United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-91/157
September 1991

EPA

Superfund Record of Decision:

Naval Air Engineering Center (Operable Unit 4), NJ

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R02-91/157	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Naval Air Engineering Center (Operable Unit 4), NJ Third Remedial Action - Final			5. Report Date 09/30/91 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460			13. Type of Report & Period Covered 800/000 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 7,400-acre Naval Air Engineering Center (NAEC) site, which contains many subsites, is a naval research design and testing facility near the Jackson and Manchester Townships, Ocean County, New Jersey. The site lies within the Toms River Drainage Basin and contains 1,300 acres of flood-prone areas. Land use in the area is part residential and part undeveloped. The estimated 65,400 people who reside within the Jackson and Manchester Townships receive their water from municipal wells. This Record of Decision (ROD) focuses on remediation of Area E (Site 28) within the NAEC site. Currently, Area E features include a former oil storage shed, former paint locker, and five fuel storage containers. From 1957 to 1980, unknown quantities of waste oil, hydraulic fluids, and solvents were discharged in Area E. In 1988, the RI identified elevated VOC levels and floating product, most likely gasoline, in the ground water. Subsequent investigations in 1990 discovered a gasoline leak in an underground pipe, which apparently was the source of ground water contamination. Onsite actions have included repairing the leak and excavating and disposing of 65 cubic yards of visually-contaminated soil. This ROD provides an interim remedy for ground water contamination. Future RODs will address the

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Naval Air Engineering Center (Operable Unit 4), NJ
Third Remedial Action - Final
Contaminated Medium: gw
Key Contaminants: VOCs (benzene, toluene, xylenes), other organics (PAHs)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 64
	20. Security Class (This Page) None	22. Price

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

Abstract (Continued)

remaining contaminated media including a final decision for ground water. The primary contaminants of concern affecting the ground water are VOCs including benzene, toluene, and xylenes; and other organics including PAHs.

The selected remedial action for this interim remedy includes onsite pumping and pretreating ground water using precipitation and filtration to remove metals, solids and residual amounts of free product, and air stripping to remove VOCs; filtering the effluent from the treatment process water using a granular activated carbon polishing filter, and discharging the treated water onsite in a spray irrigation and infiltration system depending on the season; treating air emissions using granular activated carbon; regenerating and disposing of any spent carbon offsite; and disposing of the resultant sludge from the treatment process offsite. The estimated capital cost for this remedial action is $1,000,000, with an annual O&M cost of $100,000 for 3 years.

PERFORMANCE STANDARDS OR GOALS: Chemical-specific ground water clean-up goals are based on State and Federal MCLS.

ROD FACT SHEET

SITE

Name:	Naval Air Engineering Center (NAEC), Lakehurst (OU-4)
Location/State:	Lakehurst, Ocean Co., New Jersey
EPA Region:	II
HRS Score:	49.48
NPL Rank:	Group 4

ROD

Date Signed:	NAEC - Sept. 17, 1991; EPA - Sept. 30, 1991
(Interim) Remedy	Ground water pump and treat system
Capital Cost:	$ 1,000,000
O & M:	$ 100,000
Present Worth:	$

LEAD

Enforcement:	Federal Facility lead, EPA oversight
NAEC Primary Contact:	Lucy Bottomley (908)-323-2612
EPA Primary Contact:	Jeffrey Gratz (212)-264-6667

WASTE

Type:	Gasoline and fuel components (primarily B,T,E,X).
Medium:	Ground water.
Origin:	Pipe leak from above ground tank.

Final
16 September 1991

DECLARATION STATEMENT
RECORD OF DECISION
AREA E - SITE 28

NAVAL AIR ENGINEERING CENTER

FACILITY NAME AND LOCATION

Naval Air Engineering Center
Lakehurst, NJ 08733

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedial action for Area E - Site 28, located at the Naval Air Engineering Center (NAEC) in Lakehurst, New Jersey. The interim 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 Area E.

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 interim remedy.

ASSESSMENT OF THE AREA

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare or the environment.

DESCRIPTION OF THE REMEDY

The selected interim remedial action addresses the principal threat of the migration of a contaminated groundwater plume from Area E by pumping, and treating the groundwater and removing residual amounts of floating free product from the groundwater. The selected remedy for Site 28 (contamination was caused by leakage of gasoline from lines leading from an above ground 300-gallon gasoline tank located near Building 308) includes the following components:

- Groundwater extraction (100 gallon/minute), pretreatment to remove metals, solid and residual amounts of free product from groundwater and treatment by air stripping and carbon adsorption to remove Volatile Organic Compounds (VOCs).

- Effluent water from the air stripper is "polished" by using a Granulated Activated Carbon (GAC) filter to further reduce VOCs and Semi-Volatile Organic Compounds (SVOCs). A GAC air filter is used to treat the emissions from the air stripper.

- Treated water meeting New Jersey Department of Environmental Protection and Energy (NJDEPE) Discharge Effluent Limitations is spray irrigated during temperate weather and infiltrated during winter months over areas of subsurface soil contamination. Irrigation and infiltration will flush and aerate the soil, to increase biological activity and to promote contaminant decomposition.

STATUTORY DETERMINATIONS

This interim action is protective of human health and the environment, and attains action specific Federal and State applicable or relevant and appropriate requirements directly associated with this remedy. Because the scope and role of this action is limited, chemical specific cleanup levels for groundwater will not be addressed during the interim action, but will be addressed during the final remedy for Site 28. This action satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume of hazardous substances, pollutants, and contaminants as a principal element. This action however; does not constitute the final remedy and subsequent actions are planned to fully address the problems posed by this site.

17 Sept 91
(Date)

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

With the concurrence of:

30 Sept 91
(Date)

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

DECISION SUMMARY
RECORD OF DECISION
AREA E - SITE 28
NAVAL AIR ENGINEERING CENTER

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 stream 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 Manapaqua Brook. The Ridgeway and Union Branches then feed Pine Lake 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 center 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. NAEC is bordered to the west by Fort Dix Military Reservation.

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 six percent commercially developed.

In the local 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 28 (Figure 1A and 2) is approximately 2,800 feet from the southern boundary of NAEC. Three non-potable water supply wells (SW-13, SW-14, and SW-15) are present at the site. There is a shallow ground water table at Site 28 at a depth of approximately 7 to 9 feet. Groundwater at the site flows in an easterly direction toward Paint Branch. The Paint Branch, which flows in a southeasterly direction, is located approximately 300 feet northeast of the site. Most of the groundwater flows under Paint Branch in an easterly direction. According to available information (wetland and floodplain delineations by the U.S. Fish & Wildlife Service and the U.S. Army Corps of Engineers respectively) Site 28 is located in an upland area. There are no wetland areas immediately down gradient of the site.

SITE HISTORY

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. 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, 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 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.

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 [illegible]lutant receptors. The IAS concluded that "while none of the sites pose an [illegible]diate threat to human health or the environment, 16 warrant further investigation under the NACIP program, to assess potential impacts". A Remedial Investigation (RI) (Confirmation Study) 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 remediated.

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

Environmental Investigations/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 (Fall 1984), 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 final actions at sites. See Table 1 for a summary of the analytical data for Area E - Site 28.

The following investigations and removal actions were conducted at Area E - Site 28 from 1981 to the present:

PHASE I AND PHASE II INVESTIGATIONS FOR AREA E - SITE 28:

In the early 1980s, two monitoring wells (AN and BU) were installed by NAEC and monitored on a regular basis for the presence of free-floating product. A trace of product was detected in well AN on July 20, 1984. No product was detected in well BU.

During Phase I Remedial Investigation (Fall 84), no contamination was detected in the groundwater samples collected from well BU and well DT, installed downgradient from the site. Low levels of toluene were detected in a groundwater sample collected from supply well SW-15.

During the Phase II Investigation (fall-winter 1988), two rounds of samples were collected from monitoring wells AN, BU and DT, and supply well SW-15. Elevated levels of alkylbenzenes (Benzene, Toluene, Ethylbenzene and Xylenes), typical components of gasoline, were detected in well BU. In addition, low levels of naphthalene and 2-methylnaphthalene were detected in the same well. Total petroleum hydrocarbons (PHC) were detected in the first round sample from well BU at a concentration of 3.54 mg/l. Elevated levels of various tentatively identified compounds (TICs), primarily benzene substitutes, were also detected in well BU. Furthermore, floating product, probably gasoline, was detected in this well. It was suspected that a possible source of the contamination was overflow from and/or spills during the filling of the nearby 300-gallon gasoline tank.

The free product levels in well BU was monitored in January 1990. Readings indicated "trace of product" to 0.34 feet. A soil gas groundwater survey (Figure 3) was conducted on August 6-8, 1990 in the vicinity of well BU to assess the

horizontal extent of VOC contamination, and identify the source of the floating product that was observed in well BU. The results of the soil gas/groundwater survey (summarized in Tables 2 and 3 and depicted in Figure 3 through 12), showed that the soil and groundwater contamination by gasoline components appeared to extend at least 150 feet downgradient (in an easterly direction) from well BU.

On August, 1990, NAEC conducted a preliminary investigation to verify the source of the gasoline that was detected in well BU. A small area of soil was excavated to a depth of about 2 feet along the northwestern side of Building 308 to expose a copper gasoline pipe running from the above ground gasoline tank into the building. A gasoline leak was observed at one of the pipe couplings which apparently was the source of floating product and dissolved contaminants detected in well BU. The leak was repaired and approximately four drums of visually contaminated soil were removed.

During the period August 9 through August 13, and following the completion of the soil gas/groundwater investigation, a series of eight test pits were dug in the area northeast of Building 308 to verify the presence of soil gas contaminants. Based on observations made in these pits, soil was excavated from an area measuring approximately 60 feet long, 20 to 40 feet wide, and 7 to 8 feet deep. During the excavation, about 65 cubic yards of visually contaminated soil were segregated and transferred to a nearby on-site hazardous waste storage area for ultimate disposal at an approved facility. The visually clean soil was stockpiled at the perimeter of the excavation.

In April 1991, the Focused Feasibility Study (FFS) for Area E - Site 28 was distributed to the United States Environmental Protection Agency (USEPA), Region II and the New Jersey Department of Environmental Protection and Energy (NJDEPE), Bureau of Federal Case Management for their review. The Proposed Interim Remedial Action Plan (PIRAP) was finalized by NAEC and approved (final concurrence subject to public meeting and comments) by the EPA on June 14 and the NJDEPE on 21 June 1991. The finalization of the PIRAP and public notification initiated a 30 day public comment period (June 19 to July 19, 1991).

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Area E - Site 28, Proposed Interim Remedial Action Plan was issued to interested parties on June 17, 1991. On June 17-19, a newspaper notification inviting public comment on the FFS and PIRAP appeared in The Asbury Park Press, The Ocean County Observer, and The Advanced News. The comment period was held from June 19 to July 19, 1991. The newspaper notification also identified the Ocean County Library as the location of the Information Repository.

A public hearing was held on June 26, 1991. At this meeting, representatives from the Navy, USEPA and NJDEPE were available to answer questions about Area E and the interim remedial alternatives under consideration. A list of attendees is attached (see Appendix B).

A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision. This decision document presents the selected remedial action for Site 28 of NAEC in Ocean

County, New Jersey, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NCP. The decision for Area E is based on the administrative record.

SCOPE AND ROLE OF RESPONSE ACTION

The remedial objectives consist of medium-specific or operable unit-specific goals for protecting human health and the environment. The remedial action objectives of this response action are removing residual amounts of free product, restricting contaminant plume migration, and collecting data on aquifer and contaminant response to the interim remedial response chosen.

The interim remedy is not a final action for groundwater or soil. This action will be the first operable unit (i.e. the first clean up phase) of the remediation of Area E (Site 28) on the NAEC facility. One or more future RODs will address the ultimate objective which is decontamination to acceptable levels of any contaminated medium, including final remediation of ground water. The interim remedy proposed, however, should be consistent with those objectives.

SUMMARY OF AREA CHARACTERISTICS

Site 28 includes a former disposal area to the northeast side of West Field Hangar 7 (Building 307), a former oil storage shed (Building 536), and a former paint locker (Building 538). Solvents may have also been stored in these two building (Figure 2). The storage shed and paint locker were dismantled and removed in the mid-1980s.

The disposal area has been covered with sand and graded. The original site was about 20 x 20 feet and discolored with lube oil and solvents to a depth of 2 to 3 inches. Similar conditions existed to the north of Hangar 7, by the edge of the blacktop. Unknown quantities of waste oils, hydraulic fluids, and solvents were discharged in this area from about 1957 when the Westfield Hangar was constructed to about 1980. There are currently five above-ground steel storage tanks at the site: (1) a 300-gallon gasoline tank for a standby generator near Building 308; (2) a 200-gallon diesel tank for a standby generator near Building 282; (3) one 300-gallon tank and one 50-gallon diesel tank for standby generators near Building 307; and (4) a 20,000-gallon No. 2 fuel oil tank located near Building 308. All tanks are within secondary containments.

