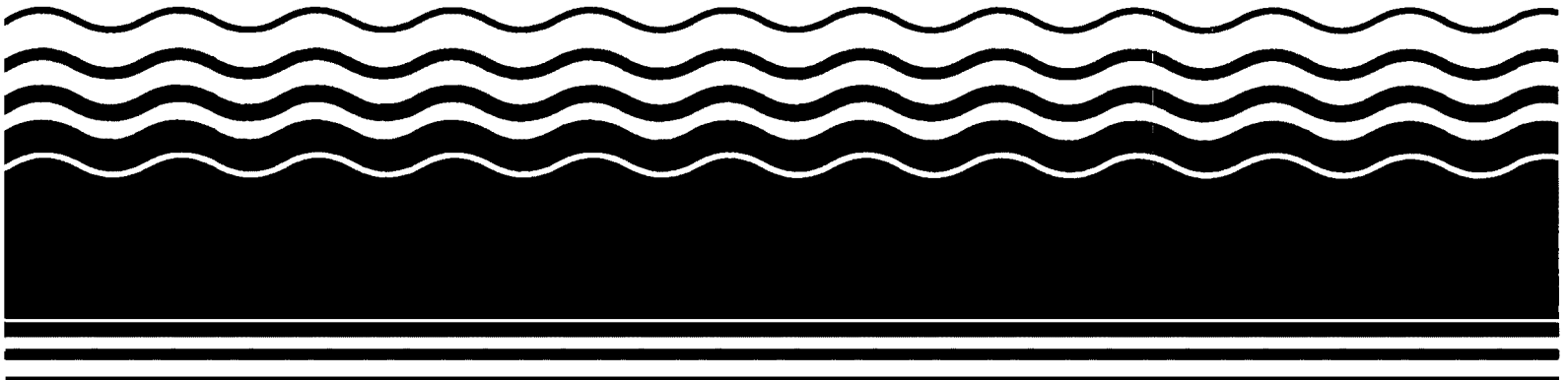




# **Superfund Record of Decision:**

Naval Air Engineering Center  
(Operable Unit 5), NJ



## **NOTICE**

The appendices listed in the index that are not found in this document have been removed at the request of the issuing agency. They contain material which supplement, but adds no further applicable information to the content of the document. All supplemental material is, however, contained in the administrative record for this site.

<b>REPORT DOCUMENTATION PAGE</b>	<b>1. REPORT NO.</b> EPA/ROD/R02-92/191	<b>2.</b>	<b>3. Recipient's Accession No.</b>
<b>4. Title and Subtitle</b> SUPERFUND RECORD OF DECISION Naval Air Engineering Center (Operable Unit 5), NJ Sixth Remedial Action - Subsequent to follow			<b>5. Report Date</b> 01/03/92
<b>7. Author(s)</b>			<b>6.</b>
<b>9. Performing Organization Name and Address</b>			<b>8. Performing Organization Rept. No.</b>
			<b>10. Project/Task/Work Unit No.</b>
			<b>11. Contract(C) or Grant(G) No.</b> (C) (G)
<b>12. Sponsoring Organization Name and Address</b> U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			<b>13. Type of Report &amp; Period Covered</b> 800/000
			<b>14.</b>
<b>15. Supplementary Notes</b> PB93-963809			
<b>16. Abstract (Limit: 200 words)</b>  The 7,400-acre Naval Air Engineering Center (NAEC) site is located in Jackson and Manchester Townships, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean. Surrounding land use is primarily undeveloped woodlands and open areas, with the closest residential area, the Borough of Lakehurst, located southeast of the facility. The NAEC, which lies within the Toms River Drainage Basin, contains over 1,300 acres of flood-prone areas. In the vicinity of NAEC, drinking water is generally supplied to the populace by municipal supply wells. Some private wells exist, but these are used primarily for irrigation purposes. The U.S. Navy assumed control of the property in 1919, and it was formally commissioned Naval Air Station (NAS) Lakehurst in 1921. The NAEC was moved from the Naval Base, Philadelphia to NAS Lakehurst in 1974. The NAEC's mission is to conduct research, development, engineering, testing and system 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 disposal of hazardous substances. During the operational period of the facility, there have been reported and suspected releases of these  (See Attached Page)			
<b>17. Document Analysis a. Descriptors</b> Record of Decision - Naval Air Engineering Center (Operable Unit 5), NJ Sixth Remedial Action - Subsequent to follow Contaminated Media: None Key Contaminants: None  <b>b. Identifiers/Open-Ended Terms</b>         <b>c. COSATI Field/Group</b>			
<b>18. Availability Statement</b>	<b>19. Security Class (This Report)</b> None	<b>21. No. of Pages</b> 44	
	<b>20. Security Class (This Page)</b> None	<b>22. Price</b>	

EPA/ROD/R02-92/191

Naval Air Engineering Center (Operable Unit 5), NJ

Sixth Remedial Action - Subsequent to follow

Abstract (Continued)

substances into the environment. The U.S. Air Force'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 three of these sites, Sites 5, 19, and 21, as having evidence of petroleum hydrocarbon contamination. From 1958 to 1980, Site 5, the Arresting Engine RSTS Track No. 2/Building 371, was used for the surface storage of small amounts of liquid waste, such as cleaning solvents, hydraulic fluid, and propylene glycol. Leakage from stored materials at Site 5 has resulted in visible soil discoloration. Site 19, the SATS Catapult (7401 Test Site), was abandoned in the 1960's and 1970's, after which it became a minor storage area for 55-gallon drums of waste material, such as clutch and lubricating oils and jet fuel. In the early 1980's, twenty-two 55-gallon drums that had potentially contaminated the soil were removed from the site for offsite disposal. From 1958 to 1981, solvents and jet fuel were stored at Site 21, the Jet-Car Maintenance Shop. In 1983, stained soil areas prompted NAEC to set up a hazardous waste drum accumulation area with secondary containment at the site. As part of a 1991 removal action at each of these three sites, NAEC excavated and removed offsite for disposal, a total of 76 cubic yards of soil with petroleum hydrocarbon concentrations greater than 1,000 mg/kg. This ROD addresses any potential remaining petroleum hydrocarbon contamination at Sites 5, 19, and 21, as OU 5. Future RODs will address other OUs at NAEC. EPA has determined that the previously implemented removal actions have eliminated the need to conduct additional clean-up activities at these sites; therefore, there are no contaminants of concern affecting this site.

The selected remedial action for this site is no further action because previously implemented removal actions have eliminated the need to conduct additional remedial action at sites 5, 19, and 21. There are no costs associated with this no action remedy.

PERFORMANCE STANDARDS OR GOALS: Not applicable.

**ROD FACT SHEET FOR NAEC LAKEHURST**  
**OPERABLE UNIT 5**

**SITE**

Name	NAEC Lakehurst
Location/State	Ocean County, New Jersey
EPA Region	II
HRS Score (date)	49.48 (July 22, 1987)
NPL Rank (date)	Group 4 (July 22, 1987)

**ROD**

(OU 5)

Date Signed	January 3, 1992
Remedy/ies	No Action
Capital Cost	NA
O & M/year	NA
Present worth	NA

**LEAD**

Remdial/Enforcement	Federal Facility
EPA/State/PRP	Navy
Primary contact (phone)	Jeff Gratz 212-264-6667
Secondary cont. (phone)	Robert Wing 212-264-8670
Main PRP(s)	Navy
PRP Contact (phone)	Ms. Lucy Bottomley

**WASTE**

Type (metals, PCB, &c)	Petroleum Hydrocarbons
Medium (soil, g.w., &c)	Soil
Origin	Spills from base activities
Est. quantity cu.yd.	Contaminated soil (approx. 75 cu.yds.) removed through previous removal actions

**RECORD OF DECISION  
DECLARATION  
SITES 5, 19 AND 21  
NAVAL AIR ENGINEERING CENTER**

**FACILITY NAME AND LOCATION**

Naval Air Engineering Center  
Lakehurst, New Jersey 08733

**STATEMENT OF BASIS AND PURPOSE**

This decision document presents the selected remedial action for three individual sites (Sites 5, 19 and 21), located at the Naval Air Engineering Center (NAEC) 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 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**

The United States Department of the Navy, the lead agency for this Site, has selected no action as the remedy for Sites 5, 19 and 21.

