fort Dix adjacent to the western portion of NAES. A Remedial Investigation (RI) was recommended to confirm or deny the existence of the suspected contamination and to quantify the extent of any problems which may exist. Following further review of available data by Navy personnel, it was decided that 42 of the 44 sites should be included in the Remedial Investigation. Two potentially contaminated sites, an ordnance site (Site 41) and an Advanced Underground Storage Facility (Site 43), were deleted from the Remedial


SITE No.8
SITE LOCATION
W10,800
KH
HPK-6
KI
HPK-7
gravel
blk. top
conc.
407
353
387
354
SW-19
R.S.T.S. TRACK No.1
blk. top
N2,000
ASPHALT
CURRENT DRUM ACCUMULATION AREA
529
SITE 8
TP8-1
TP8-2
TP8-3
TP8-4
TP8-5
TP8-6
SB-1
0 25 50 75 100 FEET
GRAPHIC SCALE
EXPLANATION:
MONITORING WELL LOCATION
HYDROPUNCH® SAMPLING LOCATION
SUPPLY(NON-POTABLE) WELL LOCATION
SOIL OR SEDIMENT SAMPLING LOCATION(PHASE II)
TEST PIT LOCATION-PHASE III (SAMPLE COLLECTED)
TEST PIT LOCATION-PHASE III (NO SAMPLE COLLECTED)
KG
N
N.J.S.P.C.S.
U.S.G.S.
SITE No.8, AREA K
ARRESTING END.R.S.T.S. TRACK No. 1, BLDG. 529
REMEDIAL INVESTIGATION - PHASE III
NAVAL AIR WARFARE CENTER-AIRCRAFT DIVISION
LAKEHURST, NEW JERSEY
Dames & Moore
CRANFORD, NEW JERSEY
Figure 4

Investigation because they had already been rehabilitated. In 1987 NAES was designated as a National Priorities List (NPL) or Superfund site under the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

REMEDIAL INVESTIGATIONS

SITE 4

Investigations at this site was initiated prior to 1984 with the installation of 2 monitoring wells. Monitoring well AS was installed approximately 300 feet in a general down gradient direction from the site. Well AT was installed about 250 feet south-southwest, but not directly upgradient. of the site. (See Figure 5).

Phase I Remedial Investigation

During Phase I (1985-1986) investigations, stained soil was observed behind Building 372 during visual inspection of the site. In June 1988, soil gas and groundwater screening surveys revealed elevated levels of petroleum and chlorinated hydrocarbons in soil gas and shallow groundwater at the site.

Phase II Remedial Investigation

In Phase II, (Aug-Dec 1988), analysis of groundwater samples collected from well AS and a new well installed about 50 feet down gradient from the site (GY) revealed high levels of vinyl chloride and slightly elevated levels of chromium and mercury. The high levels of vinyl chloride were not confirmed by an EPA split sample nor by another round of sampling at the same well. Analyses of three soil samples collected from test pits excavated at the site revealed no contamination.

Confirmation Sampling

In July 1990, filtered and unfiltered groundwater samples were collected from well AS to confirm the elevated levels of chromium and mercury detected in the well during Phase II. Chromium was detected in the unfiltered sample at a concentration of 14.3 ug/l (below the NAES established background level of 324 ug/l) and was not detected in the filtered sample. Mercury was not detected in either sample.

Phase III Remedial Investigation

In Phase III (July 1991-March 1992), groundwater samples were collected from three different depths, using the Hydropunch™, at one location upgradient of the site and three locations down gradient of the site. Chlorinated volatile organic compounds (VOCs) and low levels of benzene were detected in a shallow groundwater sample from a location 800 feet northeast (down gradient) of the site. Vinyl chloride was not detected in this sample. No chromium or mercury was detected in the analysis of a filtered sample collected from well AS. Of the samples collected from three test pits near the former solvent storage rack, contaminants were detected which exceeded EPA acceptable risk levels or NJDEP soil criteria.