SUMMARY OF SITE RISKS

A baseline risk assessment was not conducted for Area E - Site 28 for the interim remedial action. However, because federal maximum contaminant levels (MCLs), which are generally risked based numbers, have been exceeded for several contaminants, remedial action is necessary. A comprehensive feasibility study and risk assessment will be prepared prior to the initialization of the final remedial action at the site. The risk assessment will consist of hazard identification, a dose-response evaluation, exposure assessment and risk characterization. This interim action is being implemented to stop the migration of the contaminant plume and residual floating product (environmental risk) from Area E towards the Paint Branch, a tributary of the Manapaqua Brook which feeds

Pine Lake, a major recreational body of water in the county. This action will limit exposure risks to natural fauna along the Paint Branch, the Manapaqua Brook and the population using Pine Lake for recreational activities.

Table 1 provides the Historical Summary of Analytical Data for Site 28. The predominant Volatile Organic Compounds (VOCs) found at site 28 consist of the following components of fuel:

benzene
ethylbenzene
toluene
xylenes (total)

The primary semi-volatile organic compounds include:

2-methylnaphthalene
napthalene

Total petroleum hydrocarbons and tentatively identified compounds (TICs), primarily benzene substitutes were also detected in the groundwater at Site 28. Figures 3 through 12 shows the known extent of the contaminant plume at Site 28.

DESCRIPTION OF ALTERNATIVES

ALTERNATIVE 1: NO ACTION

Estimated Construction Cost:	$40,000 (for monitoring well network)
Estimated Net O&M Cost:	$50,000/yr
Estimated Implementation Time Frame:	N/A

This alternative involves no additional interim actions at Site 28 other then groundwater monitoring of the aquifer. No contaminants would be treated or contained and the existing health and environmental risks would remain.

Under this alternative, no further action to control groundwater contamination would be taken. Long-term monitoring of the site can be implemented by using existing monitoring wells, which must be supplemented by additional monitoring wells to create an effective monitoring well network.

ALTERNATIVE 2: GROUND WATER PUMPING, REMOVAL OF FREE PRODUCT, TREATMENT, RECHARGE AND IN SITU SOIL FLUSHING

Estimated Construction Cost:	$1,000,000
Estimated Net O&M Cost:	$ 100,000/yr
Estimated Implementation Time Frame:	9 months
Time frame for operation of system:	3 years - after which a final action for groundwater remediation will be initiated

This alternative involves pumping groundwater from two recovery wells (50

GPM each), treatment and discharge to the aquifer. During the temperate months, the treated effluent, which will meet NJDEPE Groundwater Discharge Effluent Limitations, will be discharged to the aquifer via a spray irrigation system. During the winter months discharge of the treated effluent will occur via an infiltration system. This is necessary since the discharge option will be seasonally dependent upon climatic conditions. It is a design criteria of the recovery system that the infiltrated/irrigated treated water be contained as part of a closed loop groundwater system.

To treat the volatile organic and other contaminants present in the extracted groundwater, a treatment system will be constructed at Site 28. The contaminated groundwater pumped from the recovery wells will enter a tank which will serve as a flow equalizer. The system will consist of: (1) a pretreatment unit for metals, free product and solids removal; (2) air stripping column(s) (99% VOC removal); (3) granular activated carbon air filter for air stripper emissions; and (4) a granular activated carbon polishing filter for residual VOC and semi-volatile removal (99.9% removal of VOCs) from treated groundwater. The extracted free product will be sent to a permitted disposal facility. A schematic representation of Alternative 2 is shown in Figure 2A.

The effluent limitations for the Interim Remedial Action will be established in accordance with the New Jersey Pollutant Discharge Elimination System (NJPDES) Regulations (N.J.A.C. 7:14A-1 et seq.) and the New Jersey Groundwater Quality Standards (N.J.A.C. 7:9-6 et seq.). The effluent limitations (Maximum Contaminant Levels (MCLs) and Safe Drinking Water Act Criteria) will be issued to NAEC in the form of NJPDES Discharge to Groundwater (DGW) Permit Equivalence.

ALTERNATIVE 3: GROUND WATER PUMPING, TREATMENT AND DISCHARGE TO SURFACE WATER

Estimated Construction Cost:	$ 950,000
Estimated Net O&M Cost:	$ 100,000/yr
Estimated Implementation Time Frame:	9 months
Time frame for system operation:	3 years - after which a final action for groundwater will be initiated

This alternative would be similar to Alternative 2, except treated groundwater would be discharged via piping to the Paint Branch instead of being recharged back into the aquifer. Free product would be sent to an offsite permitted disposal facility.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The three alternatives identified above were evaluated using criteria derived from Section 300.430(E9) of the NCP and Section 121 a amended by SARA of 1986. The criteria are as follows:

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

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

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

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

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

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

Cost includes an evaluation of capital costs, annual operation and maintenance costs, and net present worth costs.

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

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

A comparative discussion of the three alternatives on the basis of the evaluation criteria presented above follows.

ANALYSIS OF ALTERNATIVES

Overall Protection - Alternative 2, provides the greatest overall protection of human health and the environment through treatment of groundwater and to some degree soil. Alternative 3, is similar to Alternative 2, except treated ground water is discharged to surface water as opposed to the aquifer. By implementing Alternative 3, water is extracted from the aquifer and disposed of to surface waters, the current overpumpage of the coastal aquifer is exacerbated. Alternative 2 is a closed loop system in which the aquifer is recharged by the treated groundwater. Alternative 1, which offers no soil or ground water treatment is the least protective alternative.

Long-Term Effectiveness and Permanence - Alternatives 2 and 3 are interim actions and intended to be short-term responses. Therefore, the long term effectiveness cannot be addressed. However, if the interim remedial alternative chosen proves to be effective, it will be incorporated and/or modified to become the final remedial action. Alternative 1 provides no treatment and is not considered to be effective.

Reduction of Toxicity, Mobility or Volume - In Alternatives 2 and 3, the vapor and aqueous phase carbon systems will capture by adsorption volatile and semi-volatile compounds, hence the mobility and toxicity of groundwater contaminants will be reduced by the removal of these compounds. Destruction of contaminants will occur during the regeneration of carbon at an off-site facility. Alternative 1 offers no treatment of the contaminated media.

Short-Term Effectiveness - Interim remedial action Alternatives 2 and 3 in the short-term will halt the spread of contaminated ground water and residual amounts of floating product. They will also stop the migration of the contaminant plume and residual amounts of floating product from entering the Paint Branch. Alternative 2 has the added benefit of flushing the soil of some contaminants (in areas where treated water is being recharged) and increasing the hydraulic gradient, thus speeding up the remediation process. In Alternative 3, treated ground water is recharged into the Paint Branch, no soil flushing action takes place. Alternative 1 provides no treatment of soil or groundwater and is not considered to be effective in the short-term because residual risks are not reduced.

Implementability - Alternative 1 offers the greatest implementability followed by Alternative 2, and 3 which involves conventional technologies with proven reliability.

Cost - Alternative 1, the no action alternative, has the lowest associated cost. Alternatives 2 and 3 have a capital cost of about $1,000,000 and O & M costs of $100,000/year. Alternative 3 has a slightly lower capital cost of approximately $950,000 since there is no cost associated with the infiltration system. Instead, there is construction of a piping and pump system from the treatment building to the Paint Branch. O & M cost is the same.

Compliance with ARARs - Action specific ARARs are not applicable to Alternative 1, as the "No Action" Alternative. Alternatives 2 and 3 will comply with action-specific ARARs such as OSHA, RCRA, Endangered Species, Clean Air and Water Acts. State and Federal action and contaminant specific ARARs which include surface water, groundwater and air discharge limitations, as well as hazardous waste handling requirements, will be complied with during the interim remedial action.

Because of the limited focus of this proposed interim action, contaminant-specific clean-up levels for groundwater have not been identified for Alternatives 2 and 3. These levels will be identified and met when a final remedial action is chosen for Site 28. Treatment residuals will be tested to determine whether RCRA Land Disposal Restrictions apply for Alternatives 2 and 3. Location-specific ARARs which will include aquifer and facility groundwater remediation issues will be addressed in the final remedy. The New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Groundwater (DGW) permit equivalence will be applied for to irrigate and infiltrate the treated groundwater. The treated water will meet the NJDEPE Groundwater Discharge Effluent Limitations as set forth in the permit equivalence.

State Acceptance - The preferred alternative (Alternative 2) is acceptable to the NJDEPE.

Community Acceptance - Community acceptance of the preferred alternative has been evaluated on the basis of public comments and is described in the Responsiveness Summary of this Record of Decision.

SELECTED INTERIM REMEDY

The following section describes in detail the interim remedial action plan which the Naval Air Engineering Center, in concurrence with the USEPA and NJDEPE, has selected to implement at Area E - Site 28. This selection is identical to that presented in the Proposed Interim Remedial Action Plan. Because this is an interim action, changes could be implemented during the final design and construction processes. Such changes reflect modifications resulting from the engineering design process and will not substantially change the intent of the selected alternative described herein.

The selected interim remedial action is Alternative 2 - Groundwater Pumping, Removal of Free Product, Treatment, Recharge and In Situ Soil Flushing. This alternative will address groundwater treatment and product extraction simultaneously. The Alternative is cost effective and implements proven technologies.

Groundwater and residual amounts of free product will be extracted via two wells at a rate of 100 gpm. The extracted water will be held in a flow equalization tank and then pretreated to remove metals, free product and solids. The pretreatment system will consist of using a caustic solution and a flocculent to precipitate and settle solids and metals from the contaminated groundwater. The extracted free product will be sent to a permitted off-site disposal facility. NAEC will comply with NJ Hazardous Waste Regulations. The pretreated water will be air stripped to remove 99.0% of VOCs. Due to the transfer of contaminants from the aqueous phase to the airstream, emissions control units will be required on the air strippers. The treatment system, including the emission control unit will be designed to meet the substantive requirements of the New Jersey air pollution control regulations (NJAC 7:27-16). The air and liquid effluent streams from the air stripper will be treated by granulated activated carbon filters prior to discharge. Residual sludge from the pretreatment process will be tested to determine if the waste is hazardous and if RCRA land disposal restrictions are applicable. The waste will be handled accordingly. Spent granular activated carbon will be sent to the vendor for regeneration.

Once treated, the groundwater will meet Federal and State Drinking Water Standards (NJAC 7:14A-1.1 et seq.) including MCLs and Safe Drinking Water Act Criteria which are the discharge effluent criteria for this limited action. Recharge to the aquifer will occur through an irrigation and infiltration system. The treated water will be spray irrigated over areas of subsurface soil contamination. This action will increase biological activity promoting contaminant decomposition.

The groundwater classification for the immediate NAEC area is Central Pine Barrens GW1. The groundwater is suitable for potable water supply, agricultural water supply, continual replenishment of surface waters to maintain

the existing quantity of the surface waters in the Central Pine Barrens, and other reasonable uses. Quality criteria for these waters may be found in N.J.A.C. 7:9-5.6.

The remedial action in the short-term will halt the spread of contaminated groundwater and residual amounts of floating product from entering ecologically sensitive areas.

This interim remedial action will be implemented until the final remedy is selected, designed and implemented. If the interim remedy proves to be effective, it will be incorporated and/or modified to become the final remedial action. The final remedy for the site will address the location specific ARARs for the Pinelands as set forth in N.J.A.C. 7:9-5.6. to the extent that these ARARs are recognized by the USEPA and the NJDEPE.

STATUTORY DETERMINATIONS

Under Section 121 of CERCLA and Section 300.430(F5) of the NCP, selected remedies must meet certain statutory and regulatory requirements. These requirements and a description of how the selected remedy satisfies each requirement are presented below.

Protection of Human Health and the Environment

The selected alternative will protect human health and the environment through treatment of the contaminated groundwater and in situ soil flushing. The treated groundwater will meet New Jersey Department of Environmental Protection and Energy Discharge Effluent Limitations. Residual amounts of floating free product will be extracted and removed to a permitted off-site disposal facility.

The interim remedial action will stop the migration of the contaminant plume and residual amounts of floating product from entering the Paint Branch a tributary of the Manapaqua Brook which feeds Pine Lake, a major recreational body of water in the county. This interim action will in the short-term prevent degradation of the aquifer and limit contaminant exposure risks to the population using Pine Lake.

Compliance with ARARs

The selected remedy will comply with action specific ARARs such as OSHA, RCRA, Endangered Species, Clean Air and Water Acts. State and Federal action specific ARARs pertaining to the discharge of treated water to ground surfaces and groundwater is also addressed and will be complied with during the interim action. Also, treated water will meet Safe Drinking Water Standards prior to spray irrigation and infiltration. A list of ARARs specific to this action is presented in Table 4.