## DECLARATION STATEMENT

The U.S. Department of the Navy has determined that no additional remedial action is necessary at Sites 5, 19 and 21 to ensure protection of human health and the environment. The removal actions implemented previously at these sites, in which soil contaminated with unacceptable levels of petroleum hydrocarbons was removed, have eliminated the need to conduct additional remedial action.

This Record of Decision concerns Sites 5, 19 and 21 only. The locations of these three Sites within the NAEC are shown in Figure 2.

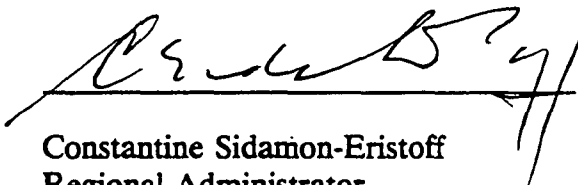


Captain David Raffetto  
Commanding Officer  
Naval Air Engineering Center  
Lakehurst, New Jersey

10 Dec 91

(Date)

With the concurrence of:



Constantine Sidamon-Eristoff  
Regional Administrator  
U.S. Environmental Protection Agency, Region II

1/5/92

(Date)

## **SITE DESCRIPTION**

NAEC is located in Jackson and Manchester Townships, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean (Figure 1). NAEC 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. NAEC and the surrounding area are located within the Pinelands National Reserve, the most extensive undeveloped land tract of the Middle Atlantic Seaboard.

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

NAEC 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 NAEC 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 NAEC. 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 Manapqua Brook. The Ridgeway and Union Branches then feed Pine Lake; located approximately 2.5 miles east of NAEC before joining Toms river. Storm drainage from NAEC 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 NAEC: Bass Lake, Clubhouse Lake, and Pickerel Pond. NAEC 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 NAEC 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, whereas the density of Lakehurst Borough is 3,061 persons per square mile.

The areas surrounding NAEC 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 NAEC are commercial cranberry bogs, the drainage from which crosses the southeast section of NAEC 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 the NAEC, 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 NAEC. 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 the NAEC, which supplies water to very small population (probably less than 1,000) in the immediate vicinity of the NAEC.

### **SITE HISTORY**

The history of the NAEC 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. Testing was accomplished in cooperation and agreement with the Russian Imperial Government until its fall in 1919. At that time, the U.S. Army assumed control of chemical warfare testing by the Eddystone Chemical Company and named the area Camp Kendrick. By the early fall of 1919, construction of Hangar No. 1 for the Navy had commenced. Camp Kendrick was turned over to the Navy and formally commissioned Naval Air Station (NAS), Lakehurst, New Jersey on June 28, 1921. 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 Lakehurst.

Currently, NAEC's mission is to conduct programs of research, engineering, development testing and evaluation, systems integration, limited production, procurement and fleet engineering support in the following areas: aircraft launching, recovery and landing aid systems; ground support equipment for aircraft and for airborne weapons systems to provide, operate and maintain test sites, facilities, and support services for tests of the above systems and equipment; and conduct research and development of equipment and instrumentation used in tests. NAEC supports

Department of Defense (DOD) standardization and specification programs, provides services and material, and operates and maintains aviation and other facilities in support of assigned programs.

NAEC and its tenant activities now occupy more than 300 buildings, built between 1919 and 1979, 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 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.

The various operations and activities at NAEC 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 in some areas.

### INITIAL INVESTIGATIONS

As part of the DOD Installation Restoration Program, the Navy developed the Navy Assessment and Control of Installation Pollutants (NACIP) program to "identify, assess and control environmental contamination from past methods of storage, handling, and disposal of hazardous substances at naval shore facilities".

As part of the NACIP program, an Initial Assessment Study (IAS) was completed in 1983 by the Naval Energy and Environmental Support Activity (NEESA) at NAEC. The purpose of the IAS was 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 IAS identified a total of 44 potentially contaminated sites, which were evaluated with regard to contamination characteristics, migration pathways, and pollutant receptors. The IAS concluded that "while none of the sites pose an immediate threat to human health or the environment, 16 warrant further investigation under the NACIP program, to assess potential impacts". 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 Investigation because they had already been rehabilitated. This Record of Decision concerns only Sites 5, 19 and 21.

NAEC was designated in 1987 as a National Priorities List (NPL) site under CERCLA.

### **ENVIRONMENTAL INVESTIGATION/FEASIBILITY STUDY**

NAEC's Remedial Investigation (RI) was conducted in two phases. Implementation of the verification phase (Phase I of the RI) was initiated in October 1984. 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) determine where contamination is present, characterize the extent of contamination, assess the potential for contaminant migration and define the sources of contamination; and (c) support a feasibility study and/or final actions at the Sites. Summaries of the resulting analytical data for Sites 5, 19 and 21 are provided in Tables 1 through 3.

These investigations indicated that the only significant contamination present at levels of concern at these three sites was total petroleum hydrocarbons

(PHC) in soil. As a result, additional soil sampling was conducted by NAEC at the Sites in January and February 1991 to delineate the extent of PHC contamination. Based on the results of this and prior sampling, small-scale soil removals were conducted at each of the Sites, after which, post-removal samples were collected to confirm the removal of contaminated soil. The analysis of these samples revealed total petroleum hydrocarbons at concentrations below NJDEPE guidelines (i.e., action levels), confirming the success of the removal.

The individual Site histories and summaries of past remedial and removal activities at each of the three Sites are provided in the following sections.

#### **SITE 5 - ARRESTING ENGINE, RSTS TRACK NO. 2, BUILDING 371**

##### **Site History**

Site 5 is located directly behind Building 371 (Figure 3). The site was reportedly used for the surface storage of small amounts of liquid waste for a 22-year period between 1958 and 1980, causing visible discoloration of the soil. The types of materials discarded are unknown, but it is suspected that liquids in common use at the site, including cleaning solvents (e.g., trichloroethylene), propylene glycol and hydraulic fluid. The quantities of each chemical spilled at the site are unknown.

Currently, no activities which involve the use, storage or disposal of hazardous substances occur at, or are planned for, this site. The site is currently partially covered by sand, grassy vegetation and several trees with no noticeable stained soil or debris.

