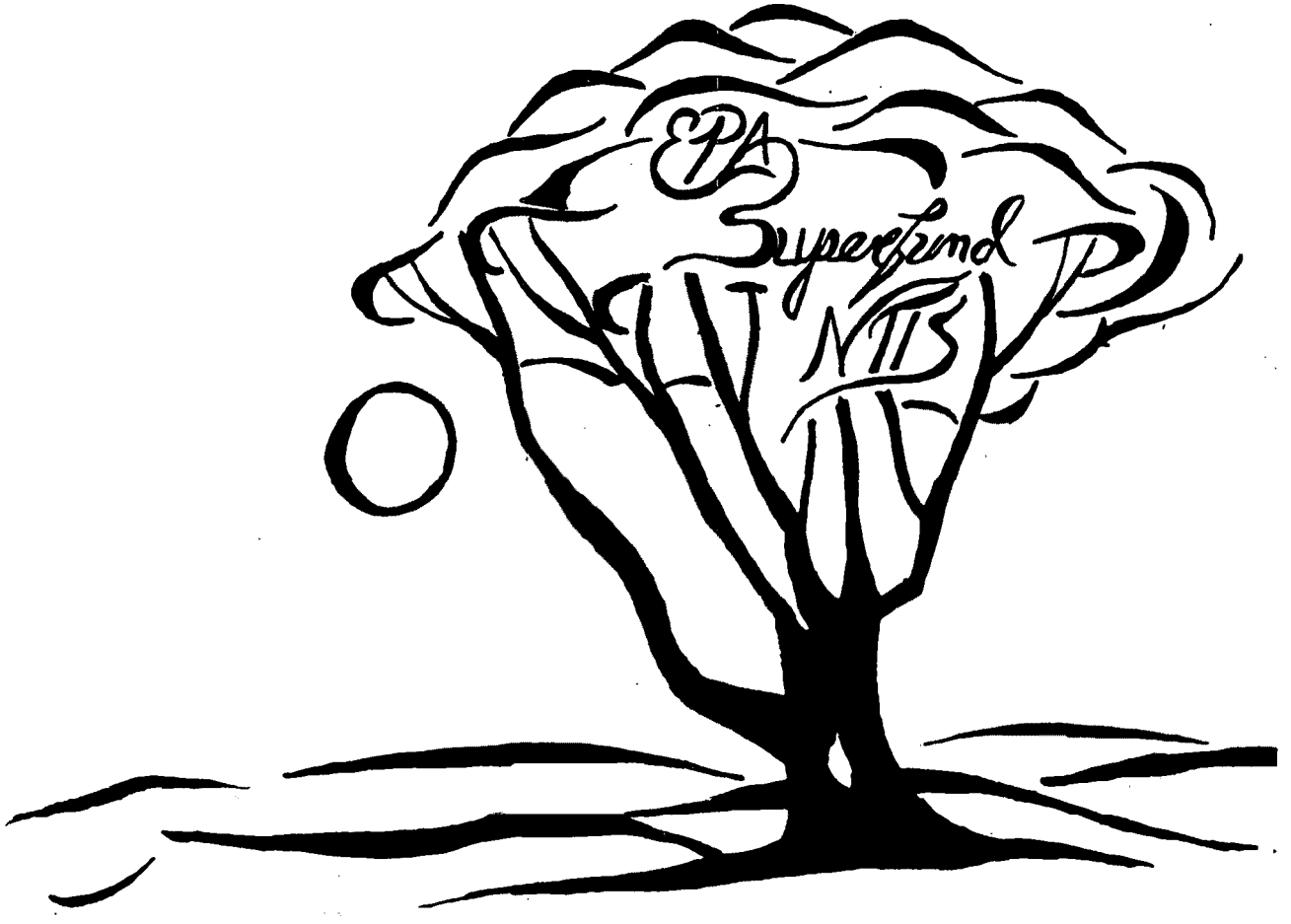
PB94-963839
EPA/ROD/R02-94/234
January 1995

EPA Superfund Record of Decision:

Naval Air Engineering Center (O.U.17) (Site 29), Lakehurst, NJ 9/26/1994



RECORD OF DECISION
FOR
SITE 29 SOIL

NAVAL AIR ENGINEERING STATION
LAKEHURST, NEW JERSEY
August 9, 1994

93-09-10

ROD FACT SHEET

SITE

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

ROD

Date Signed:	September 26, 1994
Remedy:	No Action
Operating Unit Number:	OU-17
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	Landfill - construction debris, metal
Medium	Soil and debris
Origin	From on-base construction/demolition
Est. quantity	1 - 2 acres, buried (to grade)

RECORD OF DECISION
DECLARATION
SITE 29 SOIL
NAVAL AIR ENGINEERING STATION
LAKEHURST, NEW JERSEY

FACILITY NAME AND LOCATION

Naval Air Engineering Station
Lakehurst, New Jersey 08733

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for soil at Site 29 (Original Base Landfill (Inactive)), located at the Naval Air Engineering Station (NAVAIRENGSTA) 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 Deputy Administrator, and the Commissioner of the New Jersey Department of Environmental Protection (NJDEP) concur with the selected remedy.

DESCRIPTION OF THE SELECTED REMEDY

Based on the effectiveness of a prior buried drum removal action, the United States Department of the Navy, the lead agency for this site, has selected the "No Further Action" alternative for Site 29. Groundwater and sediment contamination at this site are currently being remediated through actions documented in previous Records of Decision.

DECLARATION STATEMENT

The United States Department of the Navy and the U.S. Environmental Protection Agency have determined that no additional remedial action is necessary at Site 29 to ensure protection of human health and the environment. The removal action implemented previously at the site, during which drums and surrounding soil containing petroleum hydrocarbons and solvents were removed, eliminating the need to conduct additional actions.

This Record of Decision concerns Site 29. The location of this site within NAVAIRENGSTA is shown in Figure 1. Other areas of concern at NAVAIRENGSTA have been or will be the subject of separate Records of Decision.

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

26 July 94
(Date)

With the concurrence of:

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

26 September 94
(Date)

SITE DESCRIPTION

NAVAIRENGSTA is located in Jackson and Manchester Townships, Ocean County, New Jersey, approximately 14 miles inland from the Atlantic Ocean (Figure 1). NAVAIRENGSTA 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. NAVAIRENGSTA and the surrounding area are located within the Pinelands National Reserve, the most extensive undeveloped land tract of the Middle Atlantic Seaboard. The groundwater ar NAVAIRENGSTA is currently classified by NJDEP as Class I-PL (Pinelands).

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

NAVAIRENGSTA 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 NAVAIRENGSTA 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 NAVAIRENGSTA. Northern tributaries to the Ridgeway Branch include the Elisha, Success, Harris and Obhanan Ridgeway Branches. The southern tributaries to the Black and Union Branches include the North Ruckles and Middle Ruckles Branches and Manapaqua Brook. The Ridgeway and Union Branches then feed Pine Lake; located approximately 2.5 miles east of NAVAIRENGSTA before joining Toms River. Storm drainage from NAVAIRENGSTA 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 NAVAIRENGSTA: Bass Lake, Clubhouse Lake, and Pickerel Pond. NAVAIRENGSTA 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 NAVAIRENGSTA 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.

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

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. NAEC was later renamed the Naval Air Warfare Center Aircraft Division Lakehurst in January 1992 and the Naval Air Engineering Station in January 1994 due to a reorganization within the Department of the Navy.

Currently, NAVAIRENGSTA'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, and maintains product evaluation and verification sites, aviation and other facilities, and support services (including development of equipment and instrumentation) for API systems and other Department of Defense programs. The Center also provides facilities and support services for tenant activities and units as designed by appropriate authority.

NAVAIRENGSTA and its tenant activities now occupy more than 300 buildings, built between 1919 and 1989, totaling over 2,845,00 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, the various operations and activities at the Station 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 NAVAIRENGSTA. The Bomarc Site is the responsibility of the U.S. Air Force and is located on Fort Dix adjacent to the western portion of NAVAIRENGSTA. 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. In 1987 NAVAIRENGSTA was designated as a National Priorities List (NPL) or Superfund site under the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

STATUTORY DETERMINATIONS

NJDEP Soil Cleanup Criteria (SCC) were utilized as guidance to determine the need for cleanup of soil at Site 29. NJDEP SCC include soil cleanup levels for residential and non-residential direct contact scenarios and separate Impact to Groundwater Soil Cleanup Criteria for the protection of groundwater.

The NJDEP SCC are not promulgated requirements; however, these criteria are considered an appropriate screening method for assessing the risk to human health and the environment posed by contaminants found in soil. Therefore, NAVAIRENGSTA has been determining the need for site cleanup based upon NJDEP SCC as well as EPA risk-based levels and other factors, such as aiding the effectiveness and duration of existing groundwater remediation systems.