Cost Effectiveness

The selected remedy provides groundwater treatment and removal of residual amounts of floating product through treatment methods that have been proven effective, cost efficient and expected to attain ARARs.

Preference for Treatment as a Principal Element

The principal threats at Area E - Site 28 include ground water and soil contamination and the presence of residual amounts of floating free product associated with the presence of the plume at Area E. The selected remedy satisfies the statutory preference for treatment as a principal element in addressing the human health and environmental threats posed by the site. Groundwater will be treated by air stripping to remove VOCs and polished by granular activated carbon to remove SVOCs and further reduce VOC levels. In situ soil flushing will aerate and enhance biological activity and contaminant decomposition. Residual amounts of floating product will be collected and disposed at an off-site permitted hazardous waste facility. The interim remedy is not a final action for groundwater or soil. The ultimate goal of the final remediation of this area should include decontamination to acceptable levels of any contaminated medium, not just ground water. The selected interim remedy, however, should be consistent with those objectives.

Documentation of Significant Changes

The Proposed Interim Remedial Action Plan for Area E - Site 28 was released for public comment on June 17, 1991. The PIRAP identified Alternative 2 as the preferred alternative. NAEC received one written comment; all verbal comments were responded to at the public hearing on June 26, 1991. Upon review of the comments, it was determined that no significant changes to the interim remedy, as it was originally identified in the PIRAP, were necessary.

RESPONSIVENESS SUMMARY
AREA E - SITE 28
NAVAL AIR ENGINEERING CENTER

The purpose of this responsiveness summary is to review public response to the Proposed Interim Remedial Action Plan for Area E - Site 28. It also documents NAEC's consideration of such comments during the decision making process and provided answers to any major comments raised during the public comment period.

The responsiveness summary for Area E - Site 28 is divided into the following sections:

- o OVERVIEW - This section briefly describes the FFS process used to develop and evaluate interim remedial responses for Area E - Site 28, the interim remedial alternative recommended within the PIRAP and any impacts on the proposed plan due to public comment.
- o BACKGROUND ON COMMUNITY INVOLVEMENT - This section describes community relations activities conducted with respect to the area of concern.
- o SUMMARY OF MAJOR QUESTIONS AND COMMENTS - This section summarizes verbal and written comments received during the public meeting and public comment period.
- o REMEDIAL DESIGN/REMEDIAL ACTION CONCERNS - This section describes public concerns which are directly related to design and implementation of the selected remedial alternative.

OVERVIEW

Area E - Site 28 is located at NAEC in Ocean County, Lakehurst, NJ. Area E is under investigation for potential environmental contamination. This responsiveness summary addresses remediation and public response to the PIRAP for Area E - Site 28 only.

A summary of the site background, the alternatives evaluated, and a comparison of alternatives are presented in the Area E - Site 28 PIRAP and as more fully described in the FFS report. Both documents, as well as other supporting information, are available for public review at the information repository located at the Ocean County Library, 101 Washington Street, Toms River, NJ.

BACKGROUND ON COMMUNITY INVOLVEMENT

This section provides a brief history of community participation in the investigation and interim remedial planning activities conducted at Area E. Throughout the investigation and FFS period, the USEPA and NJDEPE have been directly involved through proposal and project review and comments. Periodic meetings have been held to maintain open lines of communication and to keep all parties abreast of current activities.

Prior to the public release of site-specific Area E 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 included on Appendix A.

On June 17, 1991, NAEC mailed Area E - Site 28 PIRAPs to concerned parties on the list described above. On June 19 a public notice appeared in The Asbury Park Press, The Ocean County Observer, and in The Advance News. The public notice summarized the feasibility study process, the remedial alternatives considered and the preferred remedial alternative. The announcement also identified the time and location of a public comment period, and the address to which the written comments could be sent. Public comments were accepted from June 19 through July 19, 1991.

A public meeting was held on June 26, 1991, at 7:30 p.m. at the Lakehurst Elementary School in Lakehurst, New Jersey. The Area E - Site 28 investigations, feasibility study process and the proposed interim remedial alternative were discussed. NAEC representatives included: Captain David J. Raffetto, the Commanding Officer of NAEC; Charles Mink, Deputy Public Works Department head; Robert Kirkbright, engineering director, Lucy Bottomley, head environmental engineer; Aarti Dalal Reddy, environmental engineer. Jeffrey Gratz, represented the EPA's Federal Facility Section; Ms. Christine Holstrom, represented the NJDEPE's Bureau of Federal Case Management; Mr. Kevin Schick; represented NJDEPE's Division of Hazardous Site Mitigation and Ms. Linda Welkom represented NJDEPE's Division of the Water Resources. See Appendix B for attendance list.

SUMMARY OF MAJOR QUESTION AND COMMENT

During the public comment period June 19 through July 19, 1991 one written comment was received. The questions raised at the public meeting (June 26, 1991) and in the written comment and NAEC's response to these comments are summarized below.

PUBLIC MEETING COMMENTS

Question: Mr. Jados, Environmental Officer, Manchester Township questioned the depth of the groundwater and monitoring well (BU) at Site 28.
NAEC Comment: The water table at the site is approximately 8 feet and the monitoring well was about 15 feet deep, with 10 feet of screen below the water table.

Question: Mr. Bishop, WQMB FM News, questioned if Site 28 was the last site to be remediated on the base.
NAEC Comment: No, Site 28 is not the last site to be cleaned up. There are approximately 20 sites left to be addressed, some of which will be addressed at a public hearing to be held this fall (Fall 1991) and another one in January of 1992. All of the sites will be addressed on 13 January 1993 in the Final Record of Decision.

Question: Mr. Colby, The Observer, questioned if Site 28 is the worst one on base and the threat that Site 28 possessed.
NAEC Comment: Site 28 is similar to the Sites discussed at the last public hearing (October 2, 1990 - Sites 10,16,17 and 32). Site 28 will be undergoing an interim remedial action to halt the spread of contaminant migration. Whether or not this action will be the final cleanup will be determined in the Final Record of Decision.

WRITTEN COMMENTS
Comments from The Pinelands Commission: The Commission has concluded that the preferred alternative, alternative 2, appears to be the most consistent of the three alternatives with the goals and regulations of the Pineland Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et al).

Pineland Comment:

Although it is clearly stated in the PIRAP that the cleanup levels proposed during this action are not the final cleanup levels, the final remediation must propose to achieve a treatment level of non-detectable if you are going to propose aquifer recharge through infiltration or irrigation.

NAEC Comment: NAEC agrees with the Pinelands Commissions goal of non degradation and specifically section 6-803 subpart C of the New Jersey Pinelands Comprehensive Management Plan, which permits water quality that meets Potable Water Standards of the State of New Jersey. It is NAEC's intent to strive and use the Best Available Technology to treat water to meet non detectable levels during the final treatment.

Pinelands Comment: Pinelands Protection Act (N.J.S.A. 18A-1 et al) and the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et al) should be addressed as location specific ARARs.

NAEC Comment: These will be addressed in the final action for the site (and they are incorporated here in Table 4) to the extent that they are recognized by the EPA and the NJDEPE.

Pinelands Comment: Prior to the construction and implementation of the remedial measure an application must be filed with the Commission so as to obtain either a Certificate of Filing or a Public Development approval which are required to the issuance of all other necessary permits. In addition to the application form, a site plan (specific to Area A should be prepared showing all existing developments and any wetlands that are within 300 feet of the proposed development.

NAEC Comment: NAEC does not have to obtain permits for remediation of Superfund Sites according to CERCLA. A lengthy permitting process is not in the best interest of the public since the goal of any interim remediation process is to stop an immediate threat of contaminant plume migration. A wetlands delineation of the whole Naval Base is in the process. NAEC will submit the delineation to the Pinelands Commission. No wetlands are within 300 feet of the proposed treatment building in Site 28.

TABLE 1

HISTORICAL SUMMARY OF ANALYTICAL DATA - SITE 28

Pre-1985	Phase I Remedial Investigation	Phase II Remedial Investigation
No data collected	**Groundwater**	**Groundwater**
	Volatile Organic Compounds (ug/l)	Volatile Organic Compounds (ug/l)
	Toluene: ND - 10.2	Toluene: 590 - 5,100 Benzene: 100 - 330 Ethylbenzene: 130 - 1,100 Xylenes: 990 - 12,000
		Semi-Volatile Organic Compounds (ug/l)
		Naphthalene: 67 - 120 2-Methylnaphthalene: 29 - 1,300
		Miscellaneous (mg/l)
		Petroleum Hydrocarbons: ND - 3.54
	Soil	**Soil**
	No data collected	Semi-Volatile Organic Compounds (ug/kg)
		Phenanthrene: ND - 90 Fluoranthene: 40 - 110 Pyrene: ND - 80 Benzo(a)anthracene: ND -0 40 Chrysene: ND - 50
		Metals (mg/kg)
		Beryllium: 40 Cadmium: 10
		Miscellaneous
		Petroleum Hydrocarbons: ND - 226.73 ug/g
	Sediment	**Sediment**
	No data collected	Metals (mg/kg)
		Cadmium: 50.9

TABLE 2

CONTAMINANT CONCENTRATIONS IN SOIL GAS
SITE 28 (WESTFIELD HANGAR)
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

		Concentration (ug/l)				
Sample Location	Sample Depth (ft)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons
1	5	<0.02	500	<0.3	6	6,100
2	6	<0.06	<0.07	<0.08	<0.09	<0.3
3	6.5	<0.02	<0.03	<0.03	<0.04	<0.01
4	6	<0.2	14	<0.3	<0.4	240
5	6.5	<0.02	<0.03	<0.03	<0.04	<0.1
6	6	<0.02	<0.03	<0.03	<0.04	<0.1
7	6	<0.01	<0.01	<0.02	<0.02	<0.06
8	6.5	<0.01	<0.01	<0.02	<0.02	0.1
9	6.5	<0.01	<0.01	<0.02	<0.02	<0.6
10	6.5	<0.02	<0.03	<0.03	<0.04	<0.1
11	6	<0.06	0.6	<0.08	<0.09	12
12	6	<0.01	<0.01	<0.02	<0.02	<0.06
13	6.5	16,000	9,100	<3	1,500	140,000
14	10	<0.01	<0.01	<0.02	<0.02	0.09
15	6.5	<0.01	<0.01	<0.02	<0.01	0.08
16	6	<0.02	<0.02	<0.02	<0.02	0.4
17	6.5	<0.02	<0.02	<0.02	<0.02	0.2
18	6	<0.02	<0.02	<0.02	<0.02	0.1
19	6.5	<0.01	<0.01	<0.02	<0.01	0.1
20	6.5	<0.01	<0.01	<0.02	<0.01	<0.05
21	6	<0.01	<0.01	<0.02	<0.01	<0.05
22	6	<0.01	<0.01	<0.02	<0.01	<0.05
23	6	<0.01	<0.01	<0.02	<0.01	<0.05
24	6.5	3,700	1,700	<3	80	28,000
25	6.5	8,000	2,700	<3	230	110,000
26	6	<0.01	<0.01	<0.02	<0.01	<0.05
27	6	400	180	<3	8	5,600
28	6	<2	24	<3	<3	1,000
29	6	<0.01	<0.01	<0.02	<0.01	<0.05
30	6.5	230	100	<3	<3	3,300
31	6	<2	56	<3	<3	3,100
32	6.5	<0.02	<0.02	<0.03	<0.03	<0.1
33	6.5	<0.01	<0.01	<0.02	<0.01	<0.05
34	6	<0.01	<0.01	<0.02	<0.01	<0.05
35	6	310	220	3	5	6,100
36	6.5	<0.01	<0.01	<0.02	<0.01	<0.05
37	6.5	<0.01	<0.01	<0.02	<0.01	<0.05
38	6	<0.01	<0.01	<0.02	<0.01	<0.05
39	6.5	<0.01	<0.01	<0.02	<0.01	<0.05

TABLE 3

CONTAMINANT CONCENTRATIONS IN GROUNDWATER

SITE 28 (WESTFIELD HANGAR)

NAVAL AIR ENGINEERING CENTER

LAKEHURST, NEW JERSEY

		Concentration (ug/l)				
Sample Location	Sample Depth (ft)	Benzene	Toluene	Ethylbenzene	Xylenes	Total Petroleum Hydrocarbons
1	8	570	180	<1	57	5,400
2	7	8,100	9,500	<25	3,300	76,000
10	10	<0.1	<0.1	<0.1	<0.2	<0.5
10	8	<0.1	0.6	<0.2	0.8	10
11	7	8,800	5,600	<25	4,600	27,000
13	6.5	76,000	37,000	<25	17,000	1,000,000
24	7	47,000	35,000	<25	17,000	410,000
25	8	14,000	10,000	<25	7,300	78,000
26	10	<0.1	<,0.1	<0.1	<0.2	<0.5
26	8	0.3	1	<0.2	0.6	2
28	7	37	60	<0.2	4	1,500
31	7	30	42	<0.3	2	770
32	9	<.3	2	<.3	3	4
35	7.5	350	260	<25	61	7,200
36	6.5	0.3	0.6	<0.2	0.6	2
40*	6.5	38,000	29,000	<25	20,000	540,000
41*	7	0.3	2	<0.2	6	8
42*	9	<0.2	0.6	<0.2	0.7	2

*Locations at which only groundwater samples were collected

TABLE 4
LIST OF ARARS

Only Action-specific ARARS which include surface water, ground water, and air discharge limitations as well as hazardous waste handling requirements, wetland and floodplain requirements will be complied with during the interim remedial design. Contaminant specific clean up levels will be addressed in the final remedy.