## **Summary of Remedial Investigations and Removal Actions**

- Pre-1985:** A hazardous waste drum accumulation area, with a secondary containment, was constructed for use at this site. It was reported that visibly contaminated soil at the site was removed.
- November 1985 - January 1986:** Remedial Investigation - Phase I. Monitoring well DJ was installed at the site (Figure 3). Organic Vapor Analyzer (OVA) readings inside the casing of this well did not exceed background levels. Analysis of a groundwater sample collected from the well did not reveal any contamination above ARARs (Applicable or Relevant and Appropriate Requirements) or State Action Levels.
- An approximately 5-foot by 5-foot area of black stained soil, with a tar-like appearance, was observed near the southeastern corner of Building 371. OVA levels in a shallow (one foot) test pit excavated within this stained-soil area did not exceed background levels. Similarly, OVA readings did not exceed background levels in one test pit excavated near well DJ, and another test pit excavated approximately 50 feet east of Building 371.
- May - June 1988:** Soil gas and groundwater screening surveys conducted at the site revealed petroleum and trace concentrations of chlorinated hydrocarbons in groundwater and soil gas. On the basis of these data, additional investigations were recommended.
- August - December 1988:** Remedial Investigation - Phase II. Two rounds of groundwater samples were collected from monitoring well DJ, which is directly downgradient of the site, and analyzed for comprehensive organic and inorganic parameters and petroleum hydrocarbons. No contaminants were detected in the samples at levels exceeding ARARs or State Action Levels.
- Two test pits were excavated at the site: one adjacent to Building 371 at a location where petroleum and chlorinated hydrocarbons had been detected in soil gas and one at a location about 100 feet northeast from the building, where

the highest levels of hydrocarbons had been detected in the groundwater screening survey. No staining was observed and no OVA readings above background levels were recorded in the test pits. One soil sample was collected from each of the test pits (Figure 3) and analyzed for organic and inorganic parameters and petroleum hydrocarbons. Petroleum hydrocarbons were detected in the sample collected from the test pit adjacent to Building 371 at a concentration of 624 mg/kg. No carcinogenic organic compounds were present in this same sample and no other contaminants were detected in either of the two soil samples.

June 1990:

During a reconnaissance survey of the site, a small area of black surficial soil staining was observed near the edge of the blacktop to the east of Building 371, near the location of test pit S5-3, sampled during the Phase II Investigation. The location of this staining appeared to coincide with the staining noted previously during the Phase I Investigation, suggesting that the contamination was not recent.

January -  
February 1991:

To delineate the horizontal and vertical extent of PHC contamination in soil at Site 5, NAEC collected soil samples at 45 locations based on a 10-foot by 10-foot grid. The sampling grid, sampling locations and analytical results for this sampling are shown in Figure 4. The analytical results are also provided in Table 4. On the basis of all the available analytical data, NAEC proposed to excavate all soil exhibiting PHC concentrations greater than 1,000 mg/kg, the State-defined action level for the Site.

March 1991:

With the approval of USEPA, NJDEPE and other Technical Review Committee (TRC) members, NAEC excavated approximately 19 cubic yards of soil exhibiting PHC concentrations greater than 1,000 mg/kg. The soil was excavated from two separate areas, as shown in Figure 4. The depth of soil excavation at each of the areas was 2 to 2.5 feet. The soil was transported for disposal off-site at Atlantic Thermal Soil Remediation, Inc. in Delaware.

Following the removal, on March 27, 1991, two post-excavation samples, S5-A and S5-B, were collected from the areas of soil removal. Prior to collection of the samples, the areas of soil removal were thoroughly screened with an Organic

Vapor Analyzer (OVA). No readings above background levels were recorded. The samples were analyzed for petroleum hydrocarbons and EPA's Target Compound List (TCL) base/neutral extractable organic compounds to confirm the absence of contamination.

The samples were collected at the bottom of the soil removal areas, at the locations shown in Figure 4. The analytical results for these samples are presented in Table 5. Petroleum hydrocarbons were detected in only one of the samples, S5-A, at a concentration of 26 mg/kg, below Federal and State guidelines. The only base/neutral organic compound detected in the samples was di-n-butyl phthalate, which was also found in a laboratory blank and is commonly present in environmental samples as an artifact of laboratory procedures.

## **SITE 19 - SATS CATAPULT (7401 TEST SITE)**

### **Site History**

Site 19 is located approximately 700-800 feet southeast of the R.A.L.S (Runway Assisted Landing System) Tower (Figure 5) and was the test site for an expeditionary catapult launcher that was tested during the 1960s and 1970s. The site was abandoned in the early 1970s, after which it became a minor storage area for 55-gallon drums of waste materials. Materials and quantities stored at the site are unknown. Another potential source of contamination at the site was releases associated with testing of the catapult equipment. The potential contaminants may have included clutch oil, hydraulic fluid, lubricating oil and jet fuel.

In the early 1980s, during initial investigations at the site, twenty-two 55-gallon drums were removed from the site. The drums were reportedly filled with assorted liquid wastes, including fuel, lubricating oil and hydraulic fluid. The drums were taken for disposal to the Chem Clear, Inc. facility in Pennsylvania.



All the equipment and structures have been removed from the site, which is currently a sandy area, partially covered with grassy vegetation. No activities involving the use, storage or disposal of hazardous waste occur at, or are planned for, this site.

### Summary of Remedial Investigations and Removal Actions

Pre-1985: One groundwater monitoring well (AW) was installed near the site under the direction of NAEC and monitored regularly for the presence of floating product. None was detected. All drums present at the site were removed under the direction of NAEC.

November 1985 -  
January 1986:

Remedial Investigation - Phase I. Monitoring well DQ was installed approximately 100 feet downgradient from the site (Figure 5). Analysis of a groundwater sample collected from the well revealed one volatile organic compound, tetrachloroethylene, at a concentration of 8 µg/l. Additional investigations were recommended.

OVA readings inside the casings of wells AW and DQ did not exceed background levels. Two small areas of stained soil were observed in the vicinity of the site. One was located in a minor drainage swale approximately 80-100 feet east of well AW, and the second one approximately 30-40 feet east of the drainage swale. The stains appeared to be old and confined to the upper 4-6 inches. Two test pits were excavated at the site, one east of well DQ and one south of well AW. OVA readings in these pits did not exceed background levels.

May - June 1988:

Soil gas and groundwater screening surveys conducted at the site did not reveal petroleum hydrocarbon contamination. Slightly elevated levels of total chlorinated hydrocarbons were detected in groundwater. On the basis of this data, additional investigations were recommended.

August -  
December 1988:

**Remedial Investigation - Phase II.** Two rounds of groundwater samples were collected from monitoring well DQ and analyzed for organic and inorganic parameters and petroleum hydrocarbons. No contamination was detected in these samples and the presence of tetrachloroethylene in the well was not confirmed.

Two test pits were excavated at the site near the areas where soil staining had been observed during the Phase I Investigation. Although no stained soil was observed during Phase II, a slight petroleum odor was detected in one of the pits. Duplicate soil samples were collected from this pit (Figure 5) and analyzed for organic and inorganic parameters and petroleum hydrocarbons. Total petroleum hydrocarbons were detected in the samples at concentrations of 20, 363 and 10,071 mg/kg. No carcinogenic organic compounds were detected in these samples.

January -  
February 1991:

To delineate the horizontal and vertical extent of PHC contamination at the site, NAEC collected soil samples at 83 locations based on a 20-foot by 20-foot grid. The sampling grid, sample locations and analytical results are shown in Figure 6. The analytical results are also provided in Table 4. On the basis of all the available analytical data, NAEC proposed to excavate all soil exhibiting PHC concentrations greater than 1,000 mg/kg, the State-defined Action Level for the Site.

March 1991:

With the approval of USEPA, NJDEPE and other TRC members, in mid-March 1991, NAEC excavated approximately 35 cubic yards of soil exhibiting PHC concentrations greater than 1,000 mg/kg. The soil was excavated from two separate areas, as shown in Figure 6. The depth of excavation for each area was approximately two feet. In addition to these two areas, a small amount of surface soil containing pieces of asphalt was entirely shoveled up from a third location in the western portion of Site 19 (Figure 6, grid location 43, 2.5). A sample at this location, of the soil/asphalt mixture, was found to contain PHC at a concentration of 39,000 mg/kg, probably due to the asphalt in the sample. All excavated soil was transported for disposal off-site at Atlantic Thermal Soil Remediation, Inc. in Delaware.

