United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-93/216
September 1993
PB94-963829

EPA

Superfund Record of Decision:

Naval Air Engineering Center (Operable Unit 22), NJ

50272-101

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15. Supplementary Notes

PB94-963829

16. Abstract (Limit: 200 words)

The Naval Air Engineering Center (Operable Unit 22) site is part of the 7,400-acre Naval Air Warfare Center Aircraft Division located in Lakehurst, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean. Land use in the area is mixed undeveloped woodlands, open areas, and light commercial and industrial areas, with the closest residential area, the Borough of Lakehurst, located southeast of the facility. The Naval Air Engineering Center (NAEC), which lies within the Toms River Drainage Basin, contains over 1,300 acres of flood-prone areas. The estimated 65,400 people who reside in the vicinity of the NAEC, use municipal wells to obtain their drinking water supply. Some private wells exist, but these are used primarily for irrigation purposes. In 1916, Eddystone Chemical Company leased the property to develop an experimental firing range for testing chemical artillery shells. In 1919, the U.S. Navy assumed control of the property, and it formally was commissioned Naval Air Station (NAS) Lakehurst in 1921. In 1974, the NAEC was moved from the Naval Base in Philadelphia to NAS Lakehurst. The NAEC's mission is to conduct research, development, engineering, testing and systems integration, limited production, and procurement for aircraft and airborne weapons systems. Historically, various operations at NAEC have required the use, handling, storage, and occasional onsite

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Naval Air Engineering Center (Operable Unit 22), NJ
Sixteenth Remedial Action
Contaminated Medium: None
Key Contaminants: None

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 19
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

disposal of hazardous substances. During the operational period of the facility, there have been reported and suspected releases of these substances into the environment. The Department of Defense's Installation Restoration Program (IRP) has identified 44 potentially-contaminated sites at NAEC, 16 of which have warranted further investigation to assess potential impacts. IRP investigations revealed potential soil and ground water contamination at the Tetraethyl Lead Disposal Site (Site 20); which is located in Area G, northeast of the launch end of the test tracks and which transects the parachute jump circle. During the 1960s and possibly the 1970s, the 15,000 ft^2 site reportedly was used during various Naval activities for disposal of contaminated aviation gasoline. In addition, it is suspected that the site may have been used for the burial of tetraethyl lead, which is a suspected carcinogen and a potentially deadly poison. Two investigations conducted in 1980 and 1981 indicated the presence of VOCs and metals in soil and ground water at Site 20. Subsequent investigations conducted from 1985 through 1992 did not confirm the presence of these contaminants and indicated that there was no significant contamination associated with Site 20. In May 1992, a field investigation led to the discovery of old steel runway matting material buried 4 to 6 inches below ground surface adjacent to the site. In June 1992, the steel matting was removed and a small-scale excavation was conducted to investigate the area under the matting. During the excavation, approximately 80 ft^2 of a black rubber material was discovered 2 feet below ground surface. This material was sampled and analyzed for hazardous properties; and, after the results indicated no hazardous characteristics, the material was removed and disposed of as nonhazardous waste. Additional sampling of soil and ground water in the excavation did not indicate any significant contamination. Previous 1991 and 1992 RODs addressed OUs 1, 2, 3, and 4, and 5, 6, and 7, respectively. This ROD addresses any soil and ground water contamination at Site 20, as OU22. Other 1993 RODs address OUs 8, 9, 10, 11, 12, 13, 14, 15, and 23. EPA has determined that the site does not present a threat to human health and the environment and that there is no need to conduct cleanup activities; therefore, there are no contaminants of concern affecting this site.

The selected remedial action for this site is no further action, with ground water monitoring. EPA has determined that there is no significant contamination at the site and that site conditions pose no risk to human health and the environment. However, a five year monitoring plan will be implemented to ensure continued compliance with ground water standards and to monitor the risk to human health and the environment. There are no present worth or O&M costs associated with this no action remedy.

PERFORMANCE STANDARDS OR GOALS:

Not applicable.