The soil cleanup criteria provide health based levels for residential use, non-residential use and impact to groundwater (subsurface) land uses and/or impacts. NAVAIRENGSTA has assumed a non-residential land use since its mission and facilities support Naval aviation. The Impact to Groundwater Soil Cleanup Criteria have been utilized since the existing landfill soil cap prevents direct contact exposure and due to the shallow groundwater table at the site and our location in the Pinelands National Preserve (Class I-PL (Pinelands)).

ENVIRONMENTAL INVESTIGATIONS

Phase I of the RI was conducted from 1985 to 1987 to confirm or deny the existence of contamination at reportedly contaminated sites identified during previous studies and to develop recommendations for future (Phase II) investigations. The results of the Phase I RI were presented in a report issued in 1987.

Phase II of the RI was initiated in the summer of 1988 to perform the following:

1. Confirm the results of the Phase I study, and in particular the presence or absence of contamination.
2. Identify the location of contamination.
3. Assess the potential for the migration of contamination.
4. Identify the sources of contamination.
5. Support a Focused Feasibility Study (FFS) and final action at the site.

Following the Phase II investigation which was issued in 1990, Phase III of the RI commenced in the summer of 1991. The purpose of Phase III was to:

1. Confirm the presence or absence of contamination where previous investigations were not definitive.
2. Delineate the lateral and vertical extent of contamination where contamination was found.
3. Collect and evaluate all data for each site to determine risk.
4. Assess the need for remedial action.

The RI for Site 29 included additional investigations and removal actions following the discovery of buried drums at the site in April of 1993. The purpose of the investigations was to:

1. Assess the extent of the buried drums within the former landfill at Site 29.
2. Unearth and remove buried drums and associated contaminated soil for proper disposal.
3. Assess the adequacy of drum and soil removal through collection of post-excavation soil samples.

The Navy determined in January 1994, subsequent to completion of the buried drum removal program, that it had sufficient data based on the RI, and EA to propose the "No Further Action" alternative for soil at Site 29.

The individual site history and summary of past remedial and removal activities at Site 29 are provided in the following section.

Site 29: Original Base Landfill (Inactive)

Site Description and Background:

Site 29 covers an estimated 20-acre area which was once occupied by the original creek bed and marsh land of the Ridgeway Branch (Figure 2). The northern limit of the landfill is defined by a steep embankment, approximately 6 to 10 feet high, adjacent to the wetlands. Based on a review of a topographical map of the NAVAIRENGSTA dated 1919, it is postulated that the southern limit is generally defined by the former southern boundary of the wetlands. The landfill extends as far east as the eastern edge of the Construction Battalion (CB) Compound and as far west as Building 191. The water table in the area is shallow, ranging from approximately 6 to 12 feet, and groundwater flow is to the north/northeast, toward the wetlands and Ridgeway Branch.

The landfill was established and operated by the Public Works Department from the early 1920s until 1960. Following its closure in 1960, the site was graded, covered with natural soil and seeded. A portion of the site is presently covered with vegetation which helps to minimize erosion.

Potential sources of contamination include: Metal scrap and oily turnings from the metal and plumbing shops, asbestos, thousands of fluorescent light tubes, paint thinner and solvent cans from the paint shop, a 55-gallon drum of hydrofluoric acid from the blimp fuel tank clean out procedure, scrap from aircraft wrecks, ash from the station incinerator, mercury, magnesium, benzol solvents, vehicles, blimp gondolas, and contaminated fuels. It was also reported that aircraft dials containing radium dials may have been disposed of at the site.

Summary of Remedial Investigations:

During the Phase II Investigation, five test pits (S29-1 through S29-5) were excavated to verify the existence of landfill wastes and potential soil contamination. The pits were dug to depths ranging from 4.5 to 5.0 feet and one soil sample was collected from each pit. No significant contamination (above NJDEP SCC) was detected in any of the test pits and no debris from the former landfill was discovered. Eight additional test pits were excavated to depths ranging from 2 to 5 feet in conjunction with investigations of Sites 14 (Old Fire Fighting School) and 37 (Former Fuel Disposal and Drum Storage Area) which are located near the borders of Site 29. Debris including scrap metal and wooden 2x4s were discovered only at test pit no. S14-6 located within 50 feet of the northern boundary of the landfill. Debris was also encountered along the northern boundary during the installation of monitoring wells AE, AF, GU and FA.

During the Phase II Investigation, two rounds of sediment samples

were also collected to determine the impact of the landfill wastes on the wetlands located to the north. Sediment samples were collected from: 1) the outfall of the drainage swale which discharges to the Ridgeway Branch; 2) the groundwater seep near the wetlands downgradient from Site 14; and 3) the Ridgeway Branch at the Intersection of Route 547. Analysis of these samples revealed sediment contamination to be limited to the groundwater seep downgradient from the former fire fighting pits located at Site 14. Eight additional sediment samples collected during the Phase III Investigation confirmed these findings. Sediment contamination in this area is considered to be a direct result of the former practices of the former fire fighting pits. During heavy rains, the pits would overflow, spreading soil contaminated with total petroleum hydrocarbons (TPHC), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) north into the area of the groundwater seep as shown on Figure 2. Although some wetlands contamination may be attributed to the Original Base Landfill (Site 29), for streamlining purposes, all sediment and surface water contamination which exists in the wetlands located along the northern boundary of Site 29 has been addressed as "Site 14 sediment and surface water". Sediment and surface water contamination in this area has already been addressed in a Record of Decision (ROD) for Site 14 and specific cleanup levels will be determined through further ecological assessments to be performed pursuant to that ROD.

In addition to this data, groundwater samples from wells within Site 29 were monitored for landfill indicator parameters for the years 1982, 1983, 1984, 1988 and 1991. The landfill indicator parameters were chloride, nitrate, sulfate and fluoride. The data from this monitoring program is presented in the Table 2.1.

Table 2.1 Landfill Leachate Data

Landfill Indicator		Year				
Parameters (mg/l)		1982	1983	1984	1988	1991
Chloride:	Range	5-19	6-24	6-32.8	0-35.6	NA
	Mean	12.1	10.8	13.4	10.3	NA
Nitrite:	Range	.12-5.8	.1-3.2	.1-2.5	0-3810	0-1.9
	Mean	1.6	0.7	0.6	437	0.6
Sulfate:	Range	5-15	8-16	8-50	0-17.9	NA
	Mean	10.1	12.3	21.3	10.4	NA
Fluoride:	Range	.01-0.1	.01-0.1	0.1	0	NA
	Mean	0.07	0.07	0.1	0	NA

The monitoring of landfill indicator parameters at Site 29 revealed generally consistent, low concentrations of the four chemicals. The exception to this general characterization is the elevated level of nitrate detected in some wells during the second round samples of the Phase II Investigation in 1988. Because this was the only sampling period that recorded elevated levels of nitrate and additional sampling performed in 1988 and 1991 did not confirm the high levels, these results are considered erroneous.

The generally low levels of landfill indicator parameters detected and minimal variation in concentration since 1982 suggests that the period of maximum biological activity took place prior to 1982. This information coupled with the lack of chlorinated organic compounds in monitoring wells, exclusive of Site 14, indicate that waste materials buried within the landfill are not contributing significantly to the groundwater contamination.

Summary of Drum Investigation and Removal Actions:

On April 14, 1992, several 55-gallon drums were discovered along the northern boundary of the site during the installation of an influent pipe for the Areas A and B pump and treat facility. One partially buried drum was observed to be approximately half full of a dark mixture. A sample taken from this drum revealed the liquid to contain cadmium, lead, benzene, and 2-methylphenol. On April 15, 1992, a contractor hit and punctured a second buried drum containing heavy oil from this same area. A sample from this drum was found to contain barium, cadmium, lead, benzene, 2-methylphenol, and 4-methylphenol.

On May 7, 1992, a team from the NAVAIRENGSTA Environmental Branch removed more than 40 empty drums, some on the surface, some partially buried, along the tree line that defines the northern boundary of the site. The majority of drums removed were in very poor condition and were completely rusted, crushed and full of holes. Two of these drums were observed to contain an oily/water product. Samples were taken from both drums and analyzed for metals. The results of the analysis revealed low levels of barium, cadmium and lead.

A geophysical survey was conducted in September 1992 to delineate the extent of buried drums at the site. The survey was conducted over the entire accessible area (approximately 18 acres) using an electron magnetometer and ground penetrating radar to identify any subsurface magnetic anomalies (e.g.: buried drums and magnetic landfill wastes). Results of the geophysical survey were presented in a Dames & Moore report titled "Geophysical Investigation Report - Volume II", dated November 6, 1992. The report results revealed anomalous data zones subdivided into four categories (high, moderate high, moderate, and low) which

indicated relative amounts, and/or closeness to the surface, of buried metal. The findings from the survey revealed that the extent of the landfill correlates closely with the limit of the wetlands as they were found to exist on a 1919 topographic map of the site.