Following the removal, two post-excavation samples, S19-A and S19-B, were collected from the areas of soil removal. Prior to collection of the samples, the areas of soil removal were thoroughly screened with an OVA. No readings above background levels were recorded. The samples were analyzed for petroleum hydrocarbons and TCL base/neutral extractable organic compounds to confirm the absence of contamination.

The samples were collected at the bottom of the soil removal areas, at the locations shown in Figure 6. The analytical results are presented in Table 5. No petroleum hydrocarbons were detected in either sample. The only base/neutral organic compound detected in the samples was di-n-butyl phthalate, which was also detected in a laboratory blank and is a common artifact of laboratory procedures.

## **SITE 21 - JET-CAR MAINTENANCE SHOP**

### **Site History**

Site 21 is located approximately 300 feet southeast of the launching end of RSTS Track No. 5 (Figure 7). Between 1958 and 1981, solvents and jet fuel were stored in the yard in front of the Jet-Car Maintenance Shop (Building 384). During this time, a 1,000-gallon bowser was used to contain used solvent and contaminated fuel while awaiting disposal (the bowser was removed from the Site in 1983). Engine maintenance operations generated small amounts of waste solvents which, reportedly, were generally thrown out behind the building. In 1983, areas of soil stained with a black, oily residue were noticed near the edges of the paved area. It is suspected that cleaning solvent, trichloroethylene, jet fuel, and lubricating oil were discharged or spilled here, but the quantities are not known. Affected areas at this site range in size from 3 x 3 feet to 12 x 21 feet. A static jet engine test pad (concrete) was also used at the site during a 23-year period (1958 to 1981) to test jet engine performance. The jet blast from the testing during this period created a 50 x 200-foot eroded area devoid of vegetation. Prior to 1985, a hazardous waste drum accumulation area was constructed at the site to eliminate former "poor housekeeping" practices.

No activities involving the use, storage or disposal of hazardous waste currently occur at, or are planned for this Site.

### **Summary of Remedial Investigations and Removal Actions**

**Pre-1985:** A hazardous waste drum accumulation area with a secondary containment was constructed at the site.

**November 1985 -  
January 1986:** Remedial Investigation - Phase I. Monitoring well DR was installed approximately 150 feet downgradient from the site. Analysis of groundwater samples from this well and from a 60-feet deep supply well also located at the site (SW-21) revealed no contamination. OVA levels inside the casing of well DR did not exceed background levels.

A shallow test pit was excavated within an area of stained soil in the drainage swale east of Building 384. OVA readings within the test pit were approximately 350 parts per million. One soil sample was collected from the pit and from another location near the jet engine test pad. The samples were analyzed for petroleum hydrocarbons. Petroleum hydrocarbons were detected in the sample from the test pit at a concentration of 26,000 mg/kg and in the sample from the jet engine test area at a concentration of 2,800 mg/kg.

**August -  
December 1988:** Remedial Investigation - Phase II. Two rounds of groundwater samples were collected from monitoring well DR and supply well SW-21 and analyzed for organic and inorganic parameters and petroleum hydrocarbons. No contamination was detected in these samples.

One soil boring was drilled at the site, at a location adjacent to the former jet engine test pad. A soil sample collected from the 12 to 14 feet depth interval in this boring was analyzed for organic and inorganic parameters and petroleum hydrocarbons. No contamination was detected in this sample.

January -  
February 1991:

To delineate the horizontal and vertical extent of PHC contamination in soil Site 21, NAEC collected soil samples at 60 locations, based on a 10 feet by 10 feet grid. The sampling grid, sample locations and analytical results are shown in Figure 8. The analytical results are also provided in Table 4. On the basis of all the available analytical data, NAEC proposed to excavate all soil exhibiting PHC concentrations greater than 1,000 mg/kg, the State-defined action level for the Site.

March 1991:

With the approval, of USEPA, NJDEPE and other TRC members, NAEC excavated approximately 22 cubic yards of soil exhibiting PHC concentrations greater than 1,000 mg/kg. The soil was excavated from three separate areas, which are shown in Figure 8. In each area, soil was excavated to a depth of approximately two feet. The soil was transported for disposal off-site at Atlantic Thermal Soil Remediation, Inc. in Delaware.

Following the removal, two post-excavation samples, S21-A and S21-B were collected from the areas of soil removal. Prior to collection of the samples, the areas of soil removal were thoroughly screened with an OVA. No readings above background levels were recorded. The samples were analyzed for petroleum hydrocarbons and EPA's Target Compound List (TCL) base/neutral extractable organic compounds to confirm the absence of contamination.

The samples were collected at the bottom of the soil removal areas, at the locations shown in Figure 8. The analytical results are presented in Table 5. No petroleum hydrocarbons were detected in either sample. The only base/neutral organic compound detected was di-n-butyl phthalate, which was detected in sample S21-A only. This compound was also present in a laboratory blank and is believed to be an artifact of the laboratory procedures.

## **HIGHLIGHTS OF COMMUNITY PARTICIPATION**

The Proposed Remedial Action Plan (PRAP) for Sites 5, 19 and 21 was issued to interested parties on August 26, 1991. On August 26-28, 1991, a newspaper notification inviting public comment on the PRAP appeared in The Asbury Park Press, The Ocean County Observer, and The Advanced News. The comment period was held from August 26 to September 26, 1991. The newspaper notification also identified the Ocean County Library as the location of the Information Repository.

A public hearing was held on September 4, 1991. At this meeting representatives from the Navy, USEPA and NJDEPE were available to answer questions about the three Sites, and the No Action determination. A list of attendees is attached to this Record of Decision as Appendix B. Comments received and responses provided during the public hearing are included in the Responsiveness Summary, which is part of this Record of Decision. No written comments were received during the public comments period.

This decision document presents the selected remedial action (i.e., No Action) for Sites 5, 19 and 21 of NAEC 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 three Sites is based on 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 environmental investigations conducted show no evidence of any significant contamination remaining at Sites 5, 19 and 21. The PHC contamination in soil which was identified at these Sites has been remediated to levels acceptable to USEPA and NJDEPE. Because the available data indicate that conditions at Sites

5, 19 and 21 pose no unacceptable risks to human health or the environment, no action is necessary for these three Sites.

### **SUMMARIES OF SITE CHARACTERISTICS**

The locations of each of the three Sites within the NAEC are shown in Figure 2. Maps of the individual Sites are provided in Figures 3, 5 and 7. The entire NAEC is underlain by the Cohansey Formation, a water-table sand aquifer. The general direction of groundwater flow at NAEC is to the east-northeast. Chemicals detected in the analyses of groundwater, soil and sediment samples collected at each of the Sites are provided in Tables 1 through 5.

### **SUMMARIES OF SITE RISKS**

The results of the Remedial Investigations, including the analytical data summarized in Tables 1 through 5, indicate that conditions at Sites 5, 19 and 21 pose no unacceptable risks to human health and the environment.

**RECORD OF DECISION  
RESPONSIVENESS SUMMARY  
SITES 5, 19 AND 21  
NAVAL AIR ENGINEERING CENTER**

The purpose of this responsiveness summary is to review public response to the Proposed Remedial Action Plan (PRAP) for Sites 5, 19 and 21. It also documents NAEC's consideration of such comments during the decision making process and provides answers to any comments raised during the public comment period.

The responsiveness summary for the three Sites is divided into the following three sections:

- Overview - This section briefly describes the process to develop and evaluate the appropriate remedial responses for the three Sites, the No-Action alternative recommended in the PRAP 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**

Sites 5, 19 and 21 are located at NAEC in Ocean County, Lakehurst, New Jersey. The three Sites have been under investigation for potential environmental



contamination. This responsiveness summary addresses public response to the PRAP, proposing the No-Action Alternative, for the three Sites only.