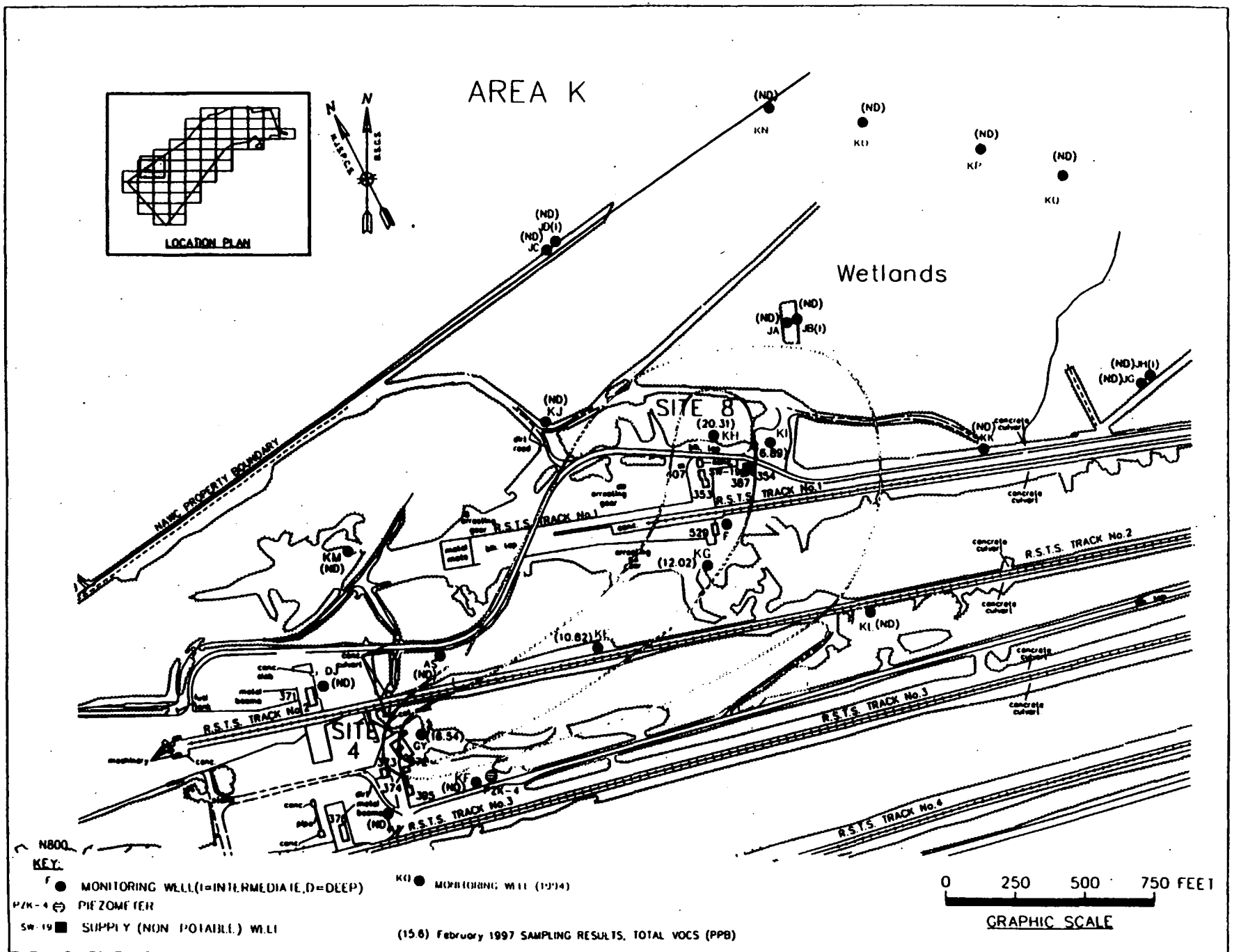

AREA K
LOCATION PLAN
N
Wetlands
NAVAL PROPERTY BOUNDARY
SITE 8
SITE 4
R.S.T.S. TRACK No.1
R.S.T.S. TRACK No.2
R.S.T.S. TRACK No.3
R.S.T.S. TRACK No.4
(ND)
(20.31)
(12.02)
(10.82)
(8.54)
(6.89)
KEY:
MONITORING WELL(I=INTERMEDIATE,D=DEEP)
PIEZOMETER
SUPPLY (NON POTABLE) WELL
MONITORING WELL (1994)
(15.6) February 1997 SAMPLING RESULTS, TOTAL VOCS (PPB)
0 250 500 750 FEET
GRAPHIC SCALE

FIGURE 5

SITE 8

In 1980, an EPA contractor performed a field investigation at this site, consisting of several organic vapor analyzer (OVA) measurements in 3.5 to 4 feet deep test pits. OVA levels in the area around Building 529 exceeded 1,000 parts per million (ppm). A gas chromatographic analysis indicated the probable presence of trichloroethene and, at much lower concentrations, tetrachloroethene. The contamination appeared to be confined to the area immediately outside Building 529. Monitoring well F was installed at the location of the reported disposal site at the northeastern corner of Building 529. The well was monitored by NAES for the presence of floating product. None was detected.

Phase I Remedial Investigation

In Phase I investigations (1985 - 1986), no visual evidence of soil contamination was observed during examination of the site. Analysis of groundwater samples collected from monitoring well F at the site, and supply well SW-19, down gradient from the site, revealed no contamination.

Phase II Remedial Investigation

In Phase II (Aug-Dec 1988), analysis of groundwater samples collected at the site revealed the presence of two VOCs and mercury in an unfiltered sample. No contamination was detected in a soil sample collected from a boring drilled at the site.

Phase III Remedial Investigation

During Phase III investigations (July 1991- April 1992), analysis of groundwater samples collected in the area of Site 8 revealed sporadic detections of chlorinated VOC contamination. The source of VOC contamination appears to be the disposal and/or spillage of liquid wastes, including solvents, onto the ground at Sites 4 and 8. The plume had a maximum width of 2,100 feet at this point. Aromatic VOCs (benzene, toluene, ethylbenzene and xylenes (BTEX)) were detected at very low concentrations in groundwater samples collected to the east, west and southwest of Site 8. The exact source of the aromatic VOCs in groundwater has not been determined but is not believed to be a prolonged or systematic release based on site history. Soil samples collected from test pits excavated at Site 8 contained low levels of chlorinated VOCs, well below NJ Soil Cleanup Criteria, and no visual evidence of soil contamination was noted.

Additional Investigations

A workplan for groundwater monitoring was developed, dated January 1994, when it was determined that existing groundwater sampling data was not sufficient to determine the preferred alternative for the site. Pursuant to the workplan, thirteen additional monitoring wells (KE through KQ) were installed between 18 and 29 November 1994 within Area K (See Figure 5). Four of these wells, KN, KO, KP and KQ, established a down gradient "line of compliance" for the plume. These wells supplemented the existing network of 11 wells and aided in the verification of data collected from some of the 14 Hydropunch™ sampling locations in Area K.

The new well network was subsequently sampled semi-annually for VOC analysis. All wells were sampled on February 21, 1995, October 26, 1995, and April 24, 1996 (the April results were reported in May 1996). The line of compliance wells were resampled on May 23, 1995 to

verify the results of the February 1995 sampling event. Additionally, well KE was sampled on February 21, 1996.

The results of these sampling events have verified the presence of chlorinated solvents and BTEX compounds (see Table I for a summary of results). A full set of sampling results can be found in Appendix B of the Focused Feasibility Study for Area K. From this data, there appears to be a preferential path of migration of the contaminants between wells KE and KN. Sampling of these wells has not revealed the presence of vinyl chloride, but has shown other intermediate breakdown products of trichloroethene. It appears that the source, once located immediately northeast of building 373 (Site 4), has migrated further northeast. Wells AT and KF at Site 4 reveal little or no contamination (below 4 parts per billion (ppb)). Well GY at Site 4 showed a level of 13.62 ppb total VOCs in the May 1996 round. The highest levels of contamination in Area K are found in wells KE, KG, and KI (50.49 ppb February 1995, 26.36 ppb May 1996 and 42.7 ppb February 1995 total VOCs respectively). Detected levels of total VOCs in individual wells can vary significantly with each sampling round. For example, shallow well JA had a level of 15.3 ppb total VOCs in the October 1995 round while the May 1996 analysis did not show any detectable levels of VOCs.

In the down gradient line of compliance wells low levels of chloroform, cis1,2- dichloroethene, and 1,1-dichloroethane have been detected sporadically. Other contaminants such as dichlorodifluoromethane, 1,2,3-trimethylbenzene, methylene chloride, benzene, xylenes, and isopropyltoluene have been detected infrequently. Only chloroform and cis1,2-dichloroethene have been detected at levels slightly exceeding ARARs in wells KN, KO and KQ. However, these levels have been inconsistent.

Side-gradient wells to the west of the Area (wells KM, KJ and pair JC/JD) reveal no contamination. Therefore, there is no likelihood of off-base contamination to the west.

The groundwater cleanup standards for NAES consist of Federal Maximum Contaminant Levels (MCLs) and State Groundwater Quality Criteria. MCLs are federally enforceable maximum contaminant levels allowable in public drinking water supplies. They have been established from health-based data by EPA's Office of Drinking Water Regulations (40 CFR 141) established under the authority of the Safe Drinking Water Act.