Additional investigations were conducted to assess the extent of buried drums due to the fact that the geophysical data did not distinguish buried drums from other buried metal. A field investigation was conducted from December 1992 through January 1993 which consisted of the excavation of 54 test pits (Figure 3). The test pit locations were selected based on the geophysical data. The dimensions of the test pits ranged from 10 to 20 feet in length and 4 to 10 feet in width. The pits were generally excavated either to the depth of the water table or the depth at which drums were first encountered. Detailed results of the investigation were presented in a Dames & Moore report titled "Subsurface (Test Pit) Investigation Report and Work Plan for Additional Actions", dated April 19, 1993. A summary of the findings are as follows:

1) Drums accounted for only a very minor percentage of metallic material encountered in the test pits. Man-made materials encountered in the pits included, but were not limited to: metal cans, metal matting and grating, aircraft and refrigerator parts, gas cylinders, metal fencing, pipes, steel cable, reinforcing bars, concrete, glass jars, bricks, tires, nylon arresting gear straps, and miscellaneous wooden debris.

2) A total of 24 drums/drum fragments were excavated in 11 of the 54 test pits. The drums were encountered primarily in test pits excavated along the northern edge (embankment) within the high and moderate high anomalous zones identified in the geophysical survey. All drums and drum fragments encountered were severely crushed and deteriorated.

3) Soil samples were collected from seven of the pits (T-13, -36, -37, -38, -44, -45, and -47) in which the presence of drums, Organic Vapor Monitor (OVM) readings or visual observations indicated possible contamination. Soil samples were analyzed for Base/Neutral Organic Compounds, TPHC, Toxicity Characteristic Leachate Procedure (TCLP) metals, and TCLP pesticides. Sample analysis revealed elevated levels of TPHC and lead in two test pits (T-37 & T-44) and elevated levels of TPHC and Base/Neutral Organic Compounds in a third test pit (T-47).

4) A groundwater sample was collected from one test pit (T-38) where the groundwater encountered was a green color resembling antifreeze and analyzed for Priority Pollutant Metals. Analysis of the sample revealed elevated levels of antimony, cadmium, chromium, and lead.

5) In addition to encountering drums, evidence of local contamination was noted at Test Pit 15 where a layer of fuel-saturated wood chips and free product on the groundwater was observed.

A source removal effort was conducted from April 21 through June 18, 1993. The objective of the effort was to remove all buried drums and associated contaminated soil from the site and to excavate additional soil at three locations (T-15, -37, and -38) where no drums were encountered but the previous test pit investigation had revealed evidence of soil contamination. Drum removal took place in five general areas of the site, indicated on Figure (3) as Areas I, II, III, IV, and V. Buried drums were unearthed, removed and staged for future testing, classification, and disposal off-base. A total of 417 buried drums were encountered and removed from the site. The condition of the drums was generally poor. Approximately 150 of the drums contained liquids that appeared to range from groundwater to possible solvent and petroleum products. All drums containing liquids were overpacked and staged at the NAVAIRENGSTA Hazardous Waste Transfer Facility for sampling, classification, and disposal in accordance with all federal, state and local regulations. Also, during the soil excavation and drum removal, a total of 26 soil samples and one groundwater sample were collected and analyzed for the parameters indicated in the Drum Removal Area discussions below. The majority of the soil samples collected were post-excavation samples obtained from the lower periphery of excavations for assessing whether all potentially contaminated soil had been removed. In addition, a limited number of biased samples were collected of excavated soil exhibiting visual evidence of contamination. Detailed results of the removal effort were presented in a Dames & Moore Report titled "Drum Removal/Soil Investigation Report". A summary of the findings are as follows:

1) Drum Removal Area I: Drum Removal Area I is located in the area of Test Pits 13, 14, and 16. A total of 65 drums and approximately 500 cubic yards of soil was excavated and staged on site. Most of the drums removed from this area were severely deteriorated, crushed and empty. A small number of these drums were partially filled with liquid. Liquids observed in these drums included groundwater, a clear fluid (possibly solvent), and a dark liquid that appeared to be a petroleum product. All drums containing liquid were overpacked for future sampling and classification. Six post-excavation samples (PE-1 through PE-6) were collected and analyzed for VOCs, SVOCs, Target Analyte List (TAL) metals, and TPHC. No contaminants were found to exceed the NJDEP Impact to Groundwater SCC. Sample results are listed in Table 2.2.

2) Drum Removal Area II: Drum Removal Area II is located in the area near Test Pits 45 and 46. A total of 44 drums and

approximately 400 cubic yards of soil was excavated and staged on site. Most of the drums removed from this area were severely deteriorated, crushed and empty. The few drums excavated that contained liquids were overpacked for future sampling and classification. Three post-excavation samples (PE-7 through PE-9) were collected and analyzed for VOCs, SVOCs, TAL metals, and TPHC. No contaminants were found to exceed the NJDEP Impact to Groundwater SCC. Sample results are listed in Table 2.2.

3) Drum Removal Area III: Drum Removal Area III is located in the area near Test Pit 44. A total of 280 drums and approximately 700 cubic yards of soil was excavated and staged at the site. Although the majority of drums removed from this area were partially crushed, very few were severely deteriorated and many were intact and contained liquid. The types of liquid observed included groundwater, clear liquid (possibly solvent), and various petroleum products. Several drums had markings that indicated the contents to be lubricating oil, hydraulic fluid, and gear oil. All drums excavated from the area that contained liquid were overpacked for future sampling and classification. Floating fuel product was present on the groundwater as a result of the excavation. After completion of the drum removal, the free product was removed from the bottom of the pit. This was accomplished by dredging the bottom of the pit after it dried out following a natural lowering of the water table. Five post-excavation samples (PE-10 through PE-14) were collected and analyzed for VOCs, SVOCs, TAL metals, and TPHC. Analysis of one sample (PE-13) revealed a 1,1,2,2-Tetrachloroethane concentration of 5.50 mg/kg which exceeded the NJDEP Impact to Groundwater SCC along with elevated TPHC (11,000 mg/kg). An additional 40 cubic yards of soil was excavated from this area and two additional samples (29-SS1 and 29-SS2) were collected. Analysis of these samples revealed that all contamination exceeding the NJDEP Impact to Groundwater SCC was removed from the area. The results from samples PE-10, PE-11, PE-12. PE-14, 29-SS1, and 29-SS2 are listed in Table 2.2. The results from sample PE-13 have been omitted from this table since the soil surrounding the sample was excavated and staged for future treatment.

4) Drum Removal Area IV: Drum Removal Area IV is located in the area near Test Pit 15. A total of 21 drums and approximately 180 cubic yards of soil was excavated at the site. Most of the drums removed from this area were severely deteriorated, crushed and empty. The few drums excavated that contained liquid were overpacked for future sampling and classification. Four post-excavation samples (PE-15 through PE-18) were collected and analyzed for VOCs, SVOCs, TAL metals, and TPHC. No contaminants were found to exceed the NJDEP Impact to Groundwater SCC. Sample results are listed in Table 2.2. In addition to the drums removed from this area, approximately 3 cubic yards of contaminated soil containing fuel saturated wood chips identified in the prior test pit investigation was removed, stockpiled on an

impermeable plastic liner and covered for future testing, classification, and disposal off-base.

5) Drum Removal Area V: Drum Removal Area V is located in the area near Test Pit 47. A total of 7 drums and approximately 110 cubic yards of soil was excavated and staged on site. Most of the drums removed from this area were severely deteriorated, crushed and empty. The few drums excavated that contained liquid were overpacked for future sampling and classification. Two post-excavation samples (PE-19 and PE-20) were collected and analyzed for VOCs, SVOCs, TAL metals, and TPHC. No contaminants were found to exceed NJDEP Impact to groundwater SCC. Sample results are listed in Table 2.2.

6) Soil Excavation at Test Pit 37: Soil excavation was conducted at Test Pit 37 due to the fact that samples taken during the prior test pit investigation revealed the presence of TPHC and lead at elevated levels. A total of approximately 45 cubic yards of soil was excavated, stockpiled on an impermeable plastic liner, and covered for future testing, classification and potential disposal off-base. Soil was excavated to the water table at a depth of approximately eight feet below the ground surface. A silver sheen and grayish-green discoloration of the groundwater was noted at this location. One post-excavation sample (TP-37) was collected from the sidewall of the pit immediately above the groundwater and analyzed for VOCs, SVOCs, metals and TPHC. No contaminants were found to exceed the NJDEP Impact to Groundwater SCC. The sample results for TP-37 are listed in Table 2.3. An additional biased sample of a silvery material was collected from the stockpiled soil for TCLP testing (VOCs, SVOCs and metals). Barium was the only contaminant detected in this sample at a concentration of 1.3 mg/l which is well below the 100 mg/l regulatory limit.