The interim remediation activities at Area E (Site 28) will primarily address ground water and residual floating product. Identification of Federal Action-Specific ARARs applicable to the interim remedial alternatives chosen are:

Occupational Safety and Health Act (OSHA) (29 CFR 1910, 1926, 1904): ARARs for workers and workplace throughout the implementation of hazardous activities.

Resource Conservation and Recovery Act (RCRA) (40 CFR 264.10-.77): Potential ARARs for alternatives utilizing treatment, storage or disposal actions (Note: permits not required for on site actions)

RCRA (40 CFR 264.90-.101): Groundwater protection. Groundwater monitoring/corrective action requirements; dictate adherence to MCLs and establishes points of compliance.

RCRA - Part 263 (40 CFR 263.10-.31) and Hazardous Materials Transportation Act (49 CFR 170, 171): Transporter Requirements. ARARs for alternatives involving shipment of hazardous materials or wastes.

RCRA - Part 268 (40 CFR 268): Land Disposal Restrictions. Potentially pertains to spent carbon filters and sludge from pretreatment process. Wastes will be tested to determine if they are hazardous waste under RCRA.

Clean Air Act (40 CFR 50): ARARs for alternative which involve treatments which impact ambient air.

Clean Water Act (40 CFR 401): NPDES Permit Requirements. Requirements for point source discharge to surface waters. Potential ARARs which will affect the implementability of remedial action involving effluent discharge to the Manapaqua Brook.

Clean Water Act (40 CFR 404): Prohibits actions that impact a wetland unless no other alternatives are available.

Identification of State Action-Specific ARARs are as follows:

NJ Hazardous Waste Regulations (NJAC 7:26): Permitting, Contingency Plans, Specification for Treatment/Disposal Units. Potential ARARs for alternatives which involve the treatment, storage or disposal of hazardous wastes.
NJ Clean Water Act (NJAC 7:14A-1.1 et seq.): NJPDES Water Quality Toxic Effluent Limitations. ARAR for alternative involving treatments which discharge effluents to surface water.

NJ Pollutant Discharge Elimination System (NJAC 7:14A-1 et seq.): Permit Requirements. ARAR for alternatives involving treatments which discharge

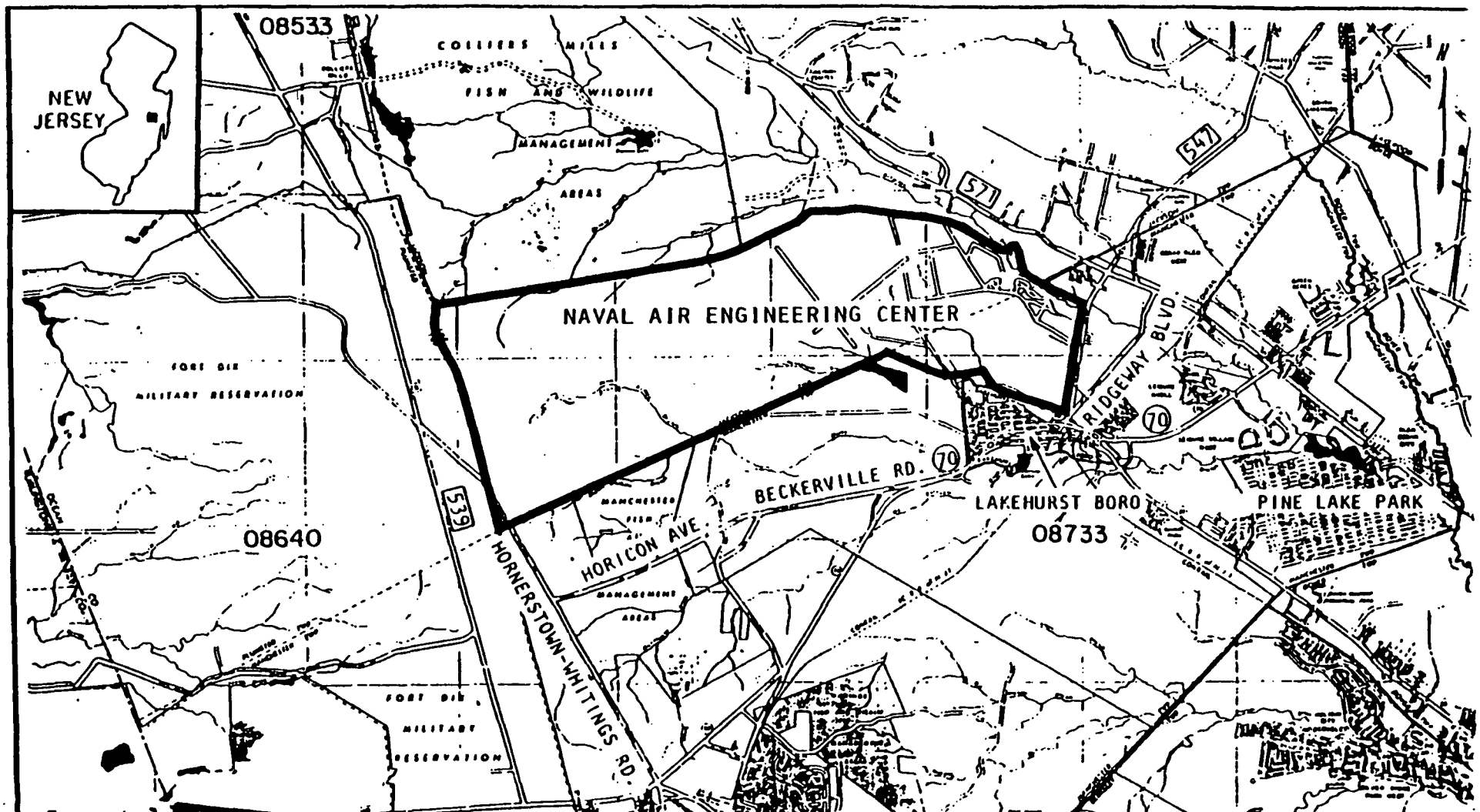
effluent to ground surfaces.

NJ Surface Water Regulations (NJAC 7:9-5.1): ARARs for alternatives involving treatment which discharge toxic pollutants to area water bodies.

NJ Air Pollution Control Regulations (NJAC 7:27-16): Permits and Emission Limitation for VOCs. ARARs for alternatives for treatments which impact ambient air.

Endangered Species Action (16 USC 1531): Consultation will be undertaken with the Fish and Wildlife Service to determine if the remedial action will adversely affect endangered species in the area.

The Pinelands Protection Act (N.J.S.A. 18A-1 et al) and the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et al).



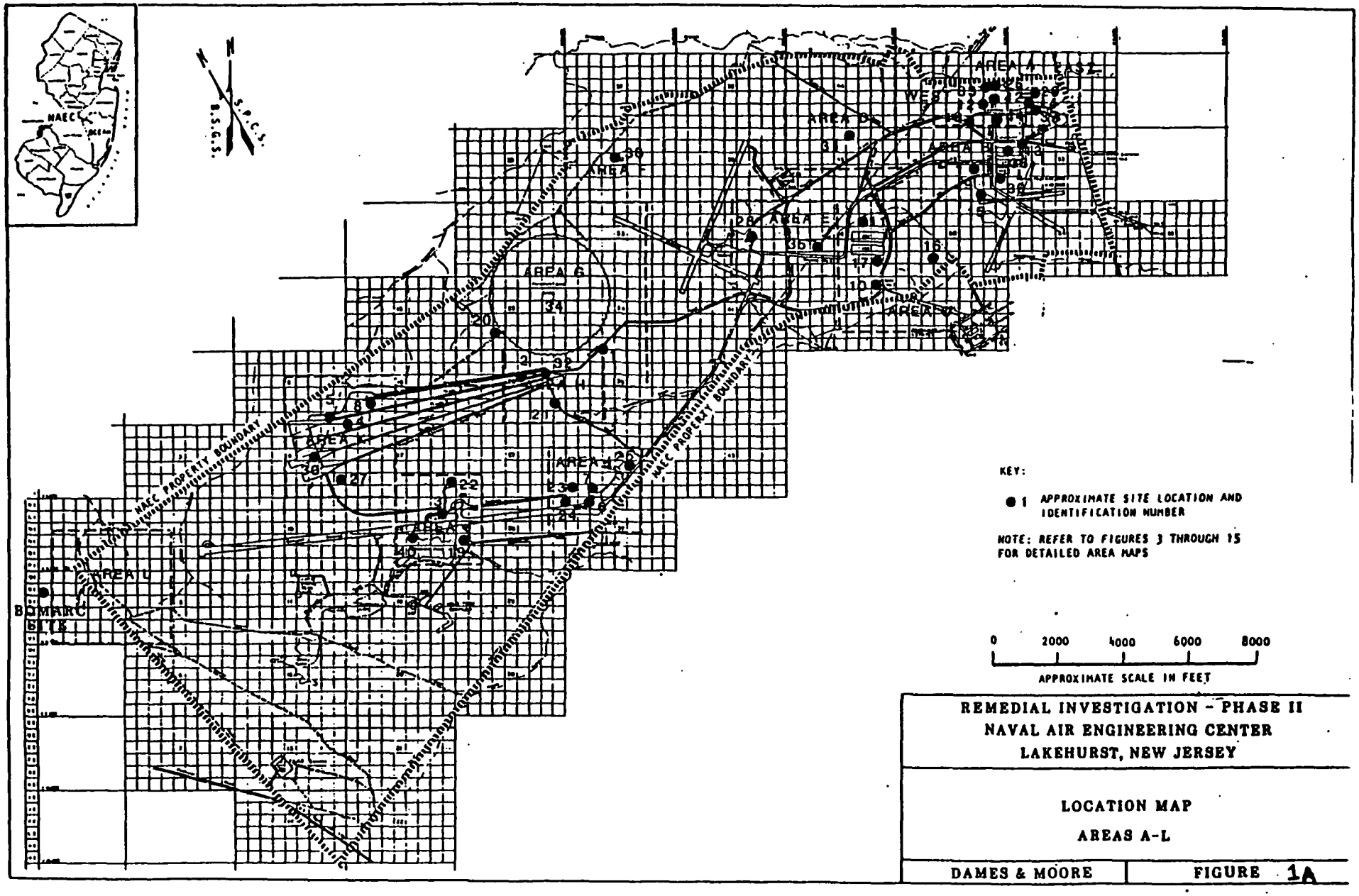
VICINITY MAP

NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

0 1 2 3
APPROXIMATE SCALE IN MILES

REFERENCE: HANGSTROM MAP
OF OCEAN CO., N.J.