On January 13, 1993, the revised New Jersey Administrative Code 7:9-6 which includes the Groundwater Quality Criteria was promulgated. The criteria establish the groundwater classifications for the Pinelands, including Class I-PL for the Preservation Area. The actual groundwater criteria is natural quality. However, for some constituents natural quality is often much lower than can be measured in a laboratory, therefore, some measureable criteria are necessary to determine compliance. Practical Quantitation Levels (PQLs) are the lowest concentration of a contaminant that can be reliably achieved among laboratories within specified limits of precision and accuracy during routine laboratory operating conditions. The PQLs will be used to determine compliance with the Groundwater Quality Criteria for Class I-PL groundwater.

Table I - Summary of Contaminants found in Area K Groundwater

Contaminant	Highest Levels Detected (all sampling rounds, ppb)	Highest Levels Detected in last round (May 1996, ppb)	Class I-PL PQLs (Pinelands) Cleanup Requirement (ppb)	Federal Maximum Concentration Limit (MCL) (ppb)
Vinyl Chloride	110	1.92	5	2
1,1,1 Trichloroethane	7	2.12	1	200
1,2 Dichloroethane	48	ND	2	NA
Trichloroethene	29.4	8.67	1	5
Tetrachloroethene	40.1	3.88	1	5
Cis 1,2 Dichloroethene	13.05	13.05	2	100
1,1 Dichloroethene	9.12	ND	2	7
Benzene	1.65	ND	1	5
0-Xylene	8.45	ND	1	10,000 (total xylenes)
P,M-Xylene	3.72	ND	2	10,000 (total xylenes)
Chloroform	3.15	ND	1	100

Note: a part per billion (ppb) is equivalent to a microgram per liter (ug/l).
ND - not detected

Summary of Findings

A plume of chlorinated volatile organic contamination (VOCs), primarily trichloroethene and tetrachloroethene, is present in shallow groundwater at Area K and encompasses both Site 4 and Site 8 (See Figure 5). The contamination is attributable to parts cleaning operations and solvent storage practices occurring in the past at Sites 4 and 8 (see site descriptions). The plume begins at Site 4 and widens, and decreases in concentration, in the down gradient (northeast) direction. The maximum width of the area of concern has varied with sampling rounds but has been between 2,100 feet to 1200 feet. Since it was determined likely that the low levels of contamination present in this area are discharging into the wetland region immediately down gradient, four line of compliance wells were installed in the down gradient wetlands. Sporadic detectable levels of VOCs have been detected at the Line of Compliance wells approximately 900 feet down gradient from Site 8.

The primary contaminants found in groundwater at Area K are trichloroethene and tetrachloroethene (at levels of 40 part per billion (ppb) or less for each). Based on groundwater monitoring of the down gradient and sidegradient line of compliance wells, it is unlikely that contamination has migrated past NAES boundaries.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

A draft Proposed Plan was first issued for comments on 30 September, 1996. On December 21 and 22, 1996, a newspaper notification inviting public comment on the Proposed Plan appeared in The Ocean County Observer and The Asbury Park Press. The public notice summarized the Proposed Plan and the preferred alternative. The announcement also identified the time and location of a Public Meeting and specified a public comment period, and the address to which written comments could be sent. Public comments were accepted from January 7, 1997 to February 7, 1997. The newspaper notification also identified the Ocean County Library as the location of the Information Repository.

A Public Meeting was held on January 15, 1997 at the Manchester Branch of the Ocean County Library at 7:00 p.m.. At this meeting representatives from the Navy, USEPA and NJDEP were available to answer questions concerning Area K and the preferred alternative. A list of attendees is attached to this Record of Decision as Appendix A. Comments received and responses provided during the public hearing are included in the Responsiveness Summary, which is part of this Record of Decision. A transcript of the meeting is available as part of the Administrative Record.

During the public comment period from January 7, 1997 through February 7, 1997, no written comments were received, from the public, pertaining to Area K. On February 4, 1997, the NJDEP submitted additional comments to the Proposed Plan for Area K. The Proposed Plan was revised to include these comments. A copy of the final Proposed Plan for Area K, dated February 5, 1997, has been placed in the Administrative Record for NAES located at the Ocean County Library, Toms River, NJ.

This decision document presents the selected alternative (i.e., spray irrigation and long term monitoring) for Area K, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan (NCP). The decision for Area K is based on the information contained in the Administrative Record, which is available for public review at the Ocean County Library, 101 Washington Street, Toms River, New Jersey.

SCOPE AND ROLE OF RESPONSE ACTION

Studies conducted in Area K from 1985 to the present show that the groundwater in this area had been contaminated with various VOCs as a result of past operations dating back to the 1950s through the 1970s. The Navy implemented groundwater use restrictions and has conducted monitoring for the last three years.

Previous Remedial Actions

The results of previous investigations and removal actions at former Sites 5, 27 and 30 in Area K have documented the absence of any significant soil contamination posing a threat to human health or the environment. Proposed Plans of "no further action" were prepared for these sites

and released for public comment. Following the 30 day public comment period, the Navy with the concurrence of the USEPA and NJDEP, issued a "no further action" Record of Decision for these sites.

SUMMARY OF SITE RISKS

In April 1992, a facility-wide endangerment assessment for NAES was conducted. The objective of this Endangerment Assessment (EA) was to assess the potential current and future human health risks and potential environmental impacts posed by contaminated soils, groundwater, sediment, and surface water at NAES. Based on available information, NAES was considered to be a potential public health concern because of the risk to human health caused by the possibility of exposures to hazardous substances via contaminated groundwater, soil, sediment and surface water.

AREA K RISK

This is a summary of the Endangerment Assessment (EA) findings for groundwater in Area K. The assessment of this site was conducted using all available data generated during previous remedial investigations (RI). This summary will discuss (1) the chemicals identified as contaminants of concern (COCs), (2) the land use assumptions upon which estimates of potential human exposure to site contaminants are based, (3) the quantitative estimates of carcinogenic risk and noncarcinogenic hazard, and (4) a summary interpretation of the EA findings with regard to need for site remediation.

CONTAMINANTS OF CONCERN

For Area K groundwater, chemicals of concern (COCs) include: trichloroethene, tetrachloroethene, cis 1,2-dicloroethene, 1,1-dichloroethane, 1,1,1-trichloroethane, benzene, toluene, xylenes, and chloroform. These chemicals are cleaning solvents and their breakdown products and volatile constituents found in gasoline.

LAND USE AND EXPOSURE ASSUMPTIONS

Four different scenarios representing current and potential future land uses were evaluated to assess applicability to the site. Evaluated scenarios included military, light industrial, construction and residential land uses. For each of these scenarios, human exposure is effected by mechanisms that include direct contact, inhalation and ingestion.

Based on current land use conditions within Area K, a light industrial land use scenario was quantified for direct exposure to contaminated groundwater via incidental ingestion.