ROD FACT SHEET

SITE

Name :	NAWC Lakehurst
Location/State :	Lakehurst, New Jersey
EPA Region :	II
HRS Score (date):	49.48 (July 22, 1987)

ROD

Date Signed:	September 27, 1993
Remedy:	No Action
Operating Unit Number:	OU-22 (Site 20)
Capital cost:	No Cost
Construction Completion:	N/A
O & M in 1993:	N/A
1994:	
1995:	
1996:	
Present worth:	N/A

LEAD

Enforcement	
Federal Facility	
Primary contact	Jeffrey Gratz (212) 264-6667
Secondary contact	Robert Wing (212) 264-8670
Main PRP	U.S. Navy
PRP Contact	Lucy Bottomley (908) 323-2612

WASTE

Type	Lead
Medium	Soil
Origin	Spills
Est. quantity	N/A

NAWC
Aircraft Division
NAVAL AIR WARFARE CENTER
LAKEHURST

RECORD OF DECISION
FOR
SITE 20

OU-22

NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
LAKEHURST, NEW JERSEY
September 14, 1993

NAVAL AIR WARFARE CENTER • ENVIRONMENTAL MANAGEMENT • LAKEHURST, NJ

93-09-10

RECORD OF DECISION
DECLARATION
SITE 20
NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
LAKEHURST, NEW JERSEY

FACILITY NAME AND LOCATION

Naval Air Warfare Center
Aircraft Division
Lakehurst, New Jersey 08733

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected action for one site (Site 20), located at the Naval Air Warfare Center, Aircraft Division (NAWCADLKE) in Lakehurst, New Jersey (Figure 1). The selected remedial action 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 Substances Pollution Contingency Plan. This decision is based on the administrative record for these sites, which is available for public review at the Ocean County Library, 101 Washington Street, Toms River, New Jersey.

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

DESCRIPTION OF THE SELECTED REMEDY

Based on the inconsistencies in the data supplied by numerous groundwater sampling rounds, the United States Department of the Navy, has selected the "No Action" alternative for Site 20.

DECLARATION STATEMENT

The United States Department of the Navy and the United States Environmental Protection Agency have determined that no remedial action is necessary at Site 20 to ensure protection of human health and the environment.

This Record of Decision concerns Site 20 only. The location of the site within NAWCADLKE is shown in Figure 2. Other areas of concern at NAWCADLKE have been or will be the subject of separate studies and Records of Decision.

Captain Leroy Farr
Commanding Officer
Naval Air Warfare Center
Aircraft Division
Lakehurst, New Jersey

20 Sep 93
(Date)

With the concurrence of:

William J. Muszynski, P.E.
Acting Regional Administrator
U.S. Environmental Protection Agency
Region II

9/27/93
(Date)

SITE DESCRIPTION

NAWCADLKE is located in Jackson and Manchester Townships, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean (Figure 1). NAWCADLKE 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 Mills Wildlife Management Area), Lakehurst Borough and woodland, including the Manchester Wildlife Management Area, to the south. NAWCADLKE 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 NAWCADLKE is classified by NJDEPE as Class I-PL (Pinelands).

NAWCADLKE lies within the Outer Coastal Plain physiographic province, which is characterized by gently rolling terrain with minimal relief. Surface elevations within NAWCADLKE 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.

NAWCADLKE 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 NAWCADLKE 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 NAWCADLKE. 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 the Manapaqua Brook. The Ridgeway and Union Branches then feed Pine Lake; Located approximately 2.5 miles east of NAWCADLKE before joining Toms River. Storm drainage from NAWCADLKE 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 NAWCADLKE: Bass Lake, Clubhouse Lake, and Pickerel Pond. NAWCADLKE 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 NAWCADLKE that lie within Manchester Township and the remaining acreage is in Jackson