The PRAP 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 interim remedial planning activities conducted at the three Sites. Throughout the investigation period, the USEPA and NJDEPE 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 NJDEPE, the Ocean County Board of Health, the New Jersey Pinelands Commission, other agencies and communities surrounding NAEC was formed and has been holding periodic meetings to maintain open lines of communication and to inform all parties of current activities.

Prior to the public release of site-specific documents, NAEC'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 A to this Record of Decision.

On August 26, 1991, NAEC mailed the PRAP for the three sites to concerned parties on the list described above. On August 26-28, 1991, a public notice appeared in The Asbury Park Press and The Ocean County Observer, and in The Advance News. The public notice summarized the PRAP and the preferred (No-Action) alternative. The announcement also identified the time and location of a

public hearing and specified a public comment period, and the address to which written comments could be sent. Public comments were accepted from August 26 through September 26, 1991.

A public meeting was held on September 4, 1991, at 7:30 p.m. at the Lakehurst Elementary School in Lakehurst, New Jersey. The Site investigations, Site evaluation process and the proposed remedial alternative (No-Action) were discussed. NAEC representatives present included: Carol Ancellin, Deputy Public Affairs Office; Robert Kirkbright, Engineering Director; Lucy Bottomley, Head Environmental Engineer; and Aarti Dalal Reddy, Michael Figura and Jill Meredith, Environmental Engineers. Mr. Jeffrey Gratz, represented the USEPA's Federal Facility Section; Ms. Donna Gaffigan represented the NJDEPE's Bureau of Federal Case Management; Mr. Kevin Schick represented NJDEPE's Bureau of Environmental Evaluation and Risk Assessment and Ms. Linda Welkom represented NJDEPE's Bureau of Groundwater Pollution Abatement. The complete attendance list is provided in Appendix B to this Record of Decision.

## **SUMMARY OF MAJOR QUESTIONS AND COMMENTS**

### **Written Comments**

During the public comment period from August 26 through September 28, 1991, no written comments were received pertaining to Sites 5, 19 or 21.

### **Public Meeting Comments**

In addition to Sites 5, 19 and 21, the September 4, 1991, public hearing also addressed Site No. 44 (for which the "no-action" alternative was also proposed) and NAEC Areas A and B, for which an interim remedial action was proposed for groundwater. None of the questions asked during the September 4, 1991 public hearing

pertained specifically to Sites 5, 19 and 21 or the "No-Action" alternative proposal for these Sites. A complete transcript of the questions asked and responses given during the public hearing is provided in Appendix C to this Record of Decision.

TABLE 1  
HISTORICAL SUMMARY OF ANALYTICAL DATA  
SITE 5

<u>Pre-1985</u>	<u>Phase I Remedial Investigation (1985-1986)</u>	<u>Phase II Remedial Investigation (1988)</u>
No data collected	<u>Groundwater</u>	<u>Groundwater</u>
	<u>Miscellaneous</u>	No contamination detected
	Petroleum Hydrocarbons: 1.3 mg/l	
	<hr/>	
	<u>Soil</u>	<u>Soil</u>
	No contamination detected	Petroleum Hydrocarbons: ND - 673.8 µg/g

NOTE:

ND = Not Detected

TABLE 2  
HISTORICAL SUMMARY OF ANALYTICAL DATA  
SITE 19

<u>Pre-1985</u>	<u>Phase I Remedial Investigation (1985-1986)</u>	<u>Phase II Remedial Investigation (1988)</u>
No data collected	<u>Groundwater</u>	<u>Groundwater</u>
	<u>Volatile Organic Compounds (µg/L)</u>	No contamination detected
	Tetrachloroethylene: 7.76	
	<u>Miscellaneous</u>	
	Total Organic Halides: 32.7 µg/l	
	<u>Soil</u>	<u>Soil</u>
No data collected		<u>Pesticides /PCBs (µg/kg)</u>
		Alpha-BHC: 11.7
		<u>Metals (mg/kg)</u>
		Silver: ND - 94
		<u>Miscellaneous µg/g</u>
		Total Petroleum Hydrocarbons: 20,363-21,071
	<u>Sediment</u>	<u>Sediment</u>
No data collected		No contamination detected

NOTE:

ND = Not Detected

TABLE 3  
HISTORICAL SUMMARY OF ANALYTICAL DATA  
SITE 21

<u>Pre-1965</u>	<u>Phase I Remedial Investigation (1985-1986)</u>	<u>Phase II Remedial Investigation (1988)</u>
No data collected	<u>Groundwater</u>	<u>Groundwater</u>
	No contamination detected	No contamination detected
	<hr/>	
	<u>Soil</u>	<u>Soil</u>
	Petroleum Hydrocarbons: 2,800 - 26,000 mg/kg	No contamination detected

NOTE:

ND = Not Detected

TABLE 4

**LABORATORY ANALYTICAL RESULTS  
DELINEATION OF PHC IN SOIL  
SITES 5, 19 AND 21**

**NAVAL AIR ENGINEERING CENTER  
LAKEHURST, NEW JERSEY**

Site No.	Sample LD.	Sample Grid Location*	Sample Depth (inches)	PHC Concentration (mg/kg)
5	A1	13.5, 1	0-6	250
5	A2	18.5, 3.5	0-6	50
5	A3	20.5, 1	0-6	130
5	AA1	25, 1	0-6	17
5	AA2	11, 1	0-6	370
5	AA3	11, 2	0-6	0
5	AA4	12, 1	0-6	0
5	AA5	12, 2	0-6	900
5	AA6	12, 3	0-6	940
5	AA7	13, 3	0-6	70
5	AA8	14, 3	0-6	140
5	AA9	15, 3	0-6	130
5	AA10	16, 3	0-6	0
5	AA11	17, 3	0-6	0
5	AA12	18, 2	0-6	0
5	AA13	18, 5	0-6	20
5	AA14	20, 3	0-6	0
5	AA15	21, 3	0-6	0
5	AA16	22, 3	0-6	0
5	AA17	23, 3	0-6	70
5	AA18	24, 3	0-6	90
5	AA19	24, 2	0-6	3030
5	AA20	25, 2	0-6	290
5	A2-1	3, 11	0-6	140
5	A2-2	4, 11	0-6	90
5	A2-3	5, 11	0-6	60
5	A2-4	5, 12	0-6	0
5	A2-5	5, 13	0-6	60
5	A2-6	5, 14	0-6	0
5	A2-7	5, 15	0-6	60
5	A2-8	2, 15	0-6	540
5	A2-9	1, 15	0-6	0
5	A2-10	2, 14	0-6	23140
5	A2-11	2, 13	0-6	410
5	A2-12	2, 23	0-6	20
5	A2-13	1, 24	0-6	5200
5	A2-14	3, 25	0-6	140
5	A2-15	3, 26	0-6	0
5	A2-16	2, 26	0-6	170

TABLE 4 (continued)

Site No.	Sample ID.	Sample Grid Location*	Sample Depth (inches)	PHC Concentration (mg/kg)
5	A3-3	2, 17	0-6	50
5	A3-4	2, 16	0-6	0
5	A3-5	2, 14	12	0
5	A3-6	2, 14	24	0
5	A3-1	2, 24	12	130
5	A3-2	2, 24	24	90
19	C2	43, 25	0-6	39000
19	CC1	17, 9	0-6	20
19	CC2	19, 9	0-6	0
19	CC3	21, 9	0-6	40
19	CC4	23, 9	0-6	0
19	CC5	25, 9	0-6	0
19	CC6	27, 9	0-6	0
19	CC7	17, 6	0-6	0
19	CC8	19, 6	0-6	40
19	CC9	21, 6	0-6	30
19	CC10	23, 6	0-6	40
19	CC11	25, 6	0-6	150
19	CC12	27, 6	0-6	20
19	CC13	29, 6	0-6	180
19	CC14	31, 6	0-6	30
19	CC15	33, 6	0-6	30
19	CC16	35, 6	0-6	30
19	CC17	29, 9	0-6	0
19	CC18	31, 9	0-6	10
19	CC19	42, 6	0-6	0
19	CC20	44, 6	0-6	0
19	CC21	46, 6	0-6	0
19	CC22	48, 3	0-6	90
19	CC23	46, 5	0-6	20
19	CC24	17, 3	0-6	20
19	CC25	19, 3	0-6	40
19	CC26	21, 3	0-6	70
19	CC27	23, 3	0-6	110
19	CC28	25, 3	0-6	0
19	CC29	27, 3	0-6	60
19	CC30	29, 3	0-6	0
19	CC31	31, 3	0-6	0