Future residential land use conditions were evaluated as part of the risk characterization for Area K groundwater.

HUMAN HEALTH RISK AND HAZARD FINDINGS

The endangerment assessment for the groundwater media addressed the cumulated groundwater data associated with Sites 4 and 8. The COCs included after the screening process are tetrachloroethene, trichloroethene, cis1,2-dichloroethene, 1,1-dichloroethane, 1,1,1-trichloroethane, benzene, toluene, xylenes, and chloroform.

Under a current light industrial scenario, the carcinogenic risk contributed by the COCs listed above was 2.78×10^{-5} and the Hazard Quotient was 0.061. Under a future residential scenario, the risk was calculated as 5.74×10^{-5} and Hazard Quotient of 0.155.

Both these potential future land use scenarios show a risk within EPA's acceptable risk range of 10^{-6} to 10^{-4} but above New Jersey's acceptable risk of 10^{-6}. The associated Hazard Quotients are under 1.0. There is currently no pathway between groundwater and humans in this area. Without a pathway, risks associated with ingestion of groundwater is unlikely. In fact, workers in this area are supplied with bottled drinking water based upon the high iron, turbidity and overall poor water quality from existing shallow wells in the area.

ECOLOGICAL ASSESSMENT

As part of the Endangerment Assessment, a Baseline Ecological Evaluation (BEE) was conducted to obtain a description of the ecosystems at NAES.

Currently, it does not appear that groundwater is having an impact on the ecology of Area K. The low levels of VOCs likely to be discharging to the wetlands are not expected to be a significant present or future ecological impacts.

ENDANGERMENT ASSESSMENT SUMMARY

In summary, the results of the EA indicate that contaminant present in groundwater at Area K pose a concern relative to potential future exposure populations. Therefore, alternatives for the remediation of groundwater contamination at this area are warranted. No elevated risks associated with contaminants in soil at Sites 4 and 8 were found. In addition, no adverse ecological effects due to contamination at the individual sites were found.

SUMMARY OF REMEDIAL ALTERNATIVES

Under CERCLA, the selected alternative must be protective of human health and the environment, cost effective, and in accordance with statutory requirements. Permanent solutions to contamination are to be achieved wherever possible. The remedial alternatives considered for the site are summarized below. Detailed descriptions of the remedial alternatives can be found in the FFS (31 July 1996), which is available in the Administrative Record for NAES.

The alternatives 1 through 6 were evaluated as final remedial alternatives for groundwater. All alternatives include the establishment of a Classification Exception Area (CEA) pursuant to NJAC 7:9-6.6.

ALTERNATIVE 1: NO ACTION

Estimated Construction Cost: $0
Estimated Net O&M Cost: $0
Estimated Implementation Time Frame: Not applicable (N/A)
Estimated Time to Completion: N/A
Estimated Cost to Completion: $0

This alternative involves no additional actions at Area K (Sites 4 and 8). This alternative is evaluated as a baseline by which to compare other alternatives.

ALTERNATIVE 2: LONG TERM GROUNDWATER MONITORING

Estimated Construction Cost: $0
Estimated Net O&M Cost: $8,860/yr.
Estimated Implementation Time Frame: 3 months
Estimated Time to Completion: 30 years
Estimated Cost to Completion: $265,800

This alternative involves monitoring of groundwater contaminants. No contaminants would be treated or contained. Area K has no continuing sources contributing to groundwater contamination. Monitoring of the sites can be implemented by using previously installed monitoring wells.

There are four shallow wells that make up the area's "line of compliance". These wells are located on NAES property and sampling results of these wells will be used to monitor compliance with applicable standards. These wells are currently monitored on a semi-annual basis.

Monitoring would consist of taking samples from all monitoring wells at the sites semi-annually for 5 years, followed by a comprehensive evaluation of the data. The sampling program would be re-evaluated based on the results. At that time a determination would be made if the remedy was protective or if additional remediation is necessary.

The sampling data will be entered into a groundwater model to determine the rates of contaminant movement and reduction, and to determine the placement of additional wells as needed.

ALTERNATIVE 3: NATURAL RESTORATION WITH LONG TERM MONITORING

Estimated Cost of Study: $216,400
Estimated Net O&M Cost: 8,860/yr.
Estimated Implementation Time Frame: 6 months
Estimated Time to Completion: 30 years
Estimated Cost to Completion: $482,200

Natural restoration would involve groundwater monitoring as outlined in Alternative 2 and an additional one-time study to determine whether biological activity can sufficiently reduce contaminants to appropriate standards. The study, which would last for two years, would determine if microorganisms are present that can remove the contaminants at the site. A similar three-year study is currently underway at another area of similar groundwater contamination at the base (Areas I & J). A similar workplan would be followed for Area K.

ALTERNATIVE 4: SOURCE REDUCTION THROUGH SPRINKLER IRRIGATION WITH LONG TERM MONITORING

Estimated Construction Cost: $44,495
Estimated Net O&M Cost: $13,260/yr.
Estimated Implementation Time Frame: 3 months
Estimated Time to Completion: 10 years
Estimated Cost to Completion: $177,095

Sprinkler irrigation consists of pumping groundwater and spraying it in the air to volatilize contaminants. Groundwater pumping would be implemented at the areas of highest groundwater contamination. One or two wells would be installed to pump water from the aquifer and spray irrigate the water. This technology would only be effective in the temperate months (i.e. April - September) to avoid freezing. Pumping of groundwater provides hydraulic containment of the highest levels of contamination. By reducing the highest areas of contamination, overall treatment goals can be achieved faster and at lower total cost. An air permit may be required for this alternative.

ALTERNATIVE 5: SOURCE REDUCTION THROUGH IN-WELL AERATION WITH LONG TERM MONITORING

Estimated Construction Cost: $129,000
Estimated Net O&M Cost: $62,360/yr.
Estimated Implementation Time Frame: 3 months
Estimated Time to Completion: 15 years
Estimated Cost to Completion: $327,900

In-well aeration is a technology where air is injected inside the wellbore of the well. The air injection acts as an in-situ air stripper to remove dissolved volatile organic compounds. In-well aeration would be implemented at the areas of highest groundwater contamination. One or two wells would be installed with sparging/ air blower systems. This technology would be effective

throughout the year, whereas sprinkler irrigation can only be accomplished a portion of the year. The radius of influence of this aeration technology is limited and may not reduce levels as fast as other aeration technologies that use pumping. However by reducing the highest areas of contamination, overall treatment goals can be achieved faster and at lower total cost when compared to long-term monitoring alone.