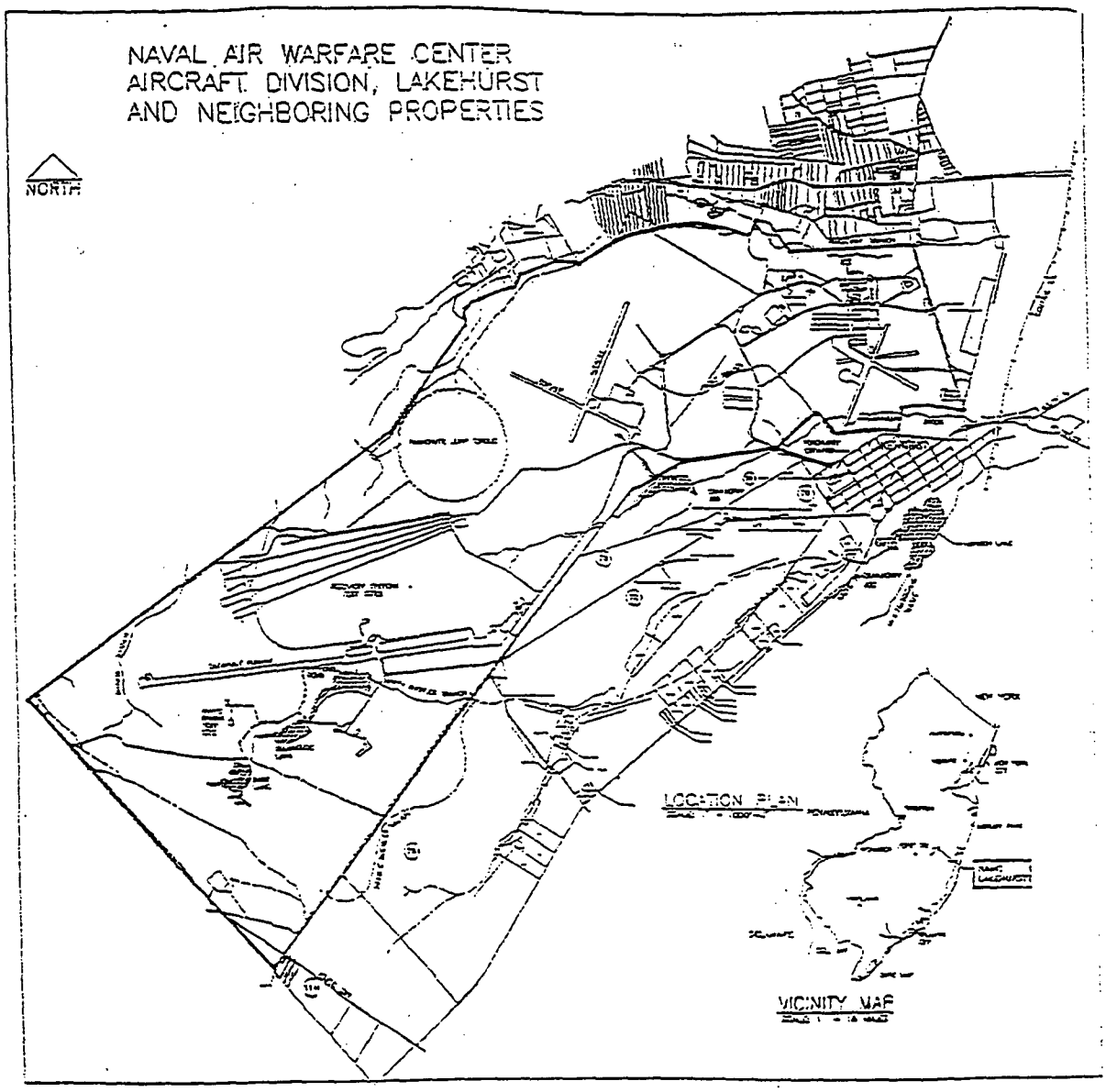

FIGURE 1. LOCATION MAP

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.

The areas surrounding NAWCADLKE 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 shops but no industry. To the north and south are State wildlife management areas which are essentially undeveloped. Adjacent to and south of NAWCADLKE are commercial cranberry bogs, the drainage from which crosses the southeast section of NAWCADLKE 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 NAWCADLKE, 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 NAWCADLKE. Three of the seven wells (four of the wells are rarely operated) are pumped at an average 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 NAWCADLKE, which supplies water to a very small population (probably less than 1,000) in the immediate vicinity of NAWCADLKE.

The history of the site dates back to 1916, when the Eddystone Chemical Company leased from the Manchester Land Development Company property 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, due to a reorganization within the Department of the Navy.

Currently, NAWCADLKE'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 Center provides, operates, 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 Center also provides facilities and support services for tenant activities and units as designed by appropriate authority.

NAWCADLKE and its tenant activities now occupy more than 300 buildings, built between 1919 and 1989, totaling over 2,845,000 square feet. The command also operates and maintains: two 5,000-foot long runways, a 12,000-foot long catapult and arrest 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, various operations and activities at the Center 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.

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 NAWCADLKE. The Bomarc Site is the responsibility of the U.S. Air Force and is located on Fort Dix adjacent to the western portion of NAWCADLKE. 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 RI. Two potentially contaminated sites, an ordnance site (Site 41) and an Advanced Underground Storage Facility (Site 43), were deleted from the RI because they had already been addressed. In 1987 NAWCADLKE was designated as a National Priorities List (NPL) or Superfund site under the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

ENVIRONMENTAL INVESTIGATIONS

Phase I of the Remedial Investigation (RI-Phase I) was conducted from 1985 to 1987 to (a) confirm or refute the existence of contamination at potentially contaminated sites identified during the previous studies; and (b) develop recommendations for further Phase II investigations. The results of the RI-Phase I were presented in a report issued in 1987.