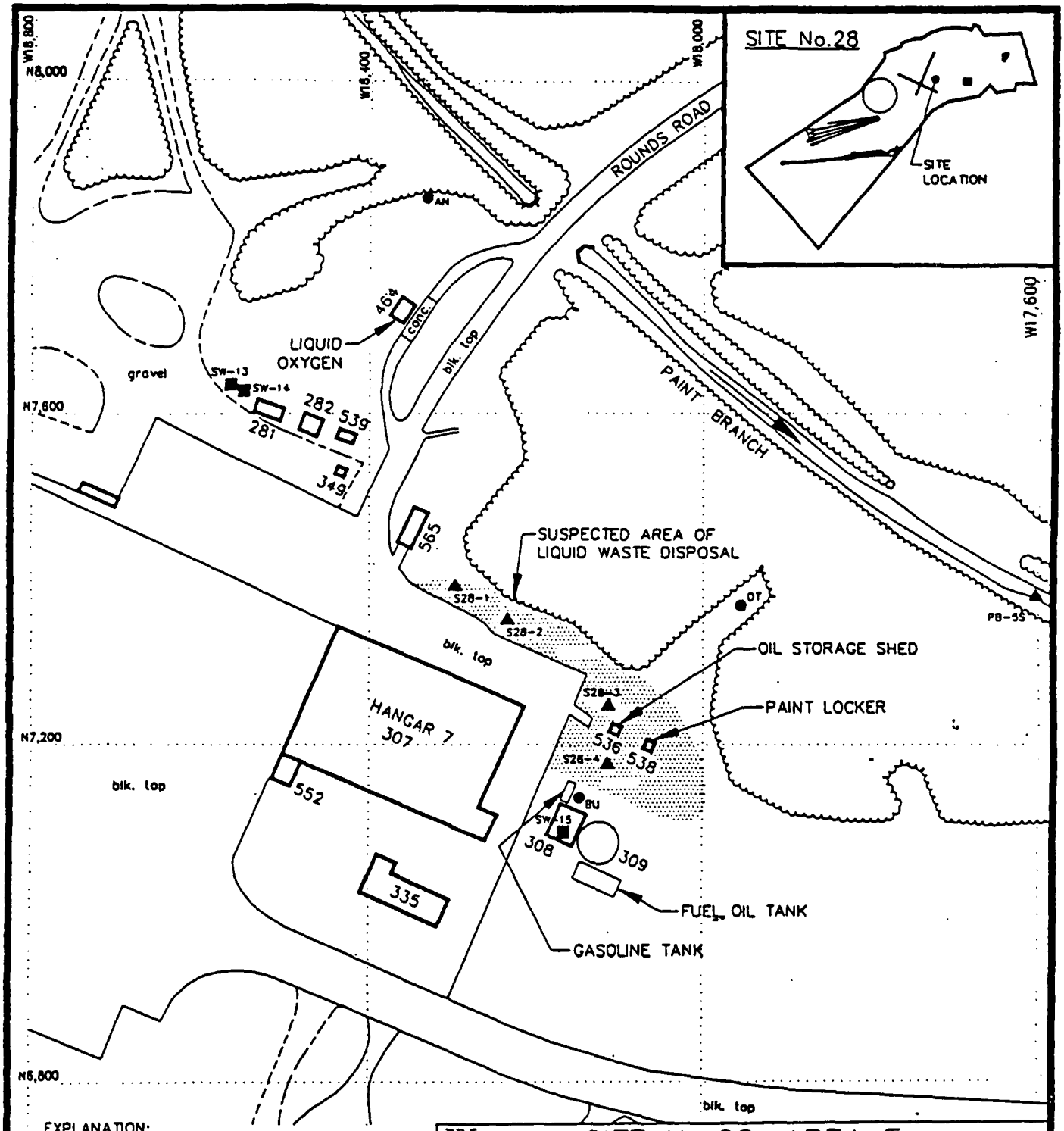
FIGURE 1



REMEDIAL INVESTIGATION - PHASE II
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

LOCATION MAP
AREAS A-L

DAMES & MOORE | FIGURE 1A



EXPLANATION:

BU ● MONITORING WELL LOCATION

S28-4 ▲ SOIL OR SEDIMENT SAMPLING LOCATION

SW-15 ■ SUPPLY (NON-POTABLE) WELL LOCATION

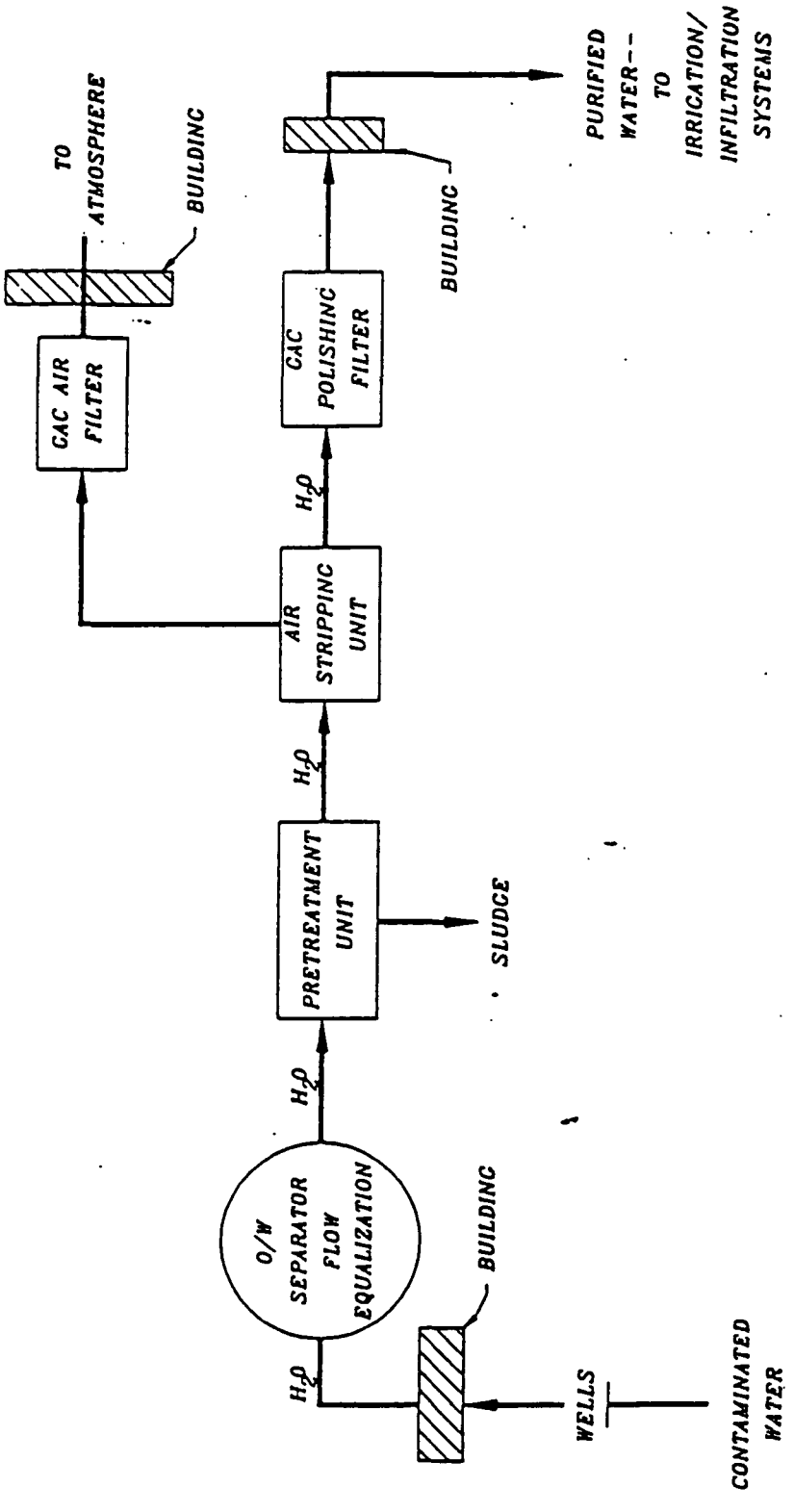
0 50 100 150 200 FEET

GRAPHIC SCALE

N.J.S.P.C.S. N B.S.G.S.

TITLE	SITE No.28, AREA E WEST FIELD HANGAR AREA		
PROJECT	REMEDIAL INVESTIGATION – PHASE II NAVAL AIR ENGINEERING CENTER LAKEHURST, NEW JERSEY		
	Dames & Moore CRANFORD, NEW JERSEY		
SCALE AS NOTED	DWN. BY R.G.B.	JOB NO. 7980-013	
DATE 8-8-90	APPR. BY C.I.T.	FIG. NO. 2	

LNJ-328 (4)



PRETREATMENT:METALS, SOLIDS REMOVAL
AIR STRIPPING UNIT:VOC REMOVAL - 99%
CAC POLISHING FILTER:RESIDUAL VOC REMOVAL
CAC AIR FILTER:VOC REMOVAL FROM EXHAUST AIR

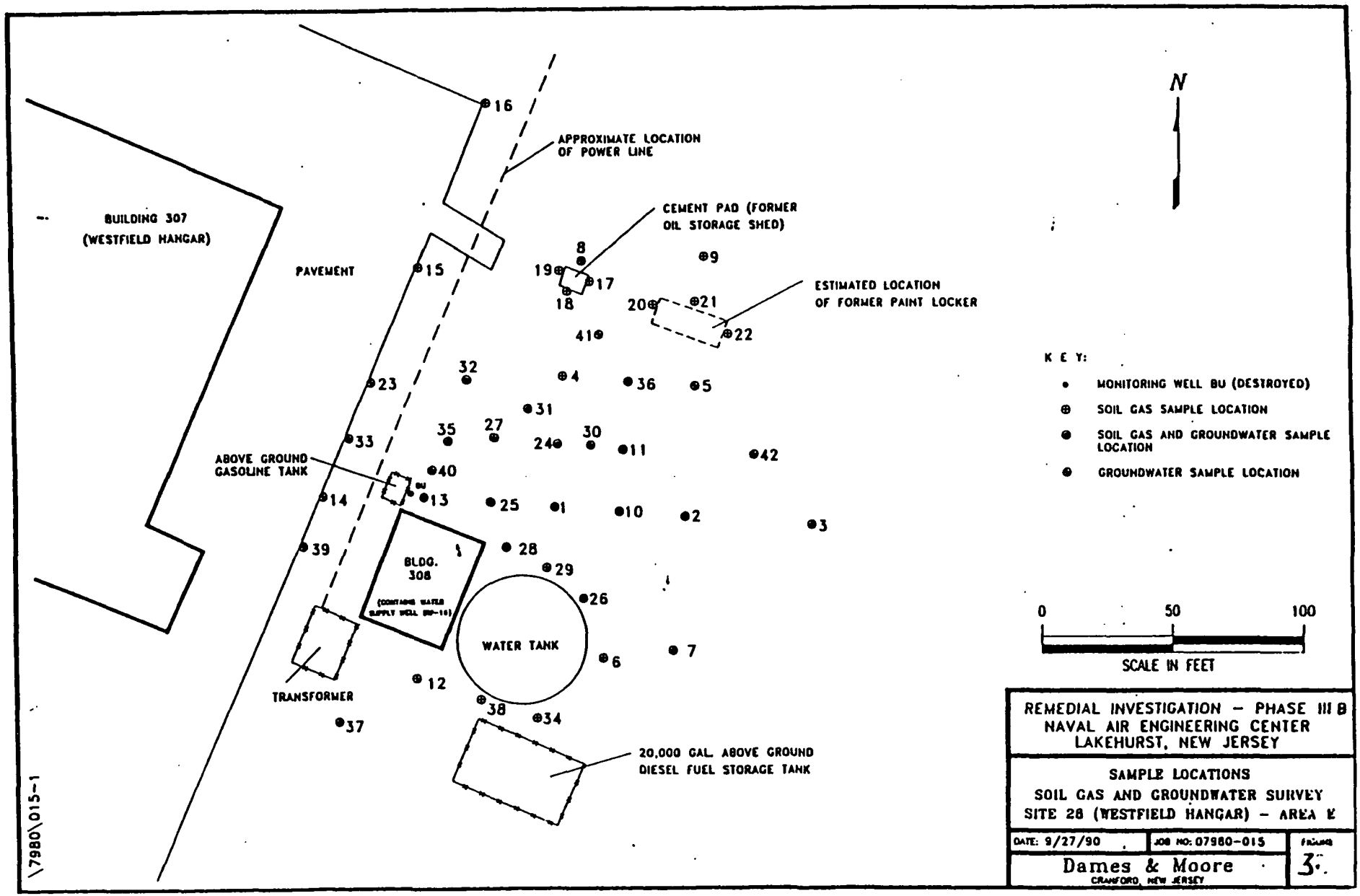
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