ALTERNATIVE 6: GROUNDWATER PUMPING, PRETREATMENT FOR INORGANICS, AIR STRIPPING, CARBON TREATMENT AND AQUIFER RECHARGE

Estimated Construction Cost: $1,344,325
Estimated Net O&M Cost: $140,000/yr.
Estimated Implementation Time Frame: 3 months
Estimated Time to Completion: 10 years
Estimated Cost to Completion: $2,744,325

With this alternative groundwater is pumped to retrieve contaminants. Pretreatment and multi-media filtration are used to remove metals. Volatile organic compounds are removed through air stripping and activated carbon. The treated groundwater, which will meet Federal and State primary drinking water standards, will be returned to the aquifer through irrigation/infiltration piping or spraying upgradient of the sites. The number of wells and pumping rate would be determined through groundwater modeling during the design phase of the remedial action implementation. This alternative will halt the continued migration of the contaminated plume and enhance groundwater quality.

ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against the nine evaluation criteria which are summarized below.

1. **Overall Protection of Human Health and The Environment** draws on the assessments conducted under other evaluation criteria and considers how the alternative addresses site risks through treatment, engineering, or institutional controls.

2. **Compliance With ARARs** evaluates the ability of an alternative to meet Applicable or Relevant and Appropriate Requirements (ARARs) established through Federal and State statutes and/or provides the basis for invoking a waiver.

3. **Long-Term Effectiveness and Permanence** evaluates the ability of an alternative to provide long term protection of human health and the environment and the magnitude of residual risk posed by untreated wastes or treatment residuals.

4. **Reduction of Toxicity, Mobility or Volume Through Treatment** evaluates an alternative's ability to reduce risks through treatment technology.

5. **Short-Term Effectiveness** addresses the cleanup time frame and any adverse impacts posed by the alternative during the construction and implementation phase, until cleanup goals are achieved.

6. **Implementability** is an evaluation of the technical feasibility, administrative feasibility, and availability of services and material required to implement the alternative.

7. **Cost** includes an evaluation of capital costs, annual operation and maintenance (O&M) costs, and net present worth costs.

8. **Agency Acceptance** indicates the EPA's and the State's response to the alternatives in terms of technical and administrative issues and concerns.

9. **Community Acceptance** evaluates the issues and concerns the public may have regarding the alternatives.

The first two criteria, protection of human health and the environment and compliance with Applicable or Relevant and Appropriate Requirements (ARARs) are considered by the EPA to be threshold criteria which each alternative must meet. The next five are balancing criteria, and the final two are considered modifying criteria.

ANALYSIS OF ALTERNATIVES

Overall Protection of Human Health and Environment

Groundwater use restrictions in place in Area K are protective of human health. Accelerating groundwater cleanup would provide greater protection than relying on these institutional controls alone. Alternatives 4 and 6 would pump and treat water at the greatest rates and may therefore be the most protective of human health and the environment. Alternative 5 would also actively treat contaminants but at a slower rate. Alternatives 1, 2 and 3 rely on slowly occurring natural processes to remediate groundwater. However, groundwater monitoring under Alternatives 2 and 3 are more protective than Alternative 1 since changes in contaminant levels and migration are monitored.

Compliance with ARARs

EPA considers drinking water Maximum Contaminant Levels (MCLs) and because of the location of NAES within the Pinelands, State Practical Quantification Levels (PQLs), whichever is more stringent for each contaminant of concern, to be ARARs. All alternatives would require an institutional control in the form of a Classification Exception Area since no alternative would meet ARARs immediately. Alternatives 4 and 6 would reduce contaminant levels the fastest, but may require an air permit. Alternative 5 would reduce contaminant levels at a rate slower than Alternatives 4 and 6 due to the limited possible in-well circulation rates. Alternatives 1, 2, and 3 would comply with cleanup requirements in the same time frame.

Long-Term Effectiveness and Permanence
Alternative 4 (Spray Irrigation) and Alternative 6 (Groundwater Pumping and Treatment) would provide the greatest overall protection of human health and the environment through treatment of high contaminant areas. Alternative 5, in-well aeration, would provide source reduction but at a much slower rate (circulation rates of groundwater are 3-4 gpm). Alternatives 1 (no action), 2 (groundwater monitoring) and 3 (natural restoration) do not actively treat the groundwater and therefore provide the same rate of cleanup. However, monitoring of the plume under Alternatives 2 and 3 provide for protection of human health and the environment in terms of being able to implement treatment if needed.

Reduction of Toxicity, Mobility or Volume through Treatment
Both Alternatives 4 and 6 could provide the highest reduction of toxicity, mobility and volume of the plume depending on designed groundwater pumping rates and system capacities. The spray irrigation of Alternative 4 will only operate in during the six warm months of the year, which will reduce its effectiveness. Alternative 5 would provide some source reduction but at a much slower rate than Alternatives 4 and 6. Alternatives 2 and 3 do not actively reduce toxicity, mobility or volume of the plume but would gather important information regarding these properties. Alternative 1 offers the least information about the existing contamination and would not provide reduction of toxicity, mobility or volume of contaminants.

Short-Term Effectiveness
Alternatives 4 and 5 provide the best source reduction with the least construction impacts to the environment. Alternatives 1, 2, and 3 require little if any construction activities but require longer remediation time. Alternative 6 would require the most disturbance to the area and would alter the natural groundwater chemistry through metal removal and pH adjustment.

Implementability
Alternative 1 is the most easily implementable since it requires no further action. Alternative 2. groundwater monitoring is currently implemented. Alternative 3 would require an intensive study of groundwater and soil conditions but the study could be completed in 2 years. Alternative 4, spray irrigation, would be simple to design but may require a prove-out test for air permit conditions. Alternative 5 would require special well drilling techniques and may not be suitable in the iron-rich environment of NAES. Alternative 6, construction of a pump and treat facility, would require the most construction and operations and maintenance effort.

Cost
Alternative 1 (no action) has zero cost. Based on contaminant transport models, a low cost source reduction technique may be more cost effective than long term monitoring alone. The cost of a natural restoration study may not be justified since long term monitoring alone will produce the same result. Groundwater pump and treat is the most costly alternative due to the extensive construction and operations and maintenance required of the system.

Agency and Community Acceptance
Agency and Community Acceptance will be addressed in the Responsiveness Summary to the Record of Decision.

THE SELECTED ALTERNATIVE

To address low levels of volatile organic compounds (VOCs) in groundwater in Area K, the selected alternative is Alternative 4, limited pumping of groundwater to reduce higher levels through sprinkler irrigation and monitor contaminants through sampling and analyses. Existing groundwater use restrictions will continue until levels of contaminants in groundwater are in compliance with applicable groundwater standards. Sampling will be conducted using the existing network of 24 monitoring wells in the area and groundwater will be analyzed semi-annually for volatile organic constituents. A sprinkler irrigation system will be installed between Test Tracks 2 and 3 to pump and aerate the groundwater containing the highest levels of contaminants. This system will consist of sprayers and an infiltration basin to aid the percolation of water back to the aquifer. Spraying will only occur in temperate months of the year to prevent freezing and aid in the volatilization of contaminants. It is anticipated that an air permit will not be required due to the low levels of contaminants present. However, the Navy will submit information to the NJDEP Air Quality Permitting Program for their determination and the permit process will be initiated if necessary. Groundwater will be returned to the aquifer to prevent depletion. The alternative will include the establishment of a Classification Exception Area (CEA) pursuant to NJAC 7:9-6.6.