TABLE 4 (continued)

Site No.	Sample I.D.	Sample Grid Location*	Sample Depth (inches)	PHC Concentration (mg/kg)
19	CC32	33, 3	0-6	0
19	CC33	35, 3	0-6	0
19	CC34	37, 3	0-6	0
19	CC35	39, 3	0-6	0
19	CC36	42, 3	0-6	0
19	CC37	44, 3	0-6	0
19	CC38	46, 3	0-6	240
19	CC39	48, 3	0-6	0
19	CC40	50, 3	0-6	0
19	C2-1	2, 5, 43	0-6	20
19	C2-2	2, 45	0-6	220
19	C2-3	2, 46	0-6	150
19	C2-4	2, 47	0-6	0
19	C2-5	3, 45	0-6	0
19	C2-6	3, 47	0-6	20
19	C2-7	4, 45	0-6	90
19	C2-8	4, 46	0-6	10
19	C2-9	4, 47	0-6	0
19	C2-10	5, 30	0-6	0
19	C2-11	5, 29	0-6	20
19	C2-12	5, 28	0-6	0
19	C2-13	6, 30	0-6	0
19	C2-14	6, 28	0-6	0
19	C2-15	7, 30	0-6	20
19	C2-16	7, 29	0-6	100
19	C2-17	7, 28	0-6	0
19	C2-18	5, 26	0-6	14000
19	C2-19	5, 25	0-6	75
19	C2-20	5, 24	0-6	30
19	C2-21	6, 26	0-6	0
19	C2-22	6, 24	0-6	10
19	C2-23	7, 26	0-6	55
19	C2-24	7, 24	0-6	30
19	C2-25	7, 24	0-6	0
19	C2-26	2, 24	0-6	0
19	C2-27	2, 23	0-6	0
19	C2-28	2, 22	0-6	0
19	C2-29	3, 24	0-6	0
19	C2-30	3, 22	0-6	1200

TABLE 4 (continued)

Site No.	Sample I.D.	Sample Grid Location*	Sample Depth (inches)	PHC Concentration (mg/kg)
19	C2-31	2, 24	0-6	20
19	C2-32	2, 23	0-6	0
19	C2-33	2, 22	0-6	10
19	C3-1	3, 22	12	830
19	C3-2	26, 5	12	0
19	C3-3	26, 5	24	0
19	C3-4	6, 29	12	0
19	C3-5	6, 29	24	0
19	C3-6	46, 3	12	0
19	C3-7	46, 3	24	0
19	C3-8	44, 2	0-6	0
19	C3-9	44, 1	0-6	110
21	B1	25, 3	0-6	1200
21	B2	29.5, 6.5	0-6	0
21	B3	36, 9.8	0-6	0
21	B4	30.5, 12	0-6	220
21	B5	35, 15	0-6	0
21	BB1	23, 5	0-6	280
21	BB2	23, 4	0-6	60
21	BB3	23, 3	0-6	30
21	BB4	23, 2	0-6	160
21	BB5	24, 5	0-6	6100
21	BB6	26, 2	0-6	60
21	BB7	26, 3	0-6	110
21	BB8	26, 4	0-6	0
21	BB9	26, 5	0-6	0
21	BB10	26, 6	0-6	0
21	BB11	25, 6	0-6	35
21	BB12	27, 6	0-6	0
21	BB13	28, 6	0-6	20
21	BB14	31, 10	0-6	35
21	BB15	31, 11	0-6	0
21	BB16	32, 11	0-6	350
21	BB17	32, 12	0-6	310
21	BB18	31, 13	0-6	100
21	BB19	31, 19	0-6	90
21	BB20	30, 20	0-6	65
21	B2-1	1, 23	0-6	60
21	B2-2	4, 24	0-6	190

TABLE 4 (continued)

Site No.	Sample I.D.	Sample Grid Location*	Sample Depth (inches)	PHC Concentration (mg/kg)
21	C2-3	3, 24	0-6	110
21	C2-4	2, 24	0-6	510
21	C2-5	1, 24	0-6	80
21	C2-6	1, 25	0-6	100
21	C2-7	2, 25	0-6	50
21	C2-8	4, 25	0-6	40
21	C2-9	5, 25	0-6	2760
21	C2-10	3, 28	0-6	320
21	C2-11	10, 32	0-6	110
21	B2-12	10, 33	0-6	120
21	B2-13	11, 33	0-6	80
21	B2-14	12, 33	0-6	90
21	B2-15	13, 33	0-6	40
21	B2-16	17, 31	0-6	300
21	B3-9	11, 32	12	3000
21	B3-10	11, 32	24	50
21	B3-11	16, 31	0-6	1000
21	B3-12	16, 32	0-6	160
21	B3-13	17, 32	0-6	50
21	B3-14	17, 31	24	0
21	B3-1	3, 28	0-6	90
21	B3-2	3, 29	0-6	0
21	B3-3	3, 25	12	120
21	B3-4	3, 25	24	60
21	B3-5	9, 33	0-6	0
21	B3-6	9, 34	0-6	0
21	B3-7	10, 34	0-6	0
21	B3-8	9, 32	0-6	130
21	B4-1	24, 5	12	100
21	B4-2	24, 5	24	0
21	B4-3	33, 16	0-6	0