Phase II of the RI was initiated in the summer of 1988 to: (a) confirm the results of the Phase I study, specifically the presence or absence of contamination; (b) identify where contamination is located; (c) assess the potential for contaminant migration; (d) define the sources of contamination; and (e) support a feasibility study and final actions at the sites. Based on the results of the Phase II Investigation, several remedial actions were initiated.

Phase III of the RI was initiated in the summer of 1991 to: (a) confirm the presence or absence of contamination at sites where the results of previous investigations were not definitive; (b) delineate the lateral and vertical extent of contamination; (c) collect and evaluate data to perform a risk assessment and assess the need for remedial action at sites.

These investigations indicated that there is no contamination above NJDEPE soil cleanup criteria, Class I-PL (Pinelands) groundwater criteria, Federal Maximum Contaminant Levels (MCLs) or EPA risk based levels.

STATUTORY DETERMINATIONS

The NJDEPE soil cleanup criteria (SCC) are To Be Considered (TBC) criteria for determining the need for site cleanup. Although the NJDEPE SCC are not promulgated requirements, these criteria are considered an appropriate means by which to assess the risk to human health and the environment posed by contaminants found in soil. Therefore, NAWCADLKE has been determining the need for site cleanup based upon NJDEPE SCC as well as EPA risk-based levels and other factors, such as aiding the effectiveness and duration of existing groundwater remediation systems.

The cleanup criteria provide health based levels for residential use, non-residential use and impact to groundwater (subsurface) land uses and/or impacts. NAWCADLKE has assumed a non-residential land use due to its mission and facilities is support of Naval aviation. Due to our location in the Pinelands National Preserve (Class I-PL (Pinelands)) and the shallow groundwater table, the most stringent of the surface and subsurface (impact to groundwater) non-residential cleanup criteria have been utilized in our site comparisons.

To satisfy the requirement for establishing EPA risk-based clean-up criteria, an Endangerment Assessment was performed in October 1992 which included calculated Preliminary Remedial Goals or PRGs. The PRGs are chemical specific criteria which were developed using fate and transport and the exposure equations associated with the relevant pathways. The PRGs determined by calculation the contaminant concentrations in affected media that would result in acceptable exposure levels. PRGs were developed for each site based upon one or more (current or potential) land-use scenarios.

Typically the NJDEPE SCC are more stringent than the calculated PRGs. With this in mind, the SCC are also considered preliminary clean-up goals at those sites which are determined to require active remediation.

EPA considers drinking water Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and State Practical Quantitation Levels (PQLs) to be potential ARARs for groundwater. The determination of exactly which requirements are applicable or relevant and appropriate to a particular Superfund site should be made on a site-specific basis.

Primary MCLs are Federally enforceable contaminant levels allowable in public drinking water supplies. They have been established from health-based data by EPA's Office of Drinking Water and are described in the National Primary Drinking Water Regulations (40 CFR 141) established under the authority of the Safe Drinking Water Act. MCLs are periodically revised as more information becomes available. When MCLs are not available, proposed MCLs (PMCLs) are used for the comparison criteria for some analytes.

On 13 January 1993, the Commissioner of the New Jersey Department of Environmental Protection and Energy signed the revised N.J.A.C. 7:9-6 which include the Groundwater Quality Criteria. The Criteria establish the groundwater classifications for the Pinelands, including Class I-PL (Preservation Area) and Class I-PL (Protection Area). The actual groundwater criteria are the natural quality and background quality, respectively (N.J.A.C. 7:9-6.7). Under these revised groundwater quality standards, NAWCADLKE groundwater is classified as Class I-PL (Pinelands).

Practical Quantitation Levels (PQLs) are the lowest concentration of a constituent that can be reliably achieved among laboratories within specified (N.J.A.C. 7:9-6.9) limits of precision and accuracy during routine laboratory operating conditions. PQLs are considered to be ARARs.

Site 20 Description and Background

Site 20 is located in Area G which is in the north central portion of the NAWCADLKE, northeast of the launch end of the test tracks

and along the west perimeter of the parachute jump circle. No buildings, structures or utilities are present in Area G.