The groundwater would continue to be monitored. The spray irrigation system can be designed and constructed within one year. A workplan detailing the monitoring and spray irrigation system will be submitted to the EPA and NJDEP within 21 days of the signing of the final Record of Decision.

STATUTORY DETERMINATIONS

Under CERCLA, the alternative selected must protect both human health and the environment, be cost effective and comply with statutory requirements. Permanent solutions to contamination problems are to be achieved whenever possible.

Based on the consideration of alternatives, Alternative 4 was selected as the preferred alternative to address the groundwater in Area K for the following reasons:

- The selected alternative will provide protection of human health and the environment through accelerated groundwater cleanup. A combination of spray irrigation, extensive monitoring and groundwater use restrictions will be used to ensure protection of human health.
- Spray irrigation will provide a high reduction of toxicity, mobility and volume of the plume and is relatively simple to design and implement.
- The selected alternative is cost effective.

RECORD OF DECISION
RESPONSIVENESS SUMMARY
AREA K
NAVAL AIR ENGINEERING STATION

The purpose of this responsiveness summary is to review public response to the Proposed Plan for Area K. It also documents the Navy's consideration of comments during the decision making process and provides answers to any comments raised during the public comment period.

The responsiveness summary for Area K is divided into the following sections:

OVERVIEW - This section briefly describes the remedial alternative recommended in the proposed plan and any impacts on the proposed plan due to public comment.

BACKGROUND ON COMMUNITY INVOLVEMENT - This section describes community relations activities conducted with respect to the area of concern.

SUMMARY OF MAJOR QUESTIONS AND COMMENTS - This section summarizes verbal and written comments received during the public meeting and public comment period.

OVERVIEW

Area K is located at the NAES in Ocean County, Lakehurst, New Jersey. This responsiveness summary addresses public response to the Proposed Plan, proposing pumping and spray irrigation to reduce high levels of contamination, extensive monitoring of the groundwater and continued use of groundwater restriction in the area.

The Proposed Plan and other supporting information are available for public review at the information repository located at the Ocean County Library, 101 Washington Street, Toms River, New Jersey.

BACKGROUND ON COMMUNITY INVOLVEMENT

This section provides a brief history of community participation in the investigation and remedial planning activities conducted for Area K. Throughout the investigation period, the USEPA and NJDEP have been reviewing work plans and reports and have been providing comments and recommendations which are incorporated into the appropriate documents. A Technical Review Committee (TRC), consisting of representatives of the Navy, the USEPA, the NJDEP, the Ocean County Board of Health, the New Jersey Pinelands Commission, other agencies and communities surrounding NAES was formed and has been holding periodic meetings to maintain open lines of communication and to inform all parties of current activities.

Prior to public release of site-specific documents, NAES's public relations staff compiled a list of local public officials who demonstrated or were expected to have an interest in the investigation.

Local environmental interest groups were also identified and included on this list. The list is attached as Appendix B to this Record of Decision.

On December 21 and 22, 1996, a newspaper notification inviting public comment on the Proposed Plan appeared in The Ocean County Observer and The Asbury Park Press. The public notice summarized the Proposed Plan and the preferred alternative. The announcement also identified the time and location of a Public Meeting and specified a public comment period, and the address to which written comments could be sent. Public comments were accepted from January 7, 1997 to February 7, 1997. The newspaper notification also identified the Ocean County Library as the location of the Information Repository.

A Public Meeting was held on January 15, 1997, from 6:00 to 8:00 p.m. at the Manchester Branch of the Ocean County Library, Colonial Drive, Manchester, New Jersey. At this meeting representatives from the Navy, USEPA and NJDEP were available to answer questions concerning Area K and the preferred alternative. NAES representatives present included: CAPT Leroy Farr, Commanding Officer; CAPT Michael Dougherty, Executive Officer; Robert Kirkbright, Director of Public Works Engineering; Lucy Bottomley, Supervisory Environmental Engineer; and Environmental Branch personnel: Dorothy Peterson, Greg Bury, Ray Hahn, Jill Sarafin, Bob Previte, Michael Figura, Carol Uhrich, Larry Lemig, Bill Korosec, and Joe Rhyner; and Carole Ancelin, Public Affairs Officer. Mr. Jeff Gratz, represented the USEPA's Federal Facility Section; Ms. Donna Gaffigan represented the NJDEP's Bureau of Federal Case Management and Mr. Kevin Schick represented the NJDEP's Bureau of Environmental Evaluation and Risk Assessment. The complete attendance list is provided in Appendix A.

SUMMARY OF MAJOR QUESTIONS AND COMMENTS

Written Comments

During the public comment period from January 7, 1997 through February 7, 1997, no written comments, from the public, were received pertaining to Area K.

On February 4, 1997, the NJDEP submitted additional comments to the Proposed Plan for Area K. The Proposed Plan was revised to include these comments. A copy of the final Proposed Plan for Area K, dated February 5, 1997, has been placed in the Administrative Record for NAES located at the Ocean County Library, Toms River, NJ.

Public Meeting Comments

The only question or comment that was received concerning Area K at the Public Meeting held on January 15, 1997, was if the groundwater contamination was in the Cohansey Aquifer? The Cohansey aquifer underlies all of Lakehurst and is the aquifer which is closest to the surface. The aquifer extends several hundred feet deep, but the contamination from Area K is contained within the first twenty feet of the aquifer.

A transcript of the Public Meeting is provided in the Information Repository at the Ocean County Library, Toms River NJ.