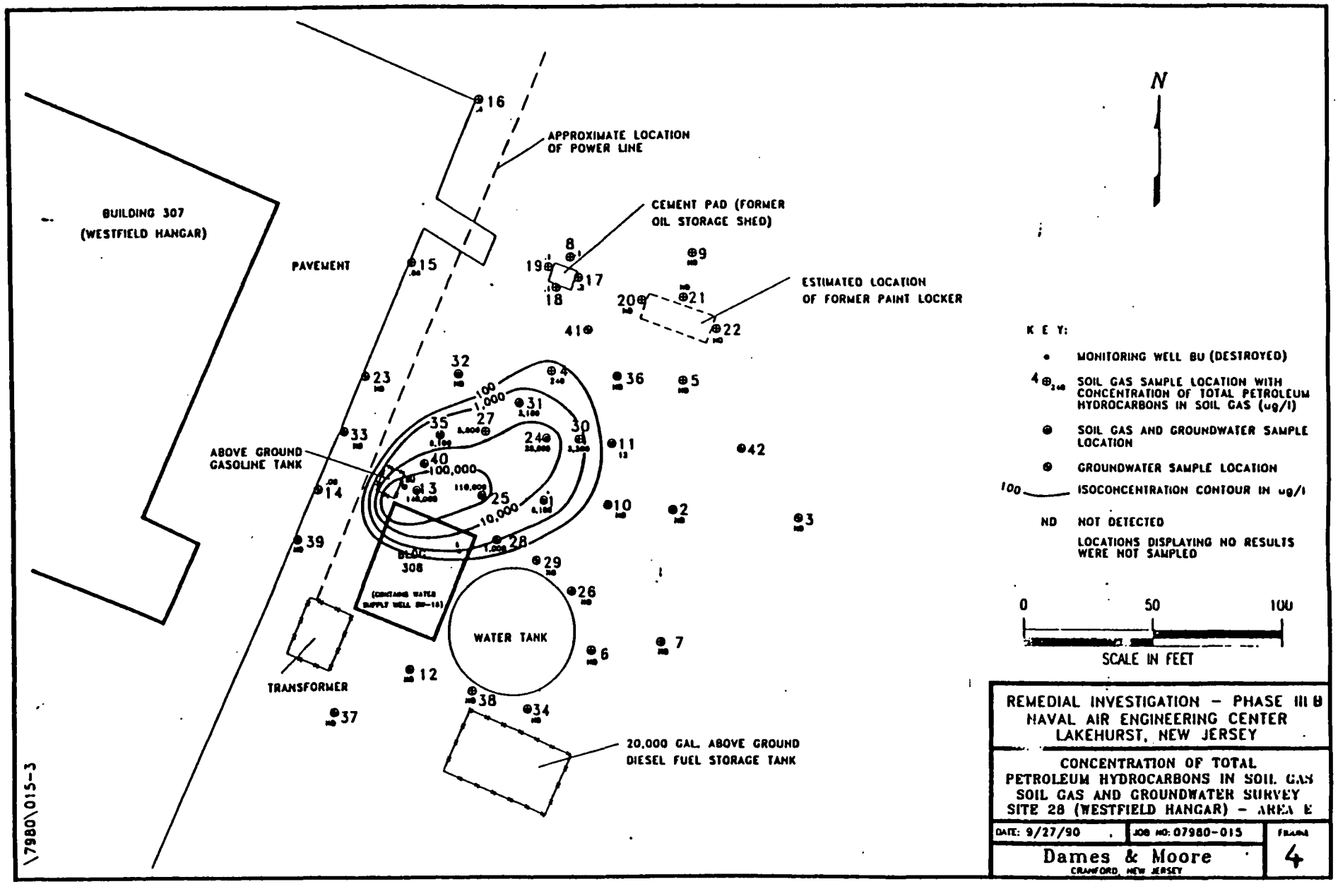
ALTERNATIVE #2

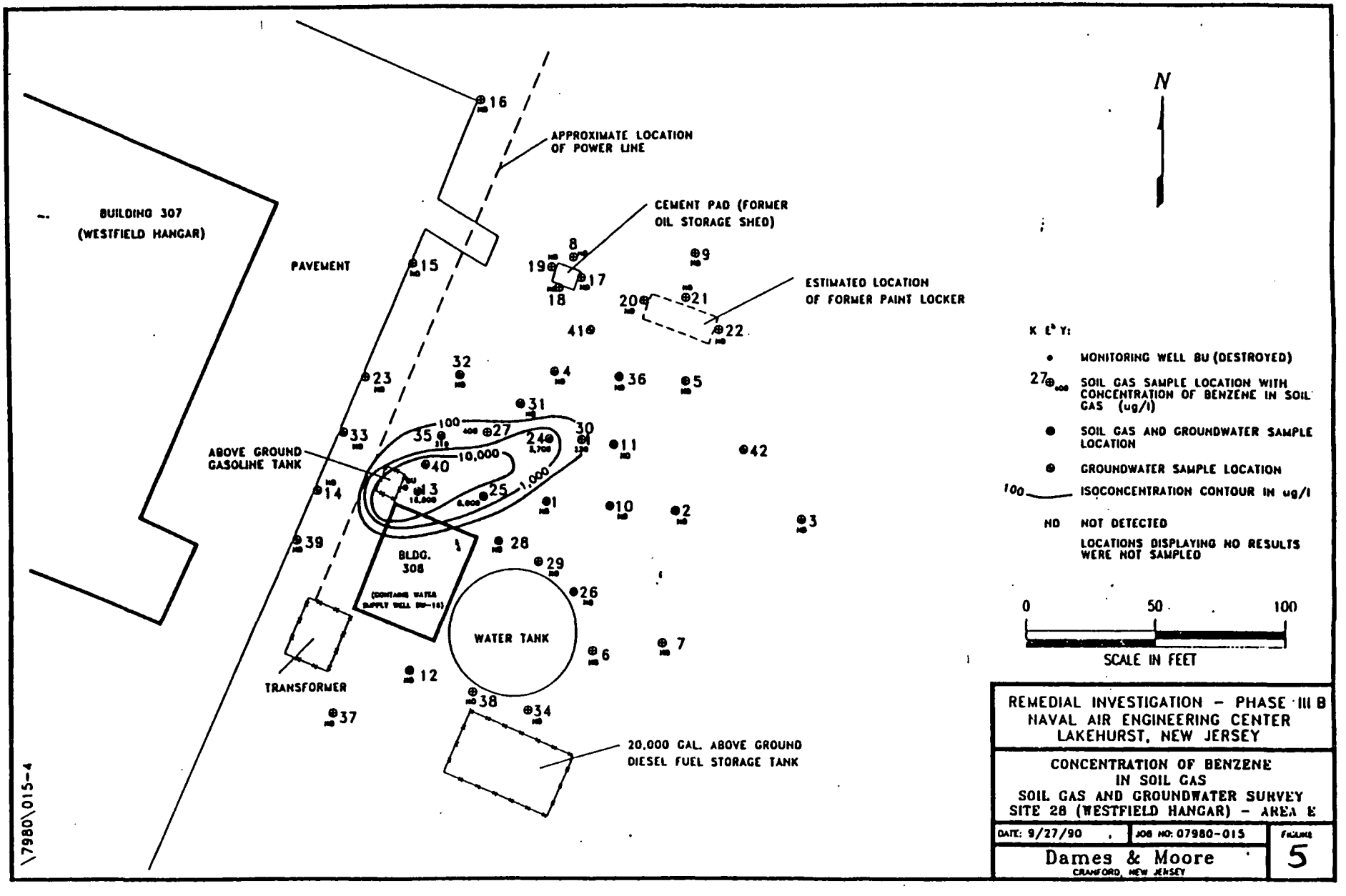
Dames & Moore
CRANFORD, NEW JERSEY

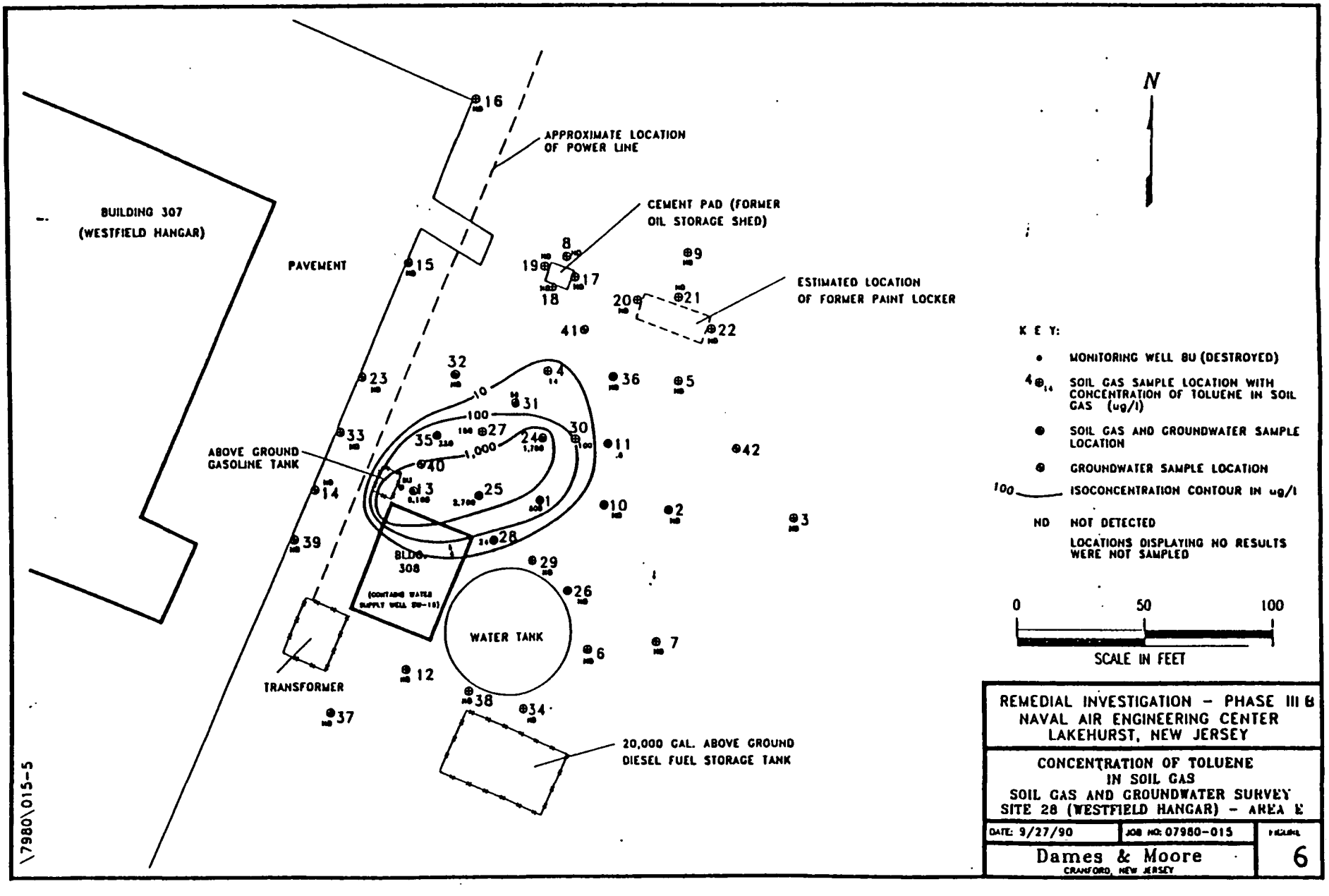
FIGURE 2A

\7980\024-1


N
BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION
OF POWER LINE
CEMENT PAD (FORMER
OIL STORAGE SHED)
ESTIMATED LOCATION
OF FORMER PAINT LOCKER
ABOVE GROUND
GASOLINE TANK
BLDG.
308
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND
DIESEL FUEL STORAGE TANK
16
15
8
19
17
18
9
20
21
22
41
32
4
36
5
23
31
35
27
30
24
11
42
33
40
14
13
25
1
10
2
3
39
28
29
26
7
6
12
38
34
37
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION
SOIL GAS AND GROUNDWATER SAMPLE LOCATION
GROUNDWATER SAMPLE LOCATION
0
50
100
SCALE IN FEET
REMEDIAL INVESTIGATION – PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
SAMPLE LOCATIONS
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) – AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE
3
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-1


BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION OF POWER LINE
CEMENT PAD (FORMER OIL STORAGE SHED)
ESTIMATED LOCATION OF FORMER PAINT LOCKER
ABOVE GROUND GASOLINE TANK
BLDG. 308
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND DIESEL FUEL STORAGE TANK
100
1,000
10,000
100,000
N
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION WITH CONCENTRATION OF TOTAL PETROLEUM HYDROCARBONS IN SOIL GAS (ug/l)
SOIL GAS AND GROUNDWATER SAMPLE LOCATION
GROUNDWATER SAMPLE LOCATION
ISOCONCENTRATION CONTOUR IN ug/l
ND NOT DETECTED
LOCATIONS DISPLAYING NO RESULTS WERE NOT SAMPLED
0 50 100
SCALE IN FEET
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
CONCENTRATION OF TOTAL PETROLEUM HYDROCARBONS IN SOIL GAS
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE 4
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-3


N
BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION
OF POWER LINE
CEMENT PAD (FORMER
OIL STORAGE SHED)
ESTIMATED LOCATION
OF FORMER PAINT LOCKER
ABOVE GROUND
GASOLINE TANK
BLDG.
308
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND
DIESEL FUEL STORAGE TANK
100
1,000
10,000
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION WITH CONCENTRATION OF BENZENE IN SOIL GAS (ug/l)
SOIL GAS AND GROUNDWATER SAMPLE LOCATION
GROUNDWATER SAMPLE LOCATION
ISOCONCENTRATION CONTOUR IN ug/l
ND NOT DETECTED
LOCATIONS DISPLAYING NO RESULTS WERE NOT SAMPLED
0
50
100
SCALE IN FEET
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
CONCENTRATION OF BENZENE
IN SOIL GAS
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE
5
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-4