Site 20 is located along the north side of Johnston Road, which transects the parachute jump circle. The nearest NAWCADLKE boundary is about 1435 feet to the north. The area is heavily wooded, although the immediate site is now cleared due to recent investigative activity. A pit, roughly 10 feet wide by 20 feet long by 5 feet deep, is located next to the road (see Figure 2). The general direction of groundwater flow in Area G is northeasterly. In this area, groundwater is encountered at a depth of approximately 5 feet.

It was reported that this site, which measures roughly 100 feet by 150 feet, was used by various Naval activities operating at Lakehurst during the 1960's (and possibly into the early 1970's) for the disposal of contaminated aviation gasoline. An old sign of unknown origin is located at this site. The sign, although now somewhat faded, reads:

DANGER
Materials Containing
Tetraethyl Lead
Buried Here
Do not Uncover
13 April 1966

Tetraethyl Lead ($Pb(C_2H_5)_4$) was commonly used as an anti-knock compound in automotive and aviation gasoline. It is described in several hazardous material guides as a powerful and/or deadly poison and lipoid solvent, readily absorbed by inhalation or through the skin. It is a suspected carcinogen.

From 1980 through 1992, several field investigations took place to determine whether this site was contaminated. On May 14, 1992, a field investigation led to the discovery of old steel runway matting buried 4 to 6 inches below the ground surface adjacent to the pit and sign at Site 20. Interviews with an individual employed at this facility since the early 1960's indicated the possible burial of containers under the matting.