7) Soil Excavation at Test Pit No. 38: Soil excavation was conducted at Test Pit 38 due to the fact that during the prior test pit investigation Organic Vapor Monitor (OVM) readings of up to 20 parts per million (ppm) were recorded from soil within the pit. A total of approximately 5 cubic yards of soil was excavated, stockpiled on an impermeable plastic liner and covered for future testing, classification and potential disposal off-base. Soil was excavated to the water table at a depth of approximately eight feet below the ground surface. Groundwater at this location was bright green in color, due possibly to some solidified yellow/green paint which was present in the soil. One post-excavation sample (TP-38) was collected from the sidewall of the pit immediately above the groundwater. Analysis of the sample revealed a concentration of benzene (2.0 mg/kg) exceeding the NJDEP Impact to groundwater SCC of 1.0 mg/kg. Sample results for TP-38 are listed in Table 2.3. Two biased TCLP samples were collected from the stockpiled soil. One (TP-38A) contained the yellow/green paint, and the second contained a crystalline blue

powder-like material. The biased TCLP sample of solidified paint also contained an elevated concentration of benzene (6.1 mg/l). In addition, one groundwater sample (GW-38) was collected from the bottom of the open pit and analyzed for VOCs and ethylene glycol. Analysis of the groundwater sample revealed concentrations of benzene (1400 ug/l) and 1,2-dichloroethene that exceed NJDEP Groundwater Quality Standards for Class I-PL (Pinelands).

On August 24, 1993, monitoring well KB was installed to the immediate north-west of Test Pit 38 to assess groundwater quality in this area. One sample was collected and analyzed for VOCs, SVOCs, pesticides, PCBs, and TAL metals. Both filtered and unfiltered samples were collected for the metal analyses. The results revealed three VOCs, acetone (10.0 ug/l), 1,1-dichloroethane (3.0 ug/l), and 1,1,1-trichloroethane (5.0 ug/l), as shown in Table 2.4. The Class I-PL (Pinelands) criteria was exceeded by 1,1,1-trichloroethane; however, it should be noted that 1,1,1-trichloroethane was also detected in the laboratory method blank and field blank, and may be attributable to laboratory or field contamination of the sample. One SVOC, bis(2-ethylhexyl)phthalate was detected at a concentration of 13.0 ug/l; however, this compound is commonly detected in environmental samples and is likely to be attributable to a laboratory or sampling artifact. Several metals were detected in both the filtered and unfiltered samples that exceed both NJDEP Class I-PL standards and NAVAIRENGSTA average calculated background concentrations. The elevated metals concentrations are likely to be attributable to the high metal content of the landfill in the area where well KB is located. The primary metal of concern from the sample is lead which was detected at 234 ug/l in the unfiltered sample. However, in the filtered sample, the lead concentration was only 8.9 ug/l (below NJDEP Class I-PL standards). No pesticides or PCB's were detected in the sample. Well KB will be monitored for metals and VOCs on a quarterly basis as part of the ongoing Areas A and B groundwater remedial action.

On November 15, 1993, an additional 120 cubic yards of soil and landfill debris was excavated from the area of Test Pit 38 and staged on an impermeable liner. During the excavation, approximately 10 pounds of paint was observed and collected for disposal as hazardous waste. On January 5, 1994, three post-excavation soil samples (29-SS3 through 29-SS5) were collected from the lower periphery of the pit and analyzed for VOCs, B/Ns, TAL metals, and TPHC. Analysis of these samples revealed that all contamination exceeding the NJDEP Impact to Groundwater SCC had been removed from the area. Sample results are listed in Table 2.3.

Following completion of the source removal effort, 21 composite samples were collected from the staged soil piles and analyzed

for Toxicity Characteristic Leaching Procedure (TCLP) hazardous waste parameters and TPHC. The sample results revealed generally low levels of TPHC and no exceedences of either RCRA or NJDEP hazardous waste limits. Soil piles containing less than 1,000 mg/kg TPHC were returned to the excavated areas of the site as fill. Soil piles exceeding 1,000 mg/kg TPHC will be recycled on-site into cold mix asphalt.

Soil recycling will be performed using a portable cold mix bituminous stabilization plant. The plant will mix the petroleum contaminated soil with stone aggregate and a water based asphalt emulsion. The asphalt material produced will be sampled for TCLP hazardous waste parameters to ensure it is not a source of leachable hazardous contaminants. Approximately 1,100 cubic yards of contaminated soil excavated from Site 29 Drum Removal Areas II and III will be recycled.

The asphalt produced by this process will be utilized at the NAVAIRENGSTA for the paving of existing gravel roads and parking lots. The roads and parking lots will consists of a sub-base course, a base course of cold mix asphalt made from the contaminated soil, and a final cap of hot mix asphalt for the wearing course. Soil recycling and road construction operations are scheduled to begin in July 1994 and be completed by September 1994.

Table 2.2 Post Excavation Soil Samples: Drum Disposal Areas (1993)

	NJDEPE SCC(a)	Drum Area I	Drum Area II	Drum Area III	Drum Area IV	Drum Area V
VOC's (mg/kg)						
Ethylbenzene	100	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND-.002J	ND-.003J	ND	ND
Toluene	500	ND	ND	ND-.006J	ND-.002J	ND-.002J
Trichloroethene	1	ND-.002J	ND	ND	ND-.002J	ND
Xylenes	10	ND	ND	ND	ND-.003J	ND-.002J
SVOC's (mg/kg)						
Acenaphthene	100	ND	ND-.100J	ND	ND-.081J	ND
Acenaphthylene	NL	ND	ND-.240J	ND	ND	ND
Anthracene	500	ND-.082J	ND-.590J	ND	ND-.210J	ND
Benzo(a)anthracene	500	.048J-.39	.046J-1.9	ND	ND-.470	.057J-.086J
Benzo(a)pyrene	100	.05J-.57	ND-1.50	ND	ND-.380	.054J-.077J
Benzo(b)fluoranthene	500	.069J-.98	ND-1.70	ND	ND-.440	.061J-.091J
Benzo(k)fluoranthene	500	.063J-.80	ND-1.90	ND	ND-.32J	.066J-.086J
Benzo(ghi)perylene	500	ND-.650J	ND-.950	ND	ND-.11J	ND
Butylbenzylphthalate	100	ND-.055J	ND	ND	ND-.16J	ND
Carbazole	NL	ND-.16J	ND-.270	ND	ND-.11J	MW
Chrysene	500	.068J-.97	.068J-2.20	ND	ND-.490	.074J-.11J
Dibenz(a,h)anthracene	500	ND-.16J	ND-.330J	ND	ND	ND
Fluoranthene	500	.063J-1.7	.08J-4.2	ND	ND-.910	.12J-.17J
Fluorene	500	ND	ND-.340J	ND	ND-.082J	ND
Indeno(1,2,3-c,d)pyrene	500	ND-.640	ND-.930	ND	ND-.280J	ND
2-Methylnaphthalene	NL	ND	ND-.280J	ND	ND	ND
Naphthalene	100	ND-.043J	ND-.210J	ND	ND-.031J	ND
Phenanthrene	NL	ND-1.50	.051J-4.40	ND	ND-.800	.064J-.10J
Pyrene	500	.094J-1.5	.12J-4.6	ND	ND-.590	.09J-.13J
Metals (mg/kg)						
Antimony	NL	ND-11.9J	ND	ND	ND	ND
Arsenic	NL	.61J-1.8J	.50J-2.2J	.33J-1.5J	.68J-1.4J	ND-.57J
Barium	NL	11.9-59.2J	8.5-35.0	ND-3.3	4.1-29.8	8.9-12.8
Beryllium	NL	ND	ND-2.8	ND-.13	.08-.17	.08-.12
Cadmium	NL	1.3J-12.1	.99J-2.6	ND	ND-1.6	ND-1.5
Chromium	NL	3.9-22.5	11.0-87.8	3.1-10.8	3.8-11.5	3.1-5.0
Lead	NL	41.6J-651J	34.1-179J	.94-16.4	3.7-46.7	8.8-19.4
Magnesium	NL	57-495	80.2-1170	ND-36B	61.9-238	8.2-42.4
Manganese	NL	ND-61.0	15.4-156	2.4-10.5	10.7-24.4	12.2-18.4
Selenium	NL	ND	ND	ND-0.37B	ND	ND
Silver	NL	ND-2.3	ND	ND	ND	ND
Vanadium	NL	7.8-68.6	12.3-15.3	2.5-25.1	5.3-13.0	5.4-7.9
Zinc	NL	47.9J-561J	46.3J-256J	3.1B-897J	12.7B-88.5J	52.3J-67.5J
TPHC (mg/kg)	10,000*	109-1150	483-3410	ND-3880	ND-212	ND-287

(a) - NJDEPE Impact to Groundwater Soil Cleanup Criteria.
NL - Not listed in the literature reviewed.
ND - Indicates compound was analyzed for but not detected.
J - Indicates an estimated value due to the sample quantitation limit.
B - Indicates the analyte was also found in the laboratory method blank, field (rinsate) blank, or trip blank.
* - The value listed is not an Impact to Groundwater number but is considered by the NJDEPE to be a total organic "Cap" value.