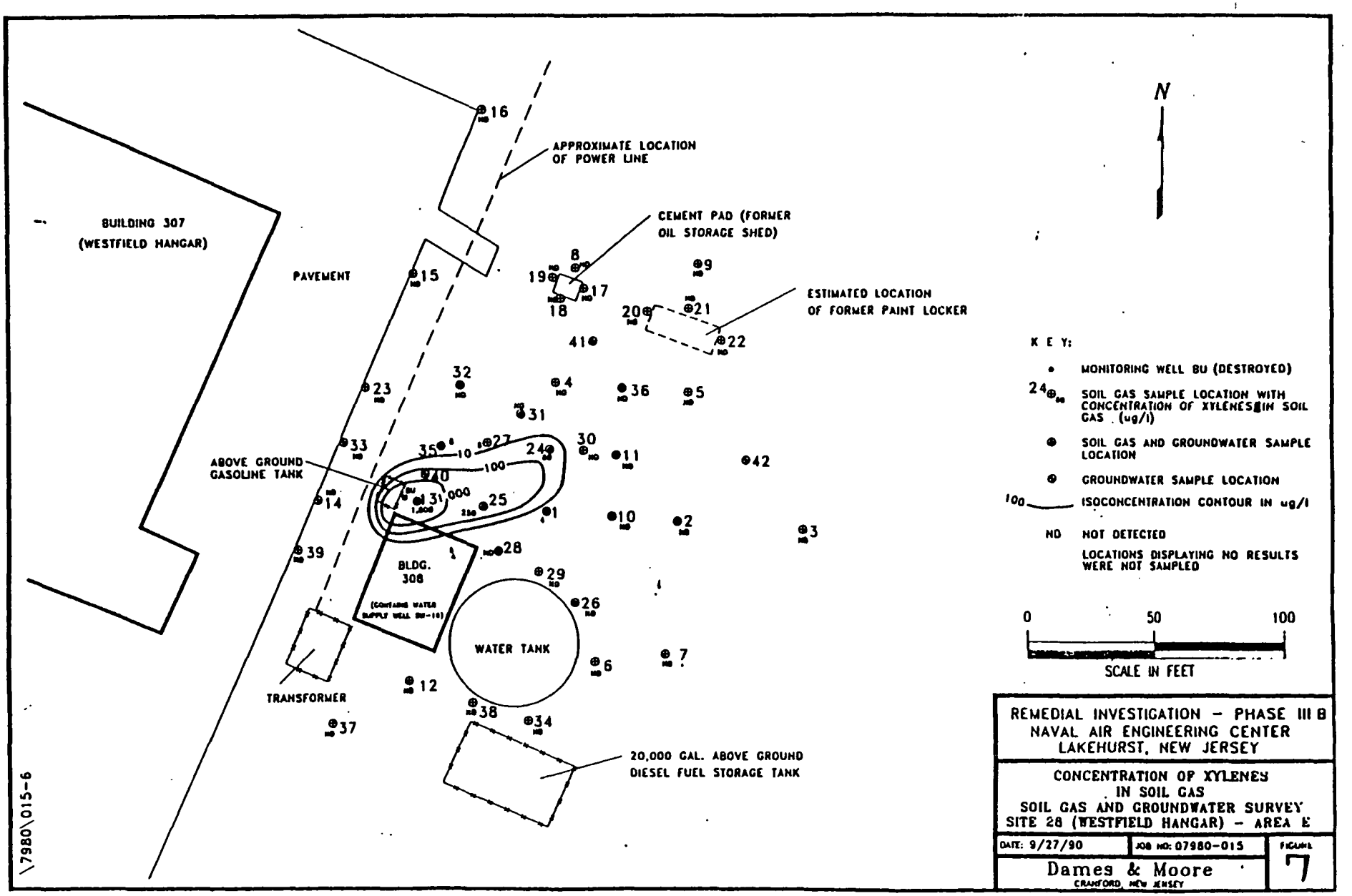
REMEDIAL INVESTIGATION – PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

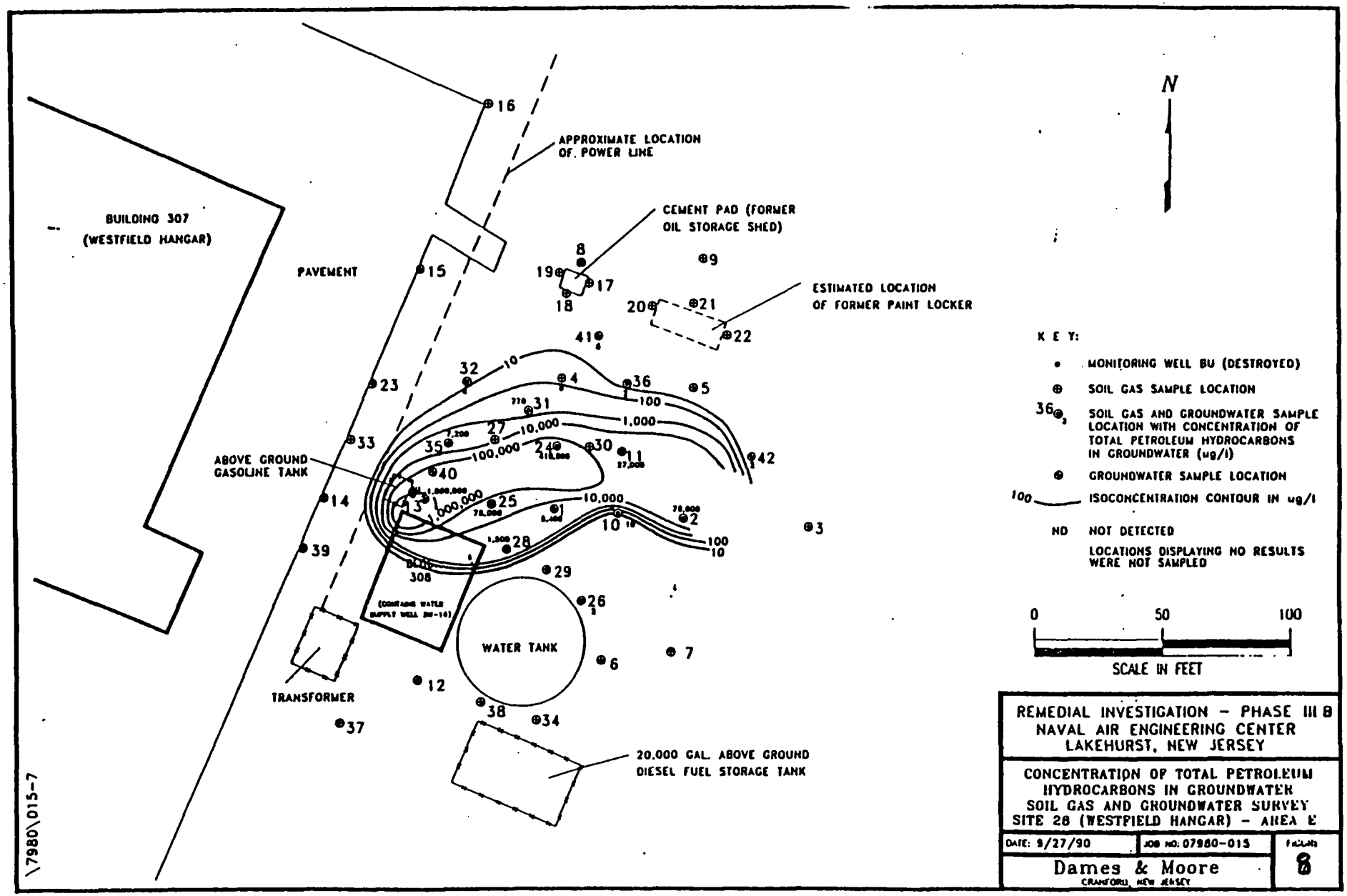
CONCENTRATION OF TOLUENE
IN SOIL GAS
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) – AREA E

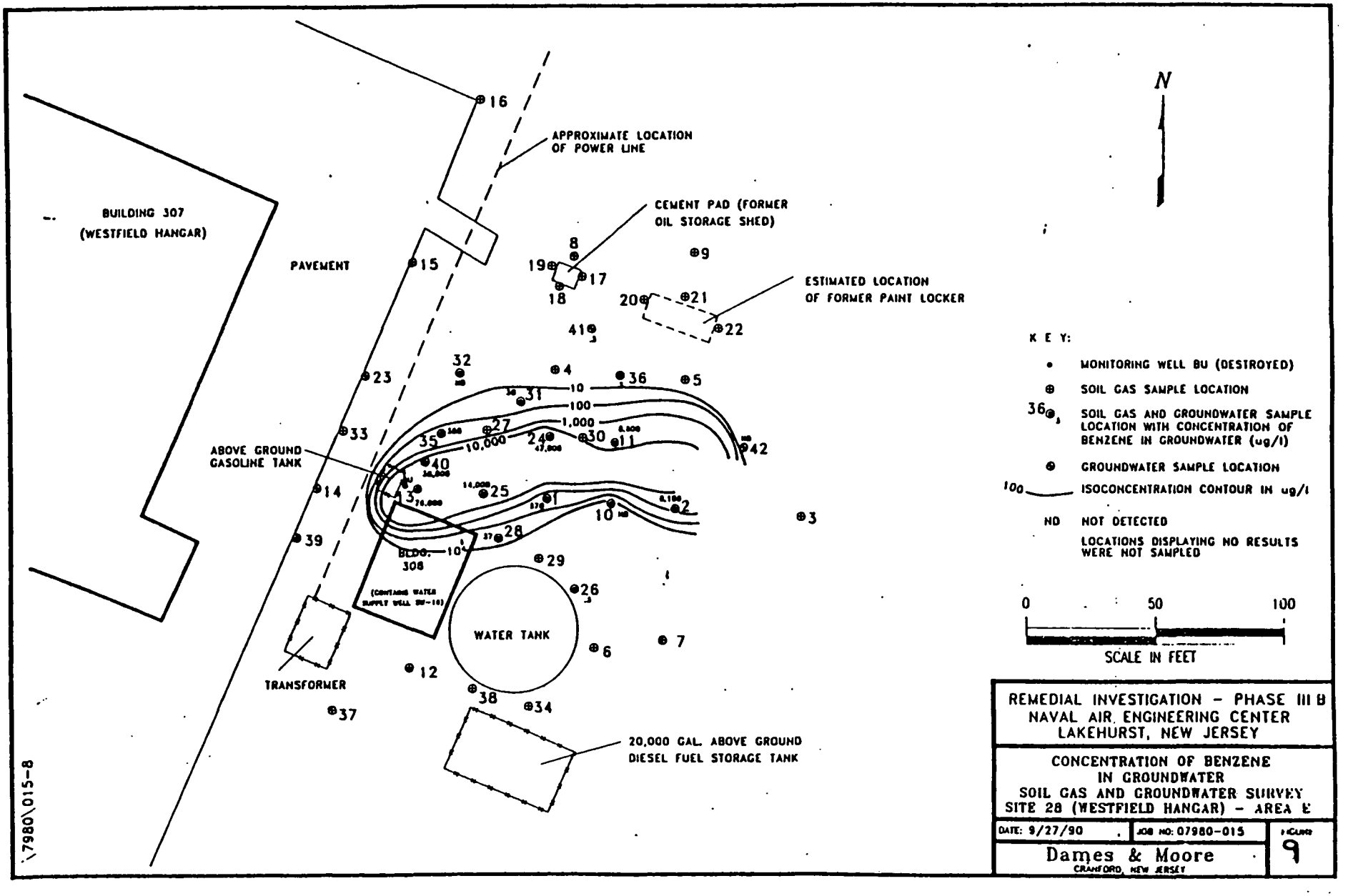
DATE: 9/27/90 | JOB NO: 07980-015 | FIGURE 6