APPENDIX A

Attendance List for Public Meeting Held January 15, 1997

NAVAL AIR ENGINEERING STATION
Public Meeting January 15, 1997

SIGN-IN SHEET

NAME	ADDRESS (for future mailings)	HOW DID YOU HEAR OF THE MEETING? CIRCLE ONE
COLEMAN John	9P Robin Crest Lakehurst NJ 08733	POSTERS RADIO NEWSPAPER MAIL
Bill Shaw	79 Circle DR Lakehurst NJ	POSTERS RADIO NEWSPAPER MAIL
Tony PICARONI	NAWCAD/NAES LAKE	POSTERS RADIO NEWSPAPER MAIL
Kevin W. Pace	PO Box 328, Lakehurst, NJ	POSTERS RADIO NEWSPAPER MAIL
ANN E. KROL	865-A Liverpool Circle Lakehurst, N.J. 08733	POSTERS RADIO NEWSPAPER MAIL
ANTHONY J. KROL	"	POSTERS RADIO NEWSPAPER MAIL
Stephen Rudowski	NAES Safety.	POSTERS RADIO NEWSPAPER MAIL
Bill Korosec	NAES	POSTERS RADIO NEWSPAPER MAIL
LARRY CEMIG	NAES	POSTERS RADIO NEWSPAPER MAIL
BOB KIRKBRIGHT	NAES	POSTERS RADIO NEWSPAPER MAIL
Donna L Gaffigan	NJDEP	POSTERS RADIO NEWSPAPER MAIL
LAWRENCE L. LYON	NJDEP	POSTERS RADIO NEWSPAPER MAIL
David Folis	NAWCADTRN	POSTERS RADIO NEWSPAPER MAIL
[illegible]	Asbury Park Press	POSTERS RADIO NEWSPAPER MAIL
SUSAN MACADAM	15 Harrison Pl. Lakehurst.	POSTERS RADIO NEWSPAPER MAIL Library

NAVAL AIR ENGINEERING STATION
Public Meeting January 15, 1997

SIGN-IN SHEET

NAME	ADDRESS (for future mailings)	HOW DID YOU HEAR OF THE MEETING? CIRCLE ONE
Dorothy Peterson	NAES	POSTERS RADIO NEWSPAPER MAIL
Bob Previte	NAES	POSTERS RADIO NEWSPAPER MAIL
Carole Lenchin	NAES/NAWCAD	POSTERS RADIO NEWSPAPER MAIL
Cindy Vesce	733 Sixth Ave. Toms River NJ 08753	POSTERS RADIO NEWSPAPER MAIL work
LUCY Bottomley	NAES	POSTERS RADIO NEWSPAPER MAIL
[illegible]	NAES	POSTERS RADIO NEWSPAPER MAIL work
Bob Carr	Lakehurst	POSTERS RADIO NEWSPAPER MAIL
Linda Cooper	213 L ave 37 M. Lakehurst NJ 08733	POSTERS RADIO NEWSPAPER MAIL
Bill Cooper	213 L ave 37 Lakehurst NJ 08733	POSTERS RADIO NEWSPAPER MAIL
CAPT Leroy Farr	NAES Lakehurst	POSTERS RADIO NEWSPAPER MAIL
Theresa Lettman	149 Broadway Blvd Manchester Twp.	POSTERS RADIO NEWSPAPER MAIL
Jeff Gratz	EPA Region II	POSTERS RADIO NEWSPAPER MAIL
D Adam	11 Burnell DR STR, N. J.	POSTERS RADIO NEWSPAPER MAIL
Kevin Schick	NJDEP/SRP/BEERA	POSTERS RADIO NEWSPAPER MAIL
		POSTERS RADIO NEWSPAPER MAIL

→ PLEASE CONTINUE ON BACK ——→

SIGN IN SHEET

Larry Moniz	O.C. Observer
Marie Sailer Fey	Borough of Lakehurst 5 Union Ave. Lakehurst, N.J. 08733
Capt Mike Dought	NAES LAKEHURST
L Cooper	
Mike Figura	NAES
John E. Ford	Heritage Minerals.
Carl Jablonski	NAVY CRUSI.
Bob Waters	Manchester Twp.
Dr Fred Felice	Super Ocean County Vo-Tech
GARY SYLVESTER	- MANCHESTER TWP DEPT. OF PW. / UTILITIES
MAURA HORN	MONTGOMERY WATSON
Bud Allen	Dover Twp.
[illegible]	Manchester Twp Env Comm.
GREG MINNICK	NAVC LKE / TOMS RIVER
John Lerzynen	704 OAK St Jackson
JOHN HARRINGTON	COUNCILMAN MANCHESTER

updated 2-18-97

APPENDIX B
LIST OF CONCERNED PARTIES

Naval Air Engineering Station - Lakehurst

Captain L. Farr (908) 323-2380
Commanding Officer
Naval Air Engineering Station
Lakehurst, NJ 08733-5000

Ms. Carole Ancelin, Public Affairs (908) 323-2811
Naval Air Engineering Station
Lakehurst, NJ 08733-5000

Commander Mike Murtha (908) 323-2601
Public Works Officer
Naval Air Engineering Station
Lakehurst, NJ 08733-5000

Northern Division, Naval Facilities Engineering Command

Mr. Lonnie Monaco (610) 595-0567
Northern Division
Naval Facilities Engineering Command
Code 182
10 Industrial Highway
Mail Stop 82
Lester, PA 19113-2090

Federal Elected Officials

Senator Frank R. Lautenberg (609) 757-5353
208 White Horse Pike
Suite 18-19
Barrington, NJ 08007

Senator Robert Torricelli (201) 639-2860
1 Newark Center
16th Floor
Newark, NJ 07102

Congressman Dick Zimmer (908) 788-1952
36 West Main St.
Suite 201
Freehold, NJ 07728

Congressman Christopher H. Smith (908) 350-2300
100 Lacey Road
Suite 38A
Whiting, NJ 08759

Congressman Frank Pallone, Jr. (201) 571-1140
540 Broadway
Room 118
Long Branch, NJ 07740

State Elected Officials

Senator Leonard T. Connors, Jr. (609) 693-6700
620 West Lacey Road
Forked River, NJ 08731

Assemblyman Jeffrey Moran (609) 693-6700
620 West Lacey Road
Forked River, NJ 08731

Assemblyman Christopher J. Connors (609) 693-6700
620 West Lacey Road
Forked River, NJ 08731

Other Federal Agencies

Mr. Steve Aoyama (404) 639-6070
Agency for Toxic Substances and
Disease Registry
1600 Clifton Road
Mail Stop E-56
Atlanta, GA 30333

New Jersey Pinelands Commission

Mr. Todd DeJesus (609) 894-9342
The Pinelands Commission
P. O. Box 7
New Lisbon, NJ 08064

Ocean County Officials

Mr. Alan W. Avery, Jr., Director (908) 929-2054
Ocean County Planning Board
P.O. Box 2191
Toms River, NJ 08754-2191

Mr. John C. Bartlett, Director (908) 244-2121
Ocean County Board of Freeholders
P.O. Box 2191
Toms River, NJ 08754

Mr. Joseph Przywara, Acting Health Coordinator (908) 341-9700
Ocean County Health Department
P.O. Box 2191
175 Sunset Avenue
Toms River, NJ 08754

Mr. A. Jerome Walnut, Chairman (908) 505-3671
Ocean County Environmental Agency
1623 Whitesville Road
Toms River, NJ 08755