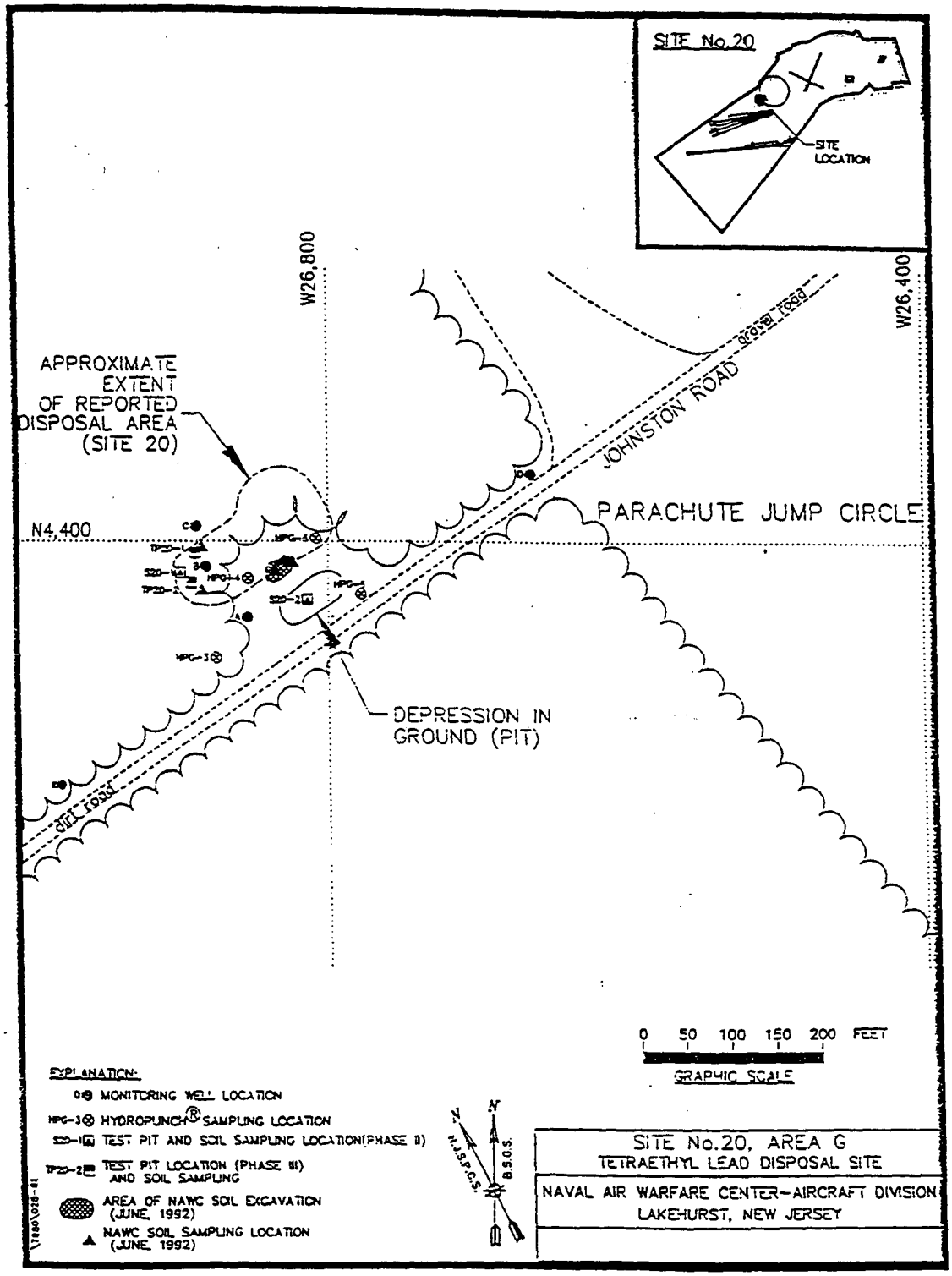

FIGURE 2. SITE 20 MAP

A small scale excavation was initiated by NAWCADLKE personnel in June 1992 to investigate the area under the steel runway matting. During the excavation, a NJDEPE representative monitored the soil with a Photo-ionization detector (PID) to detect possible volatile organic compound (VOC) contamination. No levels above background were registered with the PID during the excavation process. The excavation led to the discovery of rubber material which is believed to be old aircraft fuel bladders. These bladders seemed to have been shredded before burial since the pieces were generally very small. Chemical analysis of post-excavation soil samples did not indicate the presence of significant levels of contamination. Analysis of the rubber material characterizes it as a non-hazardous waste (see Table II, Appendix C).

A summary of investigative efforts is shown below. Testing results are shown in Appendix C.

SUMMARY OF INVESTIGATIONS

PRE-REMEDIAL INVESTIGATION

1980: Five test pits were excavated at the site. Three soil samples and one groundwater sample (bottom of the pit) were collected from each test pit. Analysis of these samples for lead revealed low concentrations in soil (2.2 to 20 mg/kg) and levels of lead in unfiltered groundwater (0.2 to 2 mg/kg) which exceeded NJDEPE drinking water standards. Highest concentrations of lead were detected in soil samples collected near the current location of monitoring well B, which had not been installed at the time of sampling. In 1980, four rusted, empty, unmarked 55 gallon drums and some other metal debris were removed from the surface of this site.
DISCUSSION OF RESULTS: The sampling did not include taking field, trip or lab blanks. The quality of this data is suspect given the lack of quality control procedures and the fact that these very high levels of lead in groundwater were not found in subsequent remedial investigations.

1981: Five (5) monitoring wells were installed at the 5 former test pit locations. They were designated A through E. Three soil samples (taken during well installation) and one groundwater sample were collected from each well. Analysis of 15 soil samples and groundwater samples collected from each of five monitoring wells (A-E) revealed the presence of several VOCs (including bromoform, carbon tetrachloride and 1,2 dichloroethane) in soil and groundwater. The maximum total concentration of VOCs in groundwater, 754 ug/l, was detected in well B. NJDEPE conducted a resistivity and conductivity survey at the site. No anomalous levels (above background) were recorded.
DISCUSSION OF RESULTS: Solvent detection in wells could not be repeated in subsequent tests. It is suspected these solvents came from glues used in the joints of the plastic well casings as the

compounds detected are consistent with the chemical composition of these glues.

REMEDIAL INVESTIGATIONS

Phase I: November 1985 - January 1986- The Phase I Remedial Investigation (RI) was initiated to verify the existence of reported contamination. One (1) groundwater sample was taken from well E and revealed no contamination. Organic Vapor Analyzer (OVA) readings within the casing of well B were 20 ppm, while in the remaining four wells readings did not exceed background levels. OVA levels in one foot test pits excavated near wells B and D, and in the open depression (pit) present at the site did not exceed background levels (1 ppm). No soil discoloration was observed at the site.

Phase II: August 1988 - December 1988- Analyses of two rounds of groundwater samples collected from each of the five monitoring wells at the site did not confirm the presence of volatile organic compounds or petroleum hydrocarbons. Chromium was detected at an estimated concentration, 552 ug/l, in one of the samples collected from well B. Resampling of well B two months later showed no detection of chromium in the unfiltered sample and an estimated level of 8.8 ug/l in the filtered sample. A level of 59.2 ug/l of vanadium was found in one unfiltered groundwater sample from well A. Vanadium was not detected in Well A in a previous round (2 months earlier).

No targeted contaminants were detected in soil samples collected from two test pits excavated at the site.
DISCUSSION OF RESULTS: No VOC contamination above Applicable Relevant or Appropriate Requirements (ARARs) was found in this phase of groundwater sampling. Metals in unfiltered samples were below the established background levels (see Table III, Appendix C) for unfiltered groundwater for this facility.