**NOTES:**

For Site 5 sample locations, consult Figure 6

For Site 19 sample locations, consult Figure 7

For Site 21 sample locations, consult Figure 8

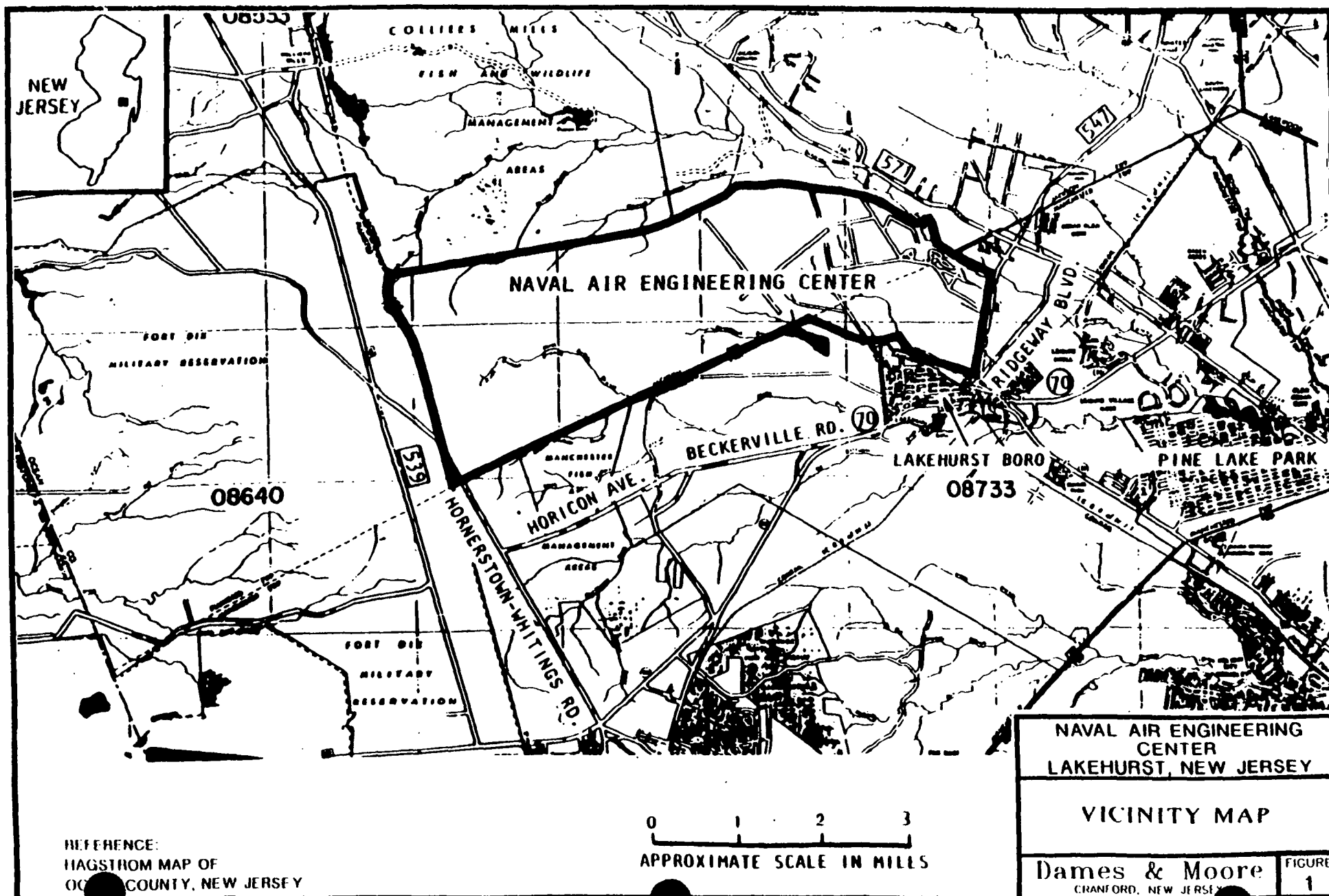
TABLE 5

**SUMMARY OF LABORATORY ANALYTICAL RESULTS  
POSE-SOIL REMOVAL CONFIRMATION SAMPLING - SITES 5, 19 AND 21**

Site No.:	5		19		21	
Sample I.D.:	S5-A	S5-B	S19-A	S19-B	S21-A	S21-B
<u>Parameter</u>						
Total Petroleum Hydrocarbons (mg/kg)	26.0	ND	ND	ND	ND	ND
Base/Neutral Organic Compounds ( $\mu$ g/kg):						
Di-n-butyl phthalate	1,900B	1,600B	930B	990B	610B	ND

**NOTES:**

1. All samples analyzed for Total Petroleum Hydrocarbons and Target Compound List Base/Neutral Extractable Organic Compounds. Only those parameters or compounds detected in at least one sample are shown.
2. B: Compound was also detected in laboratory blank  
ND: Not Detected

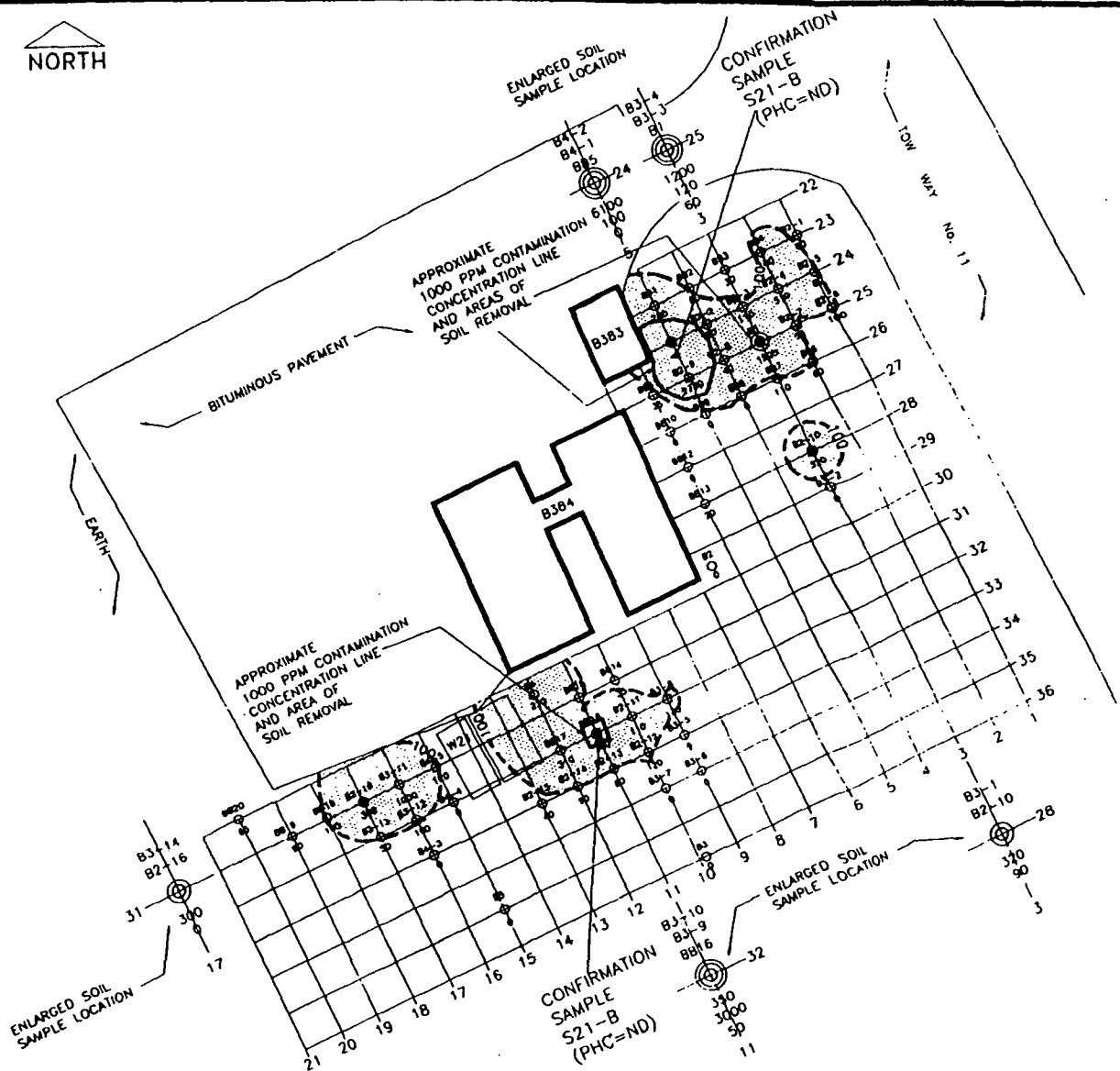








7980\21-CONTA

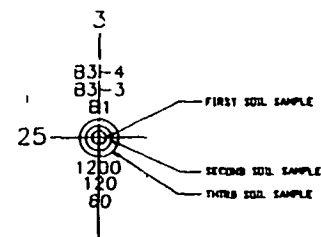


### LEGEND

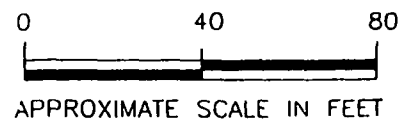
- B1 - SOIL SAMPLE IDENTIFICATION (FIRST ROUND)
- B2 - SOIL SAMPLE IDENTIFICATION (SECOND ROUND)
- B3-1 - SOIL SAMPLE IDENTIFICATION (THIRD ROUND)
- B3-2 - SOIL SAMPLE IDENTIFICATION (FOURTH ROUND)
- B3-3 - SOIL SAMPLE IDENTIFICATION (FIFTH ROUND)
- PHC - PHC ANALYTICAL RESULTS (PPM)
- ND - NOT DETECTED