Dover Township Officials

Hon. George Whittman (908) 341-1000
Mayor of Dover Township
P.O. Box 728
33 Washington Street
Toms River, NJ 08753

Ms. Janet Larson, Chairperson (908) 341-1000
Dover Township Environmental Commission
P.O. Box 728
33 Washington Street
Toms River, NJ 08754

Manchester Township Officials

Hon. Jane Cardo Cameron (908) 657-8121
Mayor of Manchester Township
One Colonial Drive
Lakehurst, NJ 08733

Mr. Warren Sweeney, Chairman
Manchester Township Environmental Commission
One Colonial Drive
Lakehurst, NJ 08733

Jackson Township Officials

Vicki Rickabaugh, Mayor
Municipal Building
95 W. Veterans Highway
Jackson, NJ 08527

Mr. Richard Bizub, Chairman (908) 928-0900
Jackson Township Environmental Commission
128 Willow Drive
Jackson, NJ 08527

Borough of Lakehurst Officials

Hon. Stephen Childers (908) 657-4141
Mayor of Lakehurst Borough
5 Union Avenue
Lakehurst, NJ 08733

Mr. Robert J. Morris (908) 657-4141
Municipal Clerk, Borough of Lakehurst
5 Union Avenue
Lakehurst, NJ 08733

Plumsted Township Officials

Hon. Ronald S. Dancer (609) 758-2241
Mayor of Plumsted Township
P.O. Box 398
New Egypt, NJ 08533-0398

Community Groups and Interested Citizens

Pine Lake Park Association
100 Oakdale Drive
Toms River, NJ 08754

Mr. Holmes Ertley (908) 657-4690
699C Friar Court
Lakehurst, NJ 08733

Mr. John Lewis (908) 657-1890
315 Beckerville Road
Lakehurst, NJ 08733

Ms. Candy Vesce
733 Sixth Ave.
Pine Lake Park
Toms River, NJ 08757

Ms. Theresa Lettman
Pinelands Preservation Alliance
120-34B White Bogs Road
Browns Mills, NJ 08015

(609) 893-4747

Ms. Susan Marshall
1716 Ninth Ave.
Toms River, NJ 08757

Ms. Gisela Tsambikou
1162 Beacon St.
Pine Lake Park
Toms River, NJ 08757

Mr. Dieter Rand
3288 Johnson Ave.
Lakehurst, NJ 08733

Mr. & Mrs. Blackwell Albertson
135 Beckerville Rd.
Lakehurst, NJ 08733

Heritage Minerals, Inc.
Attn: Ms. Adele Hovnanian
One Hovchild Plaza
4000 Route 66
Tinton Falls, NJ 07753

Chuck Lindstrom
526-D Crescent Ave.
Jackson, NJ 08527

Ben Epstein
Ocean County Citizens for Clean Water
2230 Agin Court Road
Toms River, NJ 08733

Media Organizations

Advance News
2048 Route 37 West
Lakehurst, NJ 08733
(908) 657-8936

Alyn Ackerman
Asbury Park Press
3601 Highway 66
P.O. Box 1550
Neptune, NJ 07754-1550
1-800-822-9770

Ms. Debra Coombe
Newark Star Ledger
44 Washington Street
Toms River, NJ 08753
(908) 244-7171

New Egypt Press
37 Main Street
P.O. Box 288
New Egypt, NJ 08533
(609) 758-2112

Ocean County Leader
P.O. Box 1771
Point Pleasant Beach, NJ 08742
(908) 899-1000

Ms. Lisa Peterson
Ocean County Review
P.O. Box 8
Seaside Heights, NJ 08751
(908) 793-0147

Ocean County Reporter
8 Robbins Street
P.O. Box 908
Toms River, NJ 08753
(908) 349-1501

Mr. Sam Christopher
Ocean County Observer
8 Robbins Street
CN 2449
Toms River, NJ 08753
(908) 349-3000

Radio

Mr. Shawn Marsh
WJLK Radio
Press Plaza
Asbury Park, NJ 07712
(908) 774-7700

Ms. Joan Jones
WJRZ Radio
22 West Water Street
P.O. Box 100
Toms River, NJ 08754
(908) 270-5757

Mr. Doug Doyle
WOBM Radio
U.S. Highway 9
Bayville, NJ 08721
(908) 269-0927

Mr. Gary Myervich
Adelphia Cable
830 Highway 37 West
Toms River, NJ 08753
(908) 341-8818

Mr. Abi Montefiore
Monmouth Cable
P.O. Box 58
Belmar, NJ 07719
(908) 681-8222

Federal and State Case Managers

Mr. Jeffrey Gratz, Project Manager (212) 637-4320
U.S. Environmental Protection Agency
Region II
290 Broadway
18th Floor East
New York, NY 10007-1866

Ms. Donna Gaffigan, Case Manager (609) 633-1455
Bureau of Federal Case Management, CN 028
New Jersey Department of Environmental
Protection
401 East State Street
Trenton, NJ 08625-0028

Ms. Linda Welkom, Geologist (609) 292-8427
Bureau of Groundwater Pollution Abatement
New Jersey Department of Environmental
Protection
401 East State Street
Trenton, NJ 08625-0028

Mr. Kevin Schick (609) 984-1825
Bureau of Environmental Evaluation
and Risk Assessment
New Jersey Department of Environmental
Protection
401 East State Street
Trenton, NJ 08625-0028

ROD FACT SHEET

SITE

Name	NAEC Lakehurst, Area K/Sites 4 & 8
Location/State	Ocean County, New Jersey
EPA Region	II
HRS Score (date)	49.48 (July 22, 1987)
Site ID #	NJ7170023744

ROD

Date Signed	July 7, 1997

Remedies: Pumping of ground water with sprinkler irrigation, long-term monitoring, and ground water use restrictions, and stablishment of a classification exception area pursuant to N.J.A.C. 7.9-6.6)

Operable Unit	OU-24
Capital cost	$44,495(Construction)
Construction Completion	3 months
O & M	$13,260 per year
Time to Completion:	10 years
Present worth:	$137,628

LEAD

Remedial/Enforcement	Federal Facility
EPA/State/PRP	Navy
Primary contact (phone)	Sharon Jaffess 212-637-4396
Secondary contact (phone)	Robert Wing 212-637-4332
Main PRP(s)	Navy
PRP Contact (phone)	Lucy Bottomley 732-323-2612

WASTE

Type	Chlorinated Volatile Organic Compounds
Medium	Ground Water
Origin	Spills, leaks, and solvent disposal practices at Track 2, Building 372 (Site 4) and Track No. 1, Building 529 (Site 8)
Est. quantity	The ground water plume dimensions have varied over time. It encompasses Sites 4 and 8 and is approximately 2100 feet in length, 1200 feet in width, and 20 feet in depth.