Table 2.3 Post Excavation Soil Samples: Test Pits 37 and 38 (1993 and 1994)

	NJDEPE SCC(a)	TP-37	TP-38	29-SS3 (1/5/94)	29-SS4 (1/5/94)	29-SS5 (1/5/94)
VOC's (mg/kg)						
Benzene	1	ND	2	ND	ND	ND
Ethylbenzene	100	ND	0.017	ND	ND	ND
1,1,2,2-Tetrachloroethane	1	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND
Toluene	500	ND	30	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND
Xylenes	10	ND	0.052	ND	ND	ND
SVOC's (mg/kg)						
Acenaphthene	100	ND	ND	ND	ND	ND
Acenaphthylene	NL	ND	ND	ND	ND	ND
Anthracene	500	ND	ND	ND	ND	ND
Benzo(a)anthracene	500	ND	0.200J	0.085J	0.200J	ND
Benzo(a)pyrene	100	ND	0.160J	0.077J	0.150J	ND
Benzo(b)fluoranthene	500	ND	0.150J	0.076J	0.170J	ND
Benzo(k)fluoranthene	500	ND	0.150J	0.089J	0.170J	0.044J
Benzo(ghi)perylene	500	ND	0.140J	0.044J	0.076J	ND
Butylbenzylphthalate	100	ND	ND	ND	ND	ND
Carbazole	NL	ND	ND	ND	ND	ND
Chrysene	500	ND	0.170J	0.097J	0.200J	ND
Dibenz(a,h)anthracene	500	ND	ND	ND	ND	ND
Fluoranthene	500	0.050J	0.220J	0.130J	0.320J	0.060J
Fluorene	500	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	500	ND	0.150J	0.048J	0.087J	ND
2-Methylnaphthalene	NL	ND	ND	ND	ND	ND
Naphthalene	100	ND	ND	ND	ND	ND
Phenanthrene	NL	ND	0.084J	0.067J	0.062J	ND
Pyrene	500	0.059J	0.280J	0.160J	0.420J	0.054J
Metals (mg/kg)						
Antimony	NL	ND	ND	ND	ND	ND
Arsenic	NL	6.2J	0.99J	1.5B	1.5B	1.7B
Barium	NL	48.5J	36.7J	12.1	10.3	20.9
Beryllium	NL	0.05	0.06	0.07B	ND	0.07B
Cadmium	NL	3.5J	0.98J	1.3	ND	2.6
Chromium	NL	21.2	14.6	9.7	5.3	14.3
Lead	NL	187J	93.3J	33.2	97.4	68.7
Magnesium	NL	339	926	187 B	127B	3760
Selenium	NL	ND	ND	0.27B	0.26B	ND
Silver	NL	10.1J	ND	ND	ND	ND
Vanadium	NL	ND	11.4	13.0	7.9B	13.6
Zinc	NL	503J	82.2J	52.3	244	62.6
TPHC (mg/kg)	10,000*	186	3410	83	140	100

(a) - NJDEPE Impact to Groundwater Soil Cleanup Criteria.
NL - Not listed in the literature reviewed.
ND - Indicates compound was analyzed for but not detected.
J - Indicates an estimated value due to the sample quantitation limit.
B - Indicates the analyte was also found in the laboratory method blank, field (rinsate) blank, or trip blank.
* - The value listed is not an Impact to Groundwater number but is considered by the NJDEPE to be a total organic "Cap" value.

Table 2.4 Groundwater Sample: Monitoring Well KB (1993)

	NJDEPE Class I-PL (ug/l)	Well KB (ug/l)		Field Blank (ug/l)	Trip Blank (ug/l)
VOC's					
Acetone	NL		10 JB	9 J	7 J
1,1-Dichloroethane	NL		3 J	10 U	10 U
1,1,1-Trichloroethane	1		5 JB	1 J	10 U
Total VOCs (a)			3 J	1 J	ND
Total Est. VOC TICs			ND	ND	ND
SVOC's					
Bis(2-Ethylhexyl)phthalate	30		13	10 U	10 U
Total SVOCs (a)			ND	ND	ND
Total Est. SVOC TICs			23 J	ND	ND
Metals		Filtered	Unfiltered		
Aluminum	200	126 B	21700	49.8	NA
Antimony	20	29.1 UJ	29.1 UJ	29.1 UJ	NA
Arsenic	8	2.2 UJ	7.2 UJ	2.2 U	NA
Barium	200	46.1	168	4.5 U	NA
Beryllium	20	1.4 U	1.4	1.4 U	NA
Cadmium	2	2.6 UJ	71.9	2.6 UJ	NA
Calcium	NL	19600	24600	49.4	NA
Chromium	10	8.8 U	204	8.8 U	NA
Cobalt	NL	3 U	10.1	3.0 U	NA
Copper	1000	21.7 J	389	5.1 U	NA
Iron	100	765	40700	39.6 U	NA
Lead	10	8.9	234	1.9 U	NA
Magnesium	NL	5060	6470	41 U	NA
Manganese	6	95.4	276	2.1 U	NA
Mercury	0.5	0.2 U	0.2 U	0.2 U	NA
Nickel	10	13.8 U	58.7	13.8 U	NA
Potassium	NL	3940 J	4210 B	105	NA
Selenium	10	1.8 UJ	2.2 J	1.8 U	NA
Silver	2	4.9 UJ	30.8 J	5.1 J	NA
Sodium	400	38800	38800	383	NA
Thallium	10	1.3 UJ	1.3 UJ	1.3 U	NA
Vanadium	NL	3.4 U	61 J	3.4 U	NA
Zinc	30	82.6 J	908	8.0 J	NA

Notes:
NL - Not listed in the literature reviewed.
NA - Not analyzed.
U - Undetected (preceded by the method detection limit).
J - Concentration may be unreliable due to deficiencies identified during data validation/review.
(a) - Total concentration provided does not include compounds whose presence is believed to be attributable to laboratory and/or field contamination.

SUMMARY OF SITE ENDANGERMENT

In October 1992, an overall Endangerment Assessment (EA) for NAVAIRENGSTA was conducted; however, it was completed prior to the Site 29 drum investigations. As a result, the EA focuses on the soil around the landfill and not the potential current and future environmental impacts posed by the buried drums and associated contaminated soil. The EA for Site 29 was later revised to include all available data generated during the drum investigations and subsequent removal actions.

The EA summary for Site 29 discusses (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, (4) a summary of the ecological concerns at the site and, (5) a summary interpretation of the EA findings with regard to need for site remediation.

The EA summary for Site 29 does not address groundwater. Groundwater contamination which exists beneath the site is being addressed through a separate interim remedial action. A Record of Decision for that action was signed on March 16, 1992 and requires pumping and treatment of the groundwater in Areas A & B. Groundwater remediation in this area began on October 18, 1993. Removal actions were performed at Site 29 to aid the effectiveness and duration of the groundwater remediation system and it is believed that the remaining soil is not a significant continuing source of groundwater contamination.

The EA summary for Site 29 also does not address sediment and surface water. Sediment and surface water located to the immediate north of the site has already been addressed in a ROD for Site 14. Specific cleanup levels will be addressed through further ecological assessments to be performed pursuant to that ROD.

More complete EA information for Site 29 can be found in Volume VI of the Phase III RI, which is available as part of the NAVAIRENGSTA Administrative Record.

SITE 29: ORIGINAL BASE LANDFILL (INACTIVE)

This is a summary of the Endangerment Assessment (EA) findings for Site 29. Soil is the media of interest at this site.

CONTAMINANTS OF CONCERN

For soil, contaminants of concern included several volatile organic compounds that included aromatics such as ethylbenzene, benzene, toluene, and xylenes, a large number of semi-volatile

organic compounds composed primarily of polycyclic aromatic hydrocarbons, and metals that include antimony, arsenic, barium, beryllium, cadmium, chromium, lead, magnesium, manganese, selenium, silver, vanadium, and zinc.

LAND USE AND EXPOSURE ASSUMPTIONS

For soil a light industrial land use was assumed, by which direct exposure to contaminated soil could occur via incidental ingestion and inhalation.