### SYMBOLS

- PHC CONCENTRATION (PPM)
- SINGLE SOIL SAMPLE LOCATION (SINGLE EXCAVATION)
- MULTIPLE SOIL SAMPLE LOCATION (REFER TO ENLARGED SOIL SAMPLE LOCATIONS)
- △ LOCATION OF CONFIRMATION SAMPLE
- AREA OF SOIL REMOVAL



B384 - BUILDING



NAVAL AIR ENGINEERING CENTER  
LAKEHURST, NEW JERSEY

SITE 21  
SOIL SAMPLING LOCATIONS,  
ANALYTICAL RESULTS AND  
AREAS OF SOIL REMOVAL

DATE: 6-6-91

JOB NO: 7980-022

FIGURE

Dames & Moore  
CRANFORD, NEW JERSEY

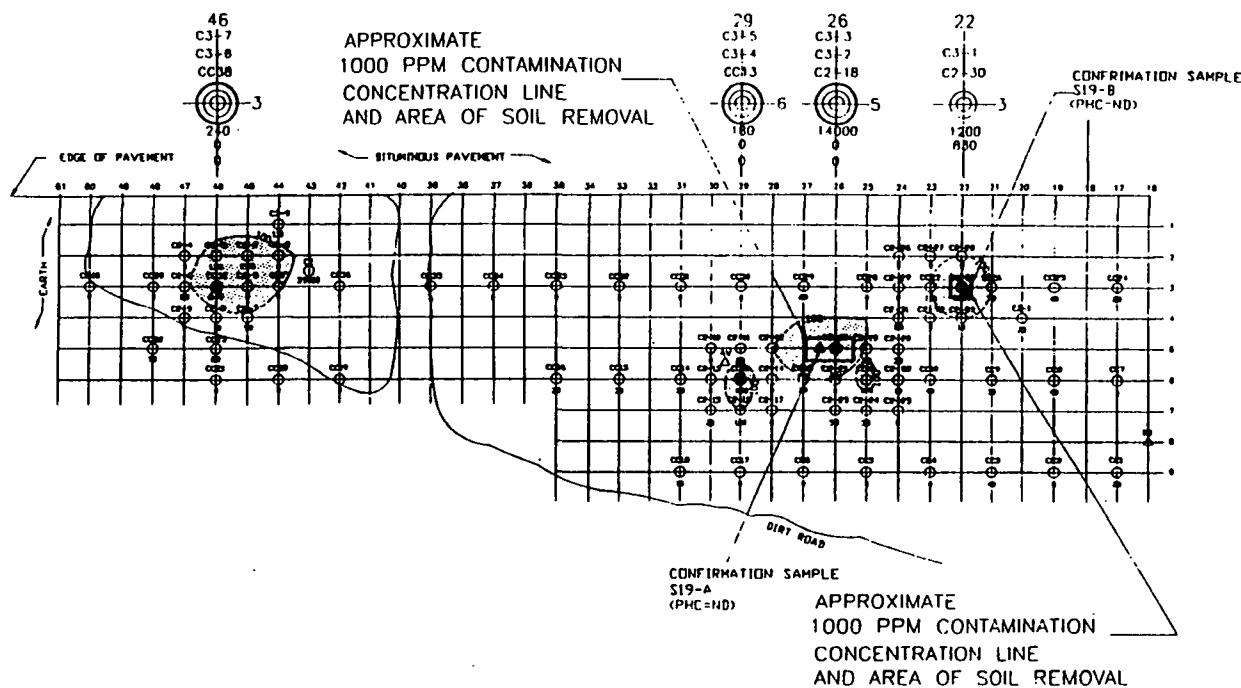
8







### ENLARGED SOIL SAMPLE LOCATIONS

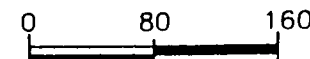
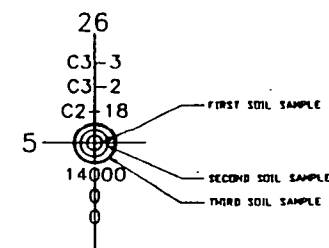


### LEGEND

- C2 - SOIL SAMPLE IDENTIFICATION (INITIAL ROUND)
- C3 - SOIL SAMPLE IDENTIFICATION (SECOND ROUND)
- C2-1 - SOIL SAMPLE IDENTIFICATION (THIRD ROUND)
- C3-1 - SOIL SAMPLE IDENTIFICATION (FOURTH ROUND)
- 39000 - PHC ANALYTICAL RESULTS (PPM)
- ND - NOT DETECTED

### SYMBOLS

- PHC CONCENTRATION (PPM)
- SINGLE SOIL SAMPLE LOCATION (SINGLE EXCAVATION)
- MULTIPLE SOIL SAMPLE LOCATION (REFER TO ENLARGED SOIL SAMPLE LOCATIONS)
- △ MONITORING WELL
- ▲ LOCATION OF CONFIRMATION SAMPLE
- AREA OF SOIL REMOVAL



APPROXIMATE SCALE IN FEET

### NOTE:

THE CONCENTRATION OF PETROLEUM HYDROCARBONS IN SAMPLE C2 (GRID LOCATION 43, 2.5) IS ANOMOLOUS AND BELIEVED TO BE ATTRIBUTABLE TO THE PRESENCE OF ASPHALT IN THE SAMPLE.

NAVAL AIR ENGINEERING CENTER  
LAKEHURST, NEW JERSEY

SITE 19  
SOIL SAMPLING LOCATIONS,  
PHC ANALYTICAL RESULTS AND  
AREAS OF SOIL REMOVAL

DATE: 6-6-91

JOB NO: 7980-022

FIGURE

Dames & Moore  
CRANFORD, NEW JERSEY

6





*Copy to B.B. W / original to Jeff*



**State of New Jersey  
Department of Environmental Protection and Energy  
Office of the Commissioner**

**CN 402  
Trenton, NJ 08625-0402  
Tel. # 609-292-2885  
Fax. # 609-984-3962**

**Scott A. Weiner  
Commissioner**

**Captain David Raffetto, Commander  
Lakewood Naval Air Engineering Center  
Lakewood, NJ 09733-3000**

**31 DEC 1991**

**Dear Captain Raffetto:**

**Re: Record of Decision  
Lakewood NAEC, Sites 5, 19 and 21  
Jackson and Manchester Townships, Ocean County, New Jersey**

**This is to formally notify the United States Navy that the New Jersey Department of Environmental Protection and Energy (NJDEPE) has evaluated the selected remedy for Sites 5, 19 and 21 at Lakewood Naval Air Engineering Center Superfund Site and concurs with the remedy as stated in the Record of Decision.**

**The Record of Decision documents the selection of the "no action" alternative for these sites. It was determined that no additional remedial action is necessary at these sites to ensure the protection of human health and the environment.**

**New Jersey fully appreciates the importance of the Record of Decision in the cleanup process and will continue to take all reasonable steps to ensure that the State's commitments in this area are met.**

**Sincerely,**

A handwritten signature in dark ink, appearing to read "Scott A. Weiner".

**Scott A. Weiner  
Commissioner**

**SAW:DG:kj**

**c: Mr. Constantine Sidamon-Eristoff, USEPA/Region II**