Phase II Addendum: July - August 1990- Unfiltered and filtered groundwater samples were collected from wells A and D and analyzed for chromium. Chromium was detected at low concentrations in the unfiltered samples and was not detected in the filtered samples.
DISCUSSION OF RESULTS: Levels of chromium detected in unfiltered samples were well below established background levels of unfiltered groundwater. The one high result of chromium found in 1988 was not repeated in subsequent sample testing.

Phase III: July 1991 - April 1992- Phase III remedial investigation- Groundwater samples were collected utilizing the hydropunch groundwater sampling method from three different depth intervals at each of four different sampling locations at the site (HPG-3 through 6). No targeted VOCs were detected in these samples at concentrations exceeding EPA Maximum Contaminant Levels (MCLs). 1,1,1 trichloroethane was found at levels slightly exceeding

Practical Quantitation Limits (PQLs) (which are considered contaminant specific cleanup levels under the Class I-PL Groundwater Quality Standards) in HPG-3 (see Table I, Appendix C). However, the average concentration of 1,1,1 TCA detected during Phase III RI does not exceed its PQL of 1.0 ug/l.

Soil samples were collected from two test pits excavated at the site in the vicinity of monitoring well B. The analysis of these samples revealed total petroleum hydrocarbons (TPHC) at concentrations of 1,500 and 2,400 mg/kg as well as 10 Tentatively Identified Compounds (TICs) in each sample at total concentrations of 4,990 and 7,390 ug/l. Repeat samples at these locations were taken in June 1992 to determine levels of TPHC and base/neutral acid extractables. No base/neutral acid extractables were detected. Levels of TPHC were consistent with previous findings.

Two samples from hydropunch HPG-4 were tested for lead in filtered and unfiltered samples. Lead levels in unfiltered samples were well below established background levels for unfiltered groundwater samples. In filtered samples, lead was not detected.

June 1992: EXCAVATION DETAILS

On 5 June 1992, the steel matting was removed and excavation proceeded. Substantial amounts of black rubber material were encountered at a depth of approximately 24 inches. The area of the rubber was roughly 8 by 10 feet. This material was mostly shredded, but also found in small sheets. No material was found past a depth of about 48 inches. It has been tentatively identified as old aircraft fuel cell material. A NJDEPE representative was present during the excavation and monitored the soil and air with a Photo-ionization Detector (PID). PID testing at each stage of the excavation did not detect levels of volatiles above background.

On the day of the excavation, 3 samples of the rubber material and 1 soil sample from directly under the rubber (48" deep) was sent for lab analysis. The rubber material and the adjacent soil was tested by the Toxicity Characteristic Leaching Procedure (TCLP) for metals to determine if this material was considered hazardous waste. The results yielded only traces of metals, all of which were well below TCLP regulatory limits, showing that neither the rubber nor the surrounding soil was considered hazardous waste (see Table II, Appendix C). The rubber material was later removed from the site and disposed of as non-hazardous waste.

On 24 June 1992, 2 more soil samples, 1 groundwater sample and 1 rubber material sample, were collected from Site 20 to determine if the rubber material or adjacent soil revealed levels of lead or volatile organic compounds (VOCs) above NJDEPE soil cleanup criteria (SCC). The results of these analyses showed levels well below the SCC and ARARs (see Tables II and III, Appendix C).

DISCUSSION OF RESULTS: It has been determined through persistent on-site investigative work and data analyses that significant contamination does not exist at this site.

SITE 20 SUMMARY

All metals found in unfiltered groundwater samples fall within the established base background levels (See Table III - Groundwater Inorganics, Appendix C).

During the Phase III investigation, no soil contaminants were detected at concentrations exceeding NJDEPE soil cleanup criteria at Site 20. During the excavation of 5 June 1992, no evidence of contamination was found through PID monitoring at the site.

Following excavation of the suspected fuel bladders, the post excavation samples did not detect VOCs or metals above NJDEPE soil cleanup criteria.

Based on the results of the investigations conducted at Site 20 (see Table III, Appendix C), there does not appear to be any significant soil or groundwater contamination associated with the site.

SUMMARY OF ENDANGERMENT ASSESSMENT

An Endangerment Assessment (EA) was conducted for NAWCADLKE to assess the potential current and future human health risks and potential environmental impacts posed by contaminated soils, groundwater, sediment and surface water detected during past and on-going site investigations.