HUMAN HEALTH, AND ECOLOGICAL RISK AND HAZARD FINDINGS

For soil, hazards resulting from noncarcinogens are not elevated for any chemical above EPA's hazard index criteria value of 1.0. The hazard index values ranged from a minimum of 6.90×10^{-9} for toluene to a maximum of 1.19×10^{-2} for cadmium. Similarly, the overall site soil hazard represented by the hazard quotient or sum of the chemical-specific hazard indices also does not exceed a value of 1.0. The overall hazard quotient estimated for soil is 2.87×10^{-2}.

The risk estimate values posed by carcinogenic chemicals detected within the soil ranged from a minimum of 3.86×10^{-12} for trichloroethene to a maximum of 2.82×10^{-6} for chrysene. The total risk estimated for Site 29 soil is 1.76×10^{-5}. While this level is above the EPA's point of departure of 10^{-6}, it is within the EPA's acceptable risk range of 10^{-4} to 10^{-6}.

ECOLOGICAL ASSESSMENT

Site 29 covers an estimated 20-acre area, a large portion of which is occupied by the CB Compound and the DRMO storage areas. This area is not considered a wildlife habitat and no endangered species were found to exist at or near the site. The contamination which exists in the wetlands directly adjacent to the Site 29 Landfill is being addressed through further ecological assessments associated with the Record of Decision for Site 14.

SUMMARY

In summary, the EA demonstrates that soil surrounding the landfill at Site 29 does not pose a risk to human health or the environment in excess of EPA acceptable levels. Through removal actions, all potential sources of contamination in the form of buried drums were excavated and all contaminated soil exceeding the NJDEP Impact to Groundwater SCC has been removed from the site. The existing landfill soil cap further protects against direct contact with any residual soil contaminants and the operational groundwater treatment system greatly reduces the potential for contaminant migration.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

On April 27 and 28, 1994, a newspaper notification inviting public comment on the Proposed Plan for soil at Site 29 appeared in The Asbury Park Press and The Ocean County Observer. The comment period was held from May 1, 1994 to June 1, 1994. The newspaper notification also identified the Ocean County Library as the location of the Information Repository.

A Public Meeting was held on May 11, 1994. At this meeting representatives from the Navy, USEPA and NJDEP were available to answer questions about the Site and the "No Further Action" determination. A list of attendees is attached to this Record of Decision as Appendix A. Comments received and responses provided during the public hearing are included in the Responsiveness Summary, which is part of this Record of Decision. No written comments were received during the public comment period.

The decision document presents the selected action (i.e., No Further Action) for Site 29 of NAVAIRENGSTA 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 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 environmental investigations conducted show no evidence of any significant contamination remaining at Site 29. No unacceptable risks to human health or the environment exist at the site and no further action is necessary.

SUMMARIES OF SITE CHARACTERISTICS

The location of Site 29 within NAVAIRENGSTA is shown in Figure 1. Additional maps of the site are provided in Figures 2 and 3.

The results of the Remedial Investigations indicate that the soil conditions at Site 29 pose no unacceptable risks to human health and the environment.

RECORD OF DECISION
RESPONSIVENESS SUMMARY
SITE 29 SOIL
NAVAL AIR ENGINEERING STATION
LAKEHURST, NEW JERSEY

The purpose of this responsiveness summary is to review public response to the Proposed Plan for Site 29 Soil. It also documents NAVAIRENGSTA'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 Site 29 is divided into the following three sections:

Overview - This section briefly describes the process to develop and evaluate the appropriate remedial responses for the seven sites, the No Action alternative recommended in the Proposed Plan and any impacts on the proposed plan due to public comment.

Background on Community Involvement - This section describes community relations activities conducted with respect to the area of concern.

Summary of Major Questions and Comments - This section summarizes verbal and written comments received during the Public Meeting and public comment period.

OVERVIEW

Site 29 is located at NAVAIRENGSTA in Ocean County, Lakehurst, New Jersey. The site has been under investigation for potential environmental contamination. This responsiveness summary addresses public response to the Proposed Plan for Site 29 Soil which proposed the "No Further Action" alternative.

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

BACKGROUND ON COMMUNITY INVOLVEMENT

This section provides a brief history of community participation in the investigation and interim remedial planning activities conducted at Site 29. Throughout the investigation period, the USEPA and NJDEP have been reviewing work plans and reports and have been providing comments and recommendations which are

incorporated into the appropriate documents. A Technical Review Committee (TRC), consisting of representatives of the Navy, the USEPA, the NJDEP, the Ocean County Board of Health, the New Jersey Pinelands Commission, other agencies and communities surrounding NAWCADLKE was formed and has been holding periodic meetings to maintain open lines of communication and to inform all parties of current activities.

Prior to public release of site-specific documents, NAVAIRENGSTA's public relations staff compiled a list of local public officials who demonstrated or were expected to have an interest in the investigation. Local environmental interest groups were also identified and included on this list. The list is attached as Appendix B to this Record of Decision.

On April 27 and 28, 1994, the NAVAIRENGSTA Public Affairs Office (PAO) issued a press release to local radio stations and a newspaper notification to The Asbury Park Press and The Ocean County Observer inviting public comment on the Proposed Plan. The public notice summarized the Proposed Plan and the preferred (No Further Action) alternative. The announcement also identified the time and location of a Public Meeting and specified a public comment period, and the address to which written comments could be sent. Public comments were accepted from May 1, 1994 through June 1, 1994.

A Public Meeting was held on May 11, 1994, at 7:00 p.m. at Manchester Township Library, Colonial Drive, Manchester, New Jersey. The site investigations, site evaluation process and proposed remedial alternative (No Further Action) were discussed. NAVAIRENGSTA representatives present included: CAPT Leroy Farr, Commanding Officer; CDR Joseph LoFaso, Public Works Officer; Lucy Bottomley, Supervisory Environmental Engineer; Frank Montarelli, Public Affairs Officer; and Lawrence Lemig, Environmental Engineer. Mr. Jeffrey Gratz, represented the USEPA's Federal Facility Section; Ms. Donna Gaffigan represented the NJDEP's Bureau of Federal Case Management; The complete attendance list is provided in Appendix A to this Record of Decision.

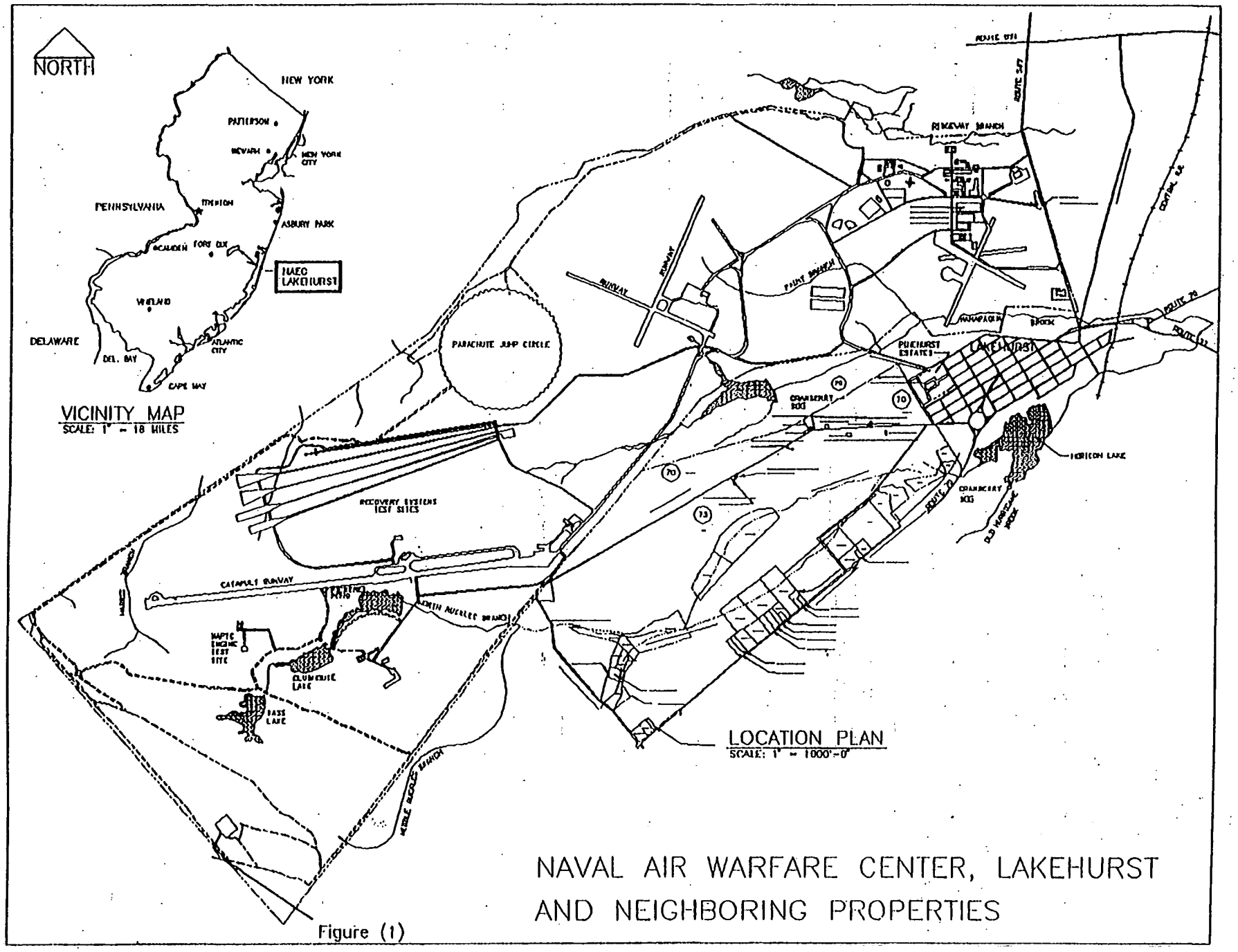
SUMMARY OF MAJOR QUESTIONS AND COMMENTS

Written Comments

During the public comment period from May 1, 1994 through June 1, 1994, no written comments were received pertaining to Site 29.

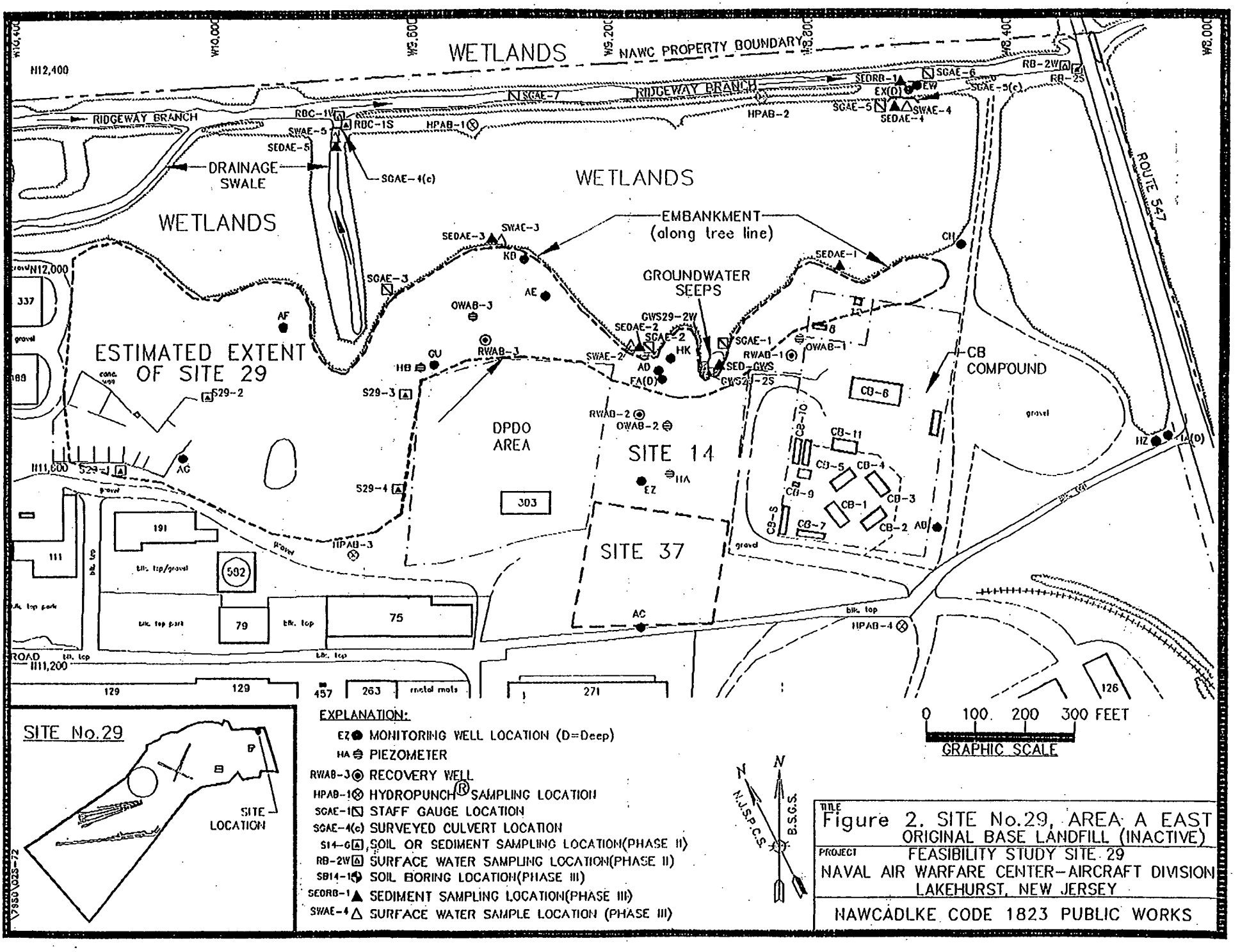
Public Meeting Comments

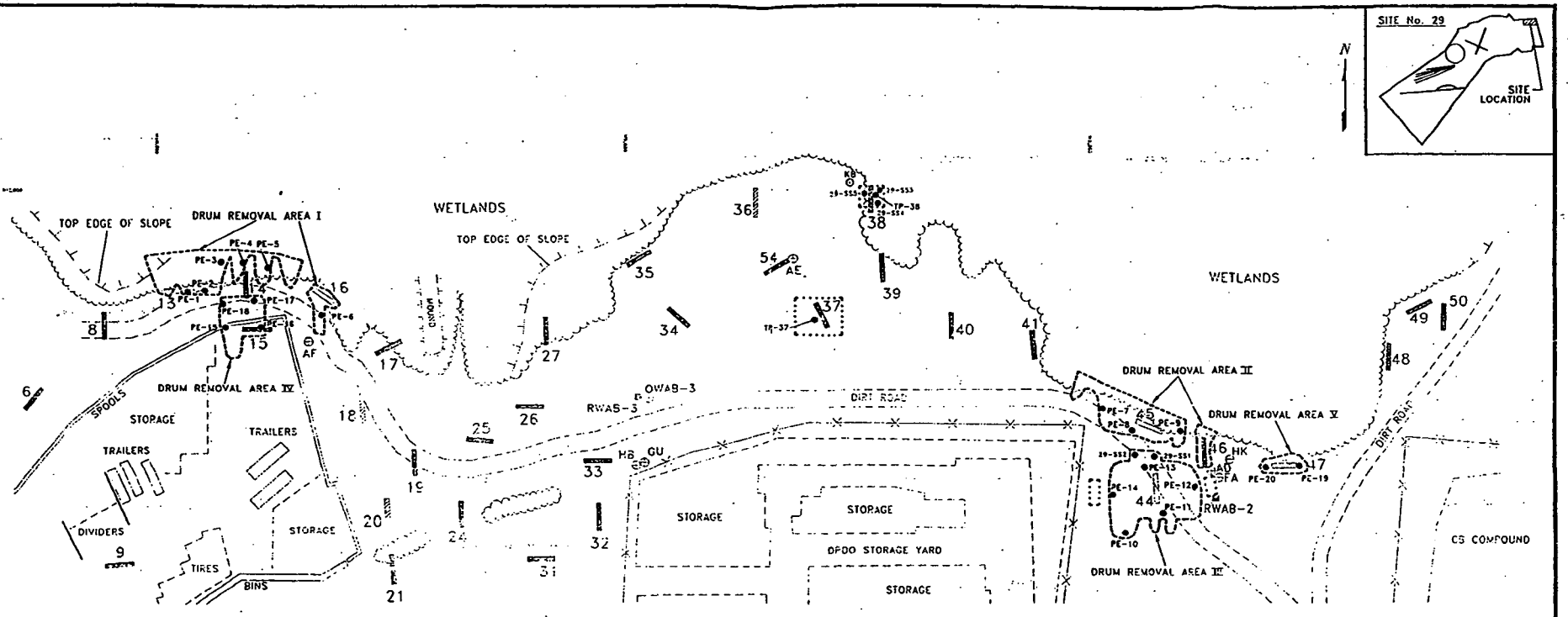
A summary of major questions and comments is contained in Appendix C. A complete transcript of the meeting is available as part of the NAVAIRENGSTA Administrative Record.