More complete EA information for Site 20 can be found in Volume VI of the Phase III RI, which is available as part of the NAWCADLKE Administrative Record.

The summary for Site 20 will discuss (1) the chemicals identified by the EA 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 of the ecological concerns at the site and (5) a summary interpretation of the EA findings with the regard to need for site remediation.

Contaminants of concern

For groundwater, 1,1,1-trichloroethane, toluene, and o-xylene were determined to be COCs for inclusion in the EA.

For soil, COCs retained for evaluation in the EA included mercury, and total petroleum hydrocarbons.

Land use and exposure assumptions

For soil, a light industrial land use scenario was assumed because of the absence of facilities in the immediate vicinity of the site, and the associated lack of incentive for individuals to frequent the area. For this scenario, human exposure is affected by mechanisms that include direct contact, inhalation, and ingestion.

For groundwater, light industrial and residential land use scenarios were assumed to determine potential future risks.

Human health risk and hazard findings

For soil, the results of the EA indicate that hazards resulting from noncarcinogens are not elevated for mercury above EPA's hazard index criteria value of 1.0. The hazard index value for mercury and the total soil hazard quotient are both 0.00062. Carcinogenic risk estimates for soil could not be estimated since neither of the COCs exhibit carcinogenic potential.

For groundwater, the results of the EA indicate that there is no elevated hazard under either the light industrial land use scenario or potential future residential scenario. The hazard quotient (noncarcinogenic health risk) for groundwater under residential use is 0.003183. The hazard quotient under the light industrial scenario is 0.000274, well below the EPA's criteria of 1.0. None of the contaminants of concern exhibit carcinogenic potential.

Ecological Assessment Findings

An endangerment assessment was performed to determine ecological risks. For land based organisms, indicator species (e.g. field mouse and northern bobwhite) were selected which would best show any bioconcentration of contaminants or uptake through the food chain.

The maximum measured inorganic soil concentrations for the sites in the area were well below the 95 percent Upper confidence level (UCL) New Jersey background concentrations. The only COC found in soil was toluene which only appeared at trace levels. These findings indicated that the contamination in this area does not constitute a current ecological threat to the resident indicator species chosen.

The excavation of the site resulted in the formation of a small pond due to the shallow groundwater table. This depression will be left for use as a new pond. Less than 4 weeks after its formation, frogs were found in and around the pond. Regrading of the area was

required after excavation. Since vegetation was cleared during the excavation process, 19 native pitch pines were transplanted from the adjacent parachute jump circle to the clearing on July 23, 1993. The trees ranged from 8 to 30 inches in height. Although the surrounding vegetation in the area grows quickly, these trees were introduced onto the site to aid the site restoration process.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Proposed Plan for Site 20 was issued to interested parties on June 4, 1993. On June 16 and 17, 1993 a newspaper notification inviting public comment on the Proposed Plan appeared in The Asbury Park Press and The Ocean County Observer. On June 18, 1993, a notification also appeared in The Air Scoop, the Center's weekly publication. The comment period was held from June 21, 1993 to July 21, 1993. The newspaper notification also identified the Ocean County Library as the location of the Information Repository.

A Public Meeting was held on June 30, 1993 at the Manchester Branch of the Ocean County Library at 7:00 p.m. At this meeting, representatives from the Navy, USEPA, and NJDEPE were available to answer questions about the site, and the "No Action" determination. A list of attendees is attached to this Record of Decision as Appendix A. Comments received and responses provided during the public meeting are included in the Responsiveness Summary, which is part of this Record of Decision. No written comments were received during the public comment period. A transcript of the meeting is available as part of the Administrative Record.

The decision document presents the selected action (ie. No Action) for Site 20 at NAWCADLKE in Ocean County, New Jersey, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan (NCP). The decision for the site 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

The results of the environmental investigations conducted show no verifiable evidence of significant contamination at Site 20. The levels of chlorinated solvents have been determined to not pose a risk to human health or the environment. However, a five year monitoring plan will be implemented to ensure continued compliance with groundwater standards and monitor the risk to human health and the environment.

SUMMARY OF SITE CHARACTERISTICS

The location of Site 20 within NAWCADLKE is shown in Figure 2. The general direction of groundwater flow at NAWCADLKE is to the east-

northeast. Summary of the chemicals detected in the analyses of groundwater collected at the site is provided in Table II, Appendix C.

The results of the Remedial Investigations, including the endangerment assessment, indicate that conditions at Site 20 pose no unacceptable risk to human health and the environment.