NAVAL AIR WARFARE CENTER, LAKEHURST
AND NEIGHBORING PROPERTIES

Figure (1)


WETLANDS
NAWC PROPERTY BOUNDARY
RIDGEWAY BRANCH
DRAINAGE SWALE
EMBANKMENT (along tree line)
GROUNDWATER SEEPS
ESTIMATED EXTENT OF SITE 29
DPDO AREA
SITE 14
SITE 37
CB COMPOUND
ROUTE 547
SITE No.29
SITE LOCATION
EXPLANATION:
EZ MONITORING WELL LOCATION (D=Deep)
HA PIEZOMETER
RWAB-3 RECOVERY WELL
HPAB-1 HYDROPUNCH SAMPLING LOCATION
SGAE-1 STAFF GAUGE LOCATION
SGAE-4(c) SURVEYED CULVERT LOCATION
S14-G SOIL OR SEDIMENT SAMPLING LOCATION(PHASE II)
RB-2W SURFACE WATER SAMPLING LOCATION(PHASE II)
SB14-1 SOIL BORING LOCATION(PHASE III)
SEDRB-1 SEDIMENT SAMPLING LOCATION(PHASE III)
SWAE-4 SURFACE WATER SAMPLE LOCATION (PHASE III)
0 100 200 300 FEET
GRAPHIC SCALE
N.J.S.P.C.S.
B.S.G.S.
TITLE
Figure 2. SITE No.29, AREA A EAST
ORIGINAL BASE LANDFILL (INACTIVE)
PROJECT
FEASIBILITY STUDY SITE 29
NAVAL AIR WARFARE CENTER-AIRCRAFT DIVISION
LAKEHURST, NEW JERSEY
NAWCADLKE CODE 1823 PUBLIC WORKS



KEY:

- AREA OF SOIL EXCAVATION AND DRUM REMOVAL
- AREA OF SOIL EXCAVATION ONLY (NO DRUMS PRESENT)
- PE-7 ● SOIL SAMPLE LOCATION
- 9 EXPLORATORY TEST PIT LOCATION (NO DRUMS ENCOUNTERED)- DECEMBER 1992 TO JANUARY 1993 SUBSURFACE INVESTIGATION
- 16 EXPLORATORY TEST PIT LOCATION (DRUMS ENCOUNTERED)- DECEMBER 1992 TO JANUARY 1993 SUBSURFACE INVESTIGATION
- 36 EXPLORATORY TEST PIT LOCATION (1 TO 3 DRUM FRAGMENTS ENCOUNTERED)- DECEMBER 1992 TO JANUARY 1993 SUBSURFACE INVESTIGATION
- PROPOSED MONITORING WELL LOCATION
- FA EXISTING MONITORING WELL OR PIEZOMETER
- RWAB-2 EXISTING RECOVERY WELL

MAP SHOWING AREAS OF DRUM REMOVAL, SOIL EXCAVATION, AND SAMPLING LOCATIONS
SITE 29 - FORMER (INACTIVE) BASE LANDFILL

NAVAL AIR WARFARE CENTER - AIRCRAFT DIVISION
LAKEHURST, NEW JERSEY

DATE: 8\18\93	JOB NO: 7990-040-176	FIGURE
Dames & Moore, Inc.		3

APPENDIX A

LIST OF ATTENDEES
NAVAL AIR ENGINEERING STATION
PUBLIC MEETING
11 MAY 1994

PUBLIC HEARING, 11 MAY 1994
SITE 29

NAME	ADDRESS
Lucy Bottomley	Island Heights NJ
FRANK MONTARELLI	Toms River NJ
Jeffrey Rubin	Asbury Park Press
JOSEPH LoFASO	NAES LAKEHURST
LARRY LEMIG	TOMS RIVER, NJ
Donna L Gaffigan	NJDEPE
Dorothy Peterson	NAES Lakehurst
Candy Vlace	733 6th Ave, Toms River, NJ
Michael Figura	NAES Lakehurst
JEFF GRATZ	USEPA
Gary R. Fitzgerald	OC Observer
Jill Sarafin	NAES Lakehurst
CAPT Leroy Farr	" "

APPENDIX B

LIST OF CONCERNED PARTIES

updated 6-2-93

APPENDIX B
LIST OF CONCERNED PARTIES

Naval Air Warfare Center- Lakehurst

Captain L. Farr
Commanding Officer
Naval Air Warfare Center
Aircraft Division
Lakehurst, NJ 08733-5000

Mr. Frank Montarelli, Public Affairs
Naval Air Warfare Center
Aircraft Division
Lakehurst, NJ 08733-5000

Commander J. M. LoFaso
Public Works Officer
Naval Air Warfare Center
Aircraft Division
Lakehurst, NJ 08733-5000

Federal Elected Officials

Senator William Bradley (908) 688-0960
1705 Vauxhall Road
P.O. Box 1720
Union, NJ 07083

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

Congressman H. James Saxton (609) 261-5800
100 High Street
Mount Holly, NJ 08060

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

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

State Elected Officials

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

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

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

Assemblywoman Marlene L. Ford (908) 899-1208
2611 Spruce Street
Point Pleasant, NJ 08742

U.S. Environmental Protection Agency Officials

Ms. Laura Livingston (212) 264-6723
Federal Facilities Coordinator
Room 1104
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Mr. Steven Katz (212) 264-2515
Superfund Community Relations Coordinator
U.S. Environmental Protection Agency
Region II
External Programs Division, Room 905
26 Federal Plaza
New York, NY 10278

Other Federal Agencies

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

New Jersey Pinelands Commission

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

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

Ocean County Officials

Mr. Joseph H. Vicari, Director (908) 244-2121
Ocean County Board of Freeholders
P.O. Box 2191
Toms River, NJ 08754

Mr. Joseph Przywara, Coordinator (908) 341-9700
Ocean County Health Department
Environmental Health
2191 Sunset Avenue
Toms River, NJ 08753

Mr. A. Jerome Walnut, Chairman (908) 349-1152
Ocean County Environmental Agency
1623 Whitesville Road
Toms River, NJ 08755

Dover Township Officials

Hon. J. Mark Mutter (908) 341-1000
Mayor of Dover Township
P.O. Box 728
33 Washington Street
Toms River, NJ 08754

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

Manchester Township Officials

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

Mr. Wynn A. Mauer, Chairman
Manchester Township Municipal Utilities Authority
One Colonial Drive
Lakehurst, NJ 08733

Mr. William Jamieson, Jr., Chairman
Manchester Township Environmental Commission
One Colonial Drive
Lakehurst, NJ 08733

Jackson Township Officials

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

Borough of Lakehurst Officials

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

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

Plumsted Township Officials

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

Community Groups and Interested Citizens

Pine Lake Park Association (908) 341-3653
1616 Seventh Avenue
Toms River, NJ 08757

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

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

Ms. Theresa Lettman (609) 893-4747
Pinelands Preservation Alliance
120-34B White Bogs Road
Browns Mills, NJ 08015

Media Organizations

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

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

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

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

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

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

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

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

RADIO

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

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

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

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

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

Mr. Ed Rogers (609) 530-5252
WNJN-TV
1573 Parkside Avenue
Trenton, NJ 08638

APPENDIX C

SUMMARY OF MAJOR QUESTIONS AND COMMENTS

SUMMARY OF QUESTIONS AND ANSWERS
PUBLIC MEETING - SITE 29 SOIL

Question was raised as to whether there was any risk to the public from the contaminated soil. The soil in-place was at depth and therefore did not pose a risk to human health. If a risk assessment was performed on the excavated soil, there may have been a calculated risk, but the soil was staged on the base in a way that there was no risk to the public.

The impact to groundwater was also subject of discussion. It was pointed out that there is a groundwater treatment facility currently running in the area, with recovery wells located adjacent to the drum removal areas.

A reporter wanted to know if the drums found were standard size. They were standard 55 gallon drums.

The same reporter asked if the Navy was conducting an investigation as to who buried the drums. Such an investigation is outside the purpose of the environmental team's mission. However, in the 1950's, 1960's, environmental regulations were not in force and therefore, it may not have been considered an unacceptable practice to bury hazardous waste during that time.

It was asked when the new technology (asphalt batching) will be put in use. The demonstration was scheduled for the day of the meeting but was re-scheduled for the following day. The presenter gave the reporter his work phone number to arrange attendance at the demonstration.

The reporter asked how it is that contaminated soil can be used as road material. It was explained that the contamination makes the soil asphaltic in nature and that road material's normal components consist of oil (petroleum products) in the form of a stable material.

He also asked if the material found in the drums was in the form of oils. The majority of the drums contained oils and a few contained solvents.

He asked if the soil will be used for base roads. The soil will be processed on the base and used for base roads, approximately four miles of roads.

It was explained that the process will use soil from seven contaminated sites on the base and that Site 29 is just one of the seven. The total tonnage of the soil to be processed is around seven to eight thousand tons.