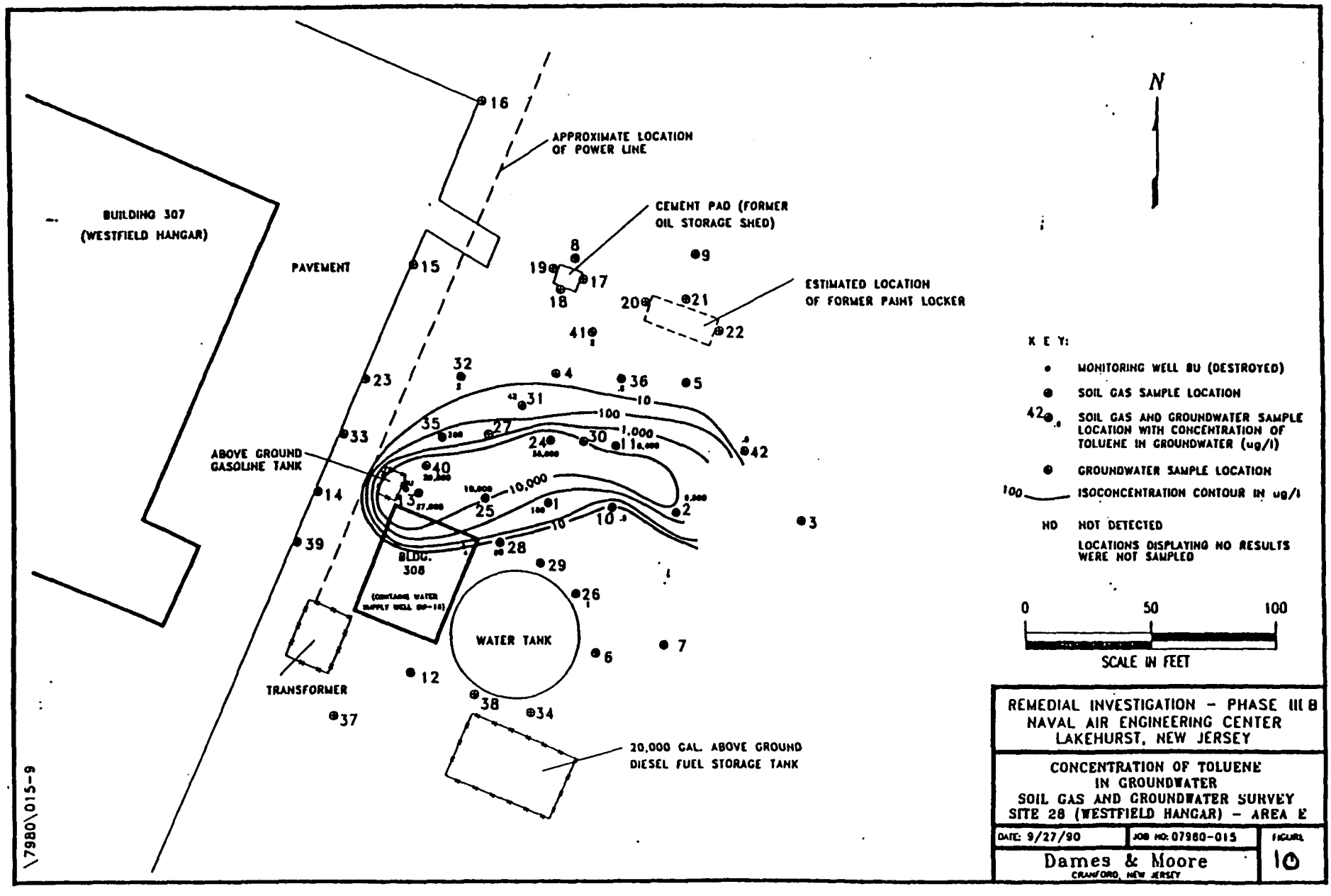
Dames & Moore
CRANFORD, NEW JERSEY

\7980\015-5


N
BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION
OF POWER LINE
CEMENT PAD (FORMER
OIL STORAGE SHED)
ESTIMATED LOCATION
OF FORMER PAINT LOCKER
ABOVE GROUND
GASOLINE TANK
BLDG.
308
(CONTAINS WATER
SUPPLY WELL SW-16)
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND
DIESEL FUEL STORAGE TANK
10
100
1,000
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION WITH CONCENTRATION OF XYLENES IN SOIL GAS (ug/l)
SOIL GAS AND GROUNDWATER SAMPLE LOCATION
GROUNDWATER SAMPLE LOCATION
ISOCONCENTRATION CONTOUR IN ug/l
ND NOT DETECTED
LOCATIONS DISPLAYING NO RESULTS WERE NOT SAMPLED
0
50
100
SCALE IN FEET
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
CONCENTRATION OF XYLENES
IN SOIL GAS
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE
7
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-6


N
BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION
OF POWER LINE
CEMENT PAD (FORMER
OIL STORAGE SHED)
ESTIMATED LOCATION
OF FORMER PAINT LOCKER
ABOVE GROUND
GASOLINE TANK
BLDG
308
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND
DIESEL FUEL STORAGE TANK
10
100
1,000
10,000
100,000
1,000,000
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION
SOIL GAS AND GROUNDWATER SAMPLE LOCATION WITH CONCENTRATION OF TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER (ug/l)
GROUNDWATER SAMPLE LOCATION
ISOCONCENTRATION CONTOUR IN ug/l
ND NOT DETECTED
LOCATIONS DISPLAYING NO RESULTS WERE NOT SAMPLED
0 50 100
SCALE IN FEET
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
CONCENTRATION OF TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE
8
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-7


N
BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION
OF POWER LINE
CEMENT PAD (FORMER
OIL STORAGE SHED)
ESTIMATED LOCATION
OF FORMER PAINT LOCKER
ABOVE GROUND
GASOLINE TANK
BLDG. 308
(CONTAINS WATER
SUPPLY WELL SW-101)
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND
DIESEL FUEL STORAGE TANK
10
100
1,000
10,000
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION
SOIL GAS AND GROUNDWATER SAMPLE
LOCATION WITH CONCENTRATION OF
BENZENE IN GROUNDWATER (ug/l)
GROUNDWATER SAMPLE LOCATION
ISOCONCENTRATION CONTOUR IN ug/l
ND NOT DETECTED
LOCATIONS DISPLAYING NO RESULTS
WERE NOT SAMPLED
0
50
100
SCALE IN FEET
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
CONCENTRATION OF BENZENE
IN GROUNDWATER
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE
9
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-8



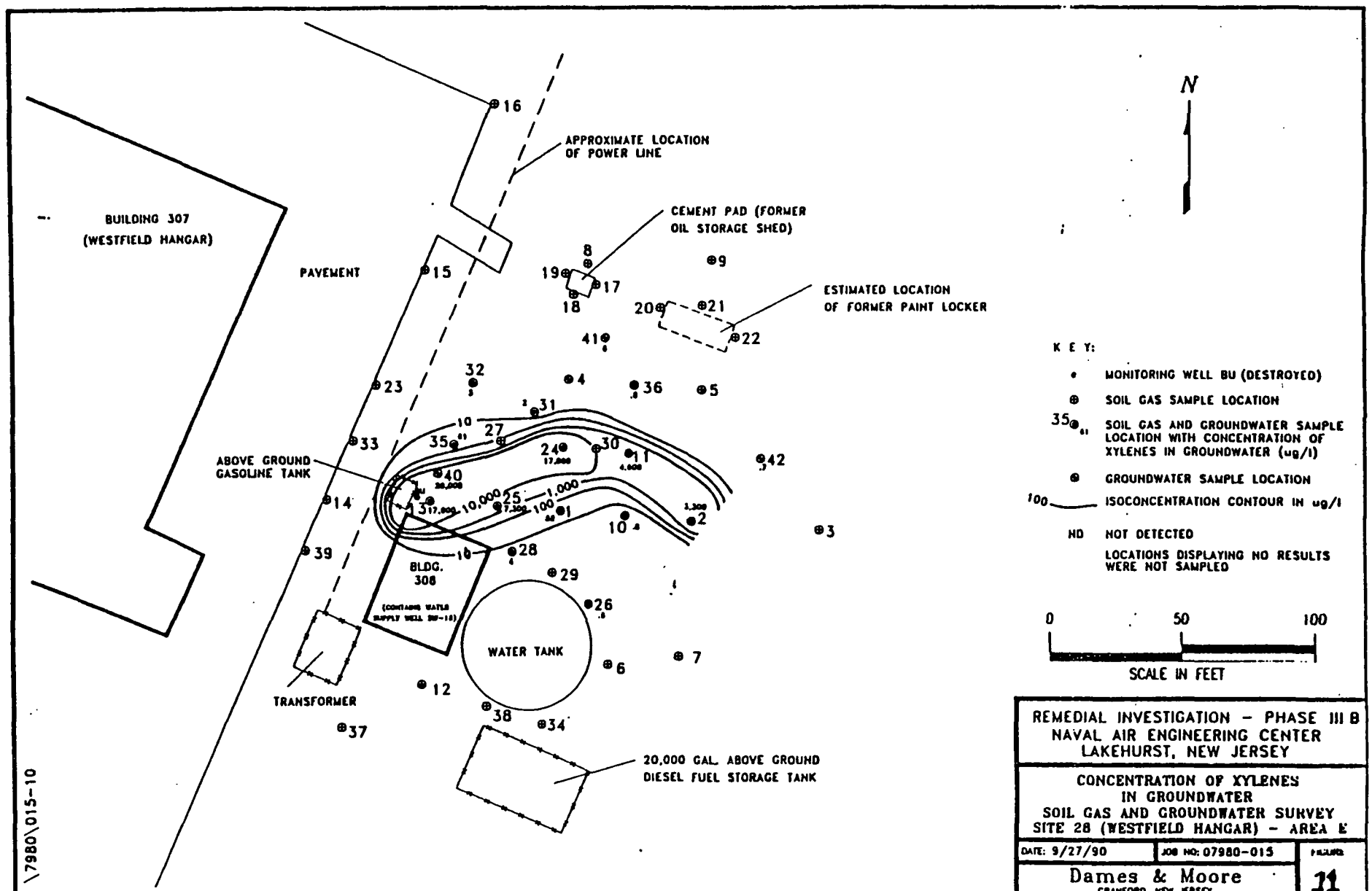
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

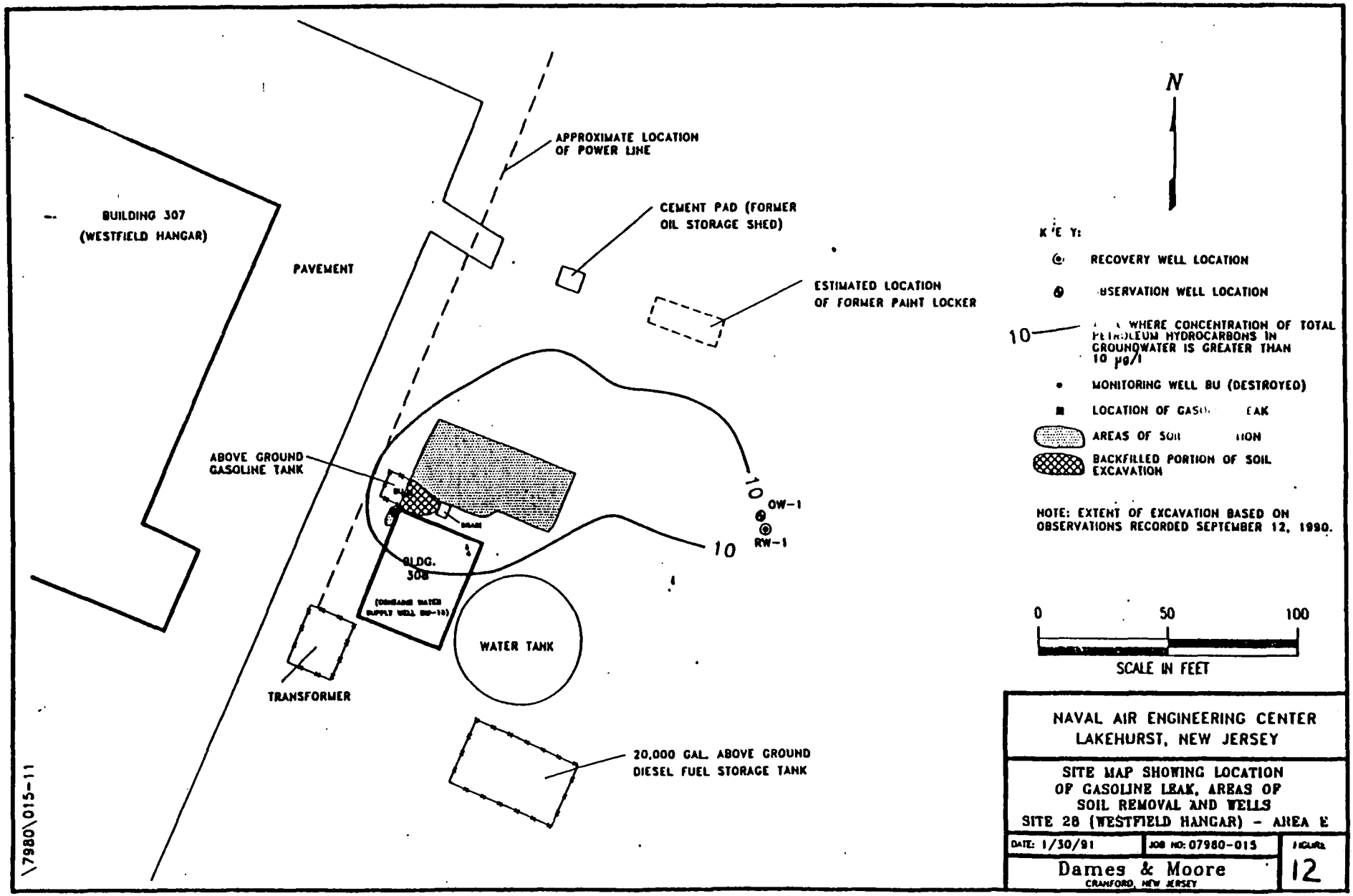
CONCENTRATION OF TOLUENE
IN GROUNDWATER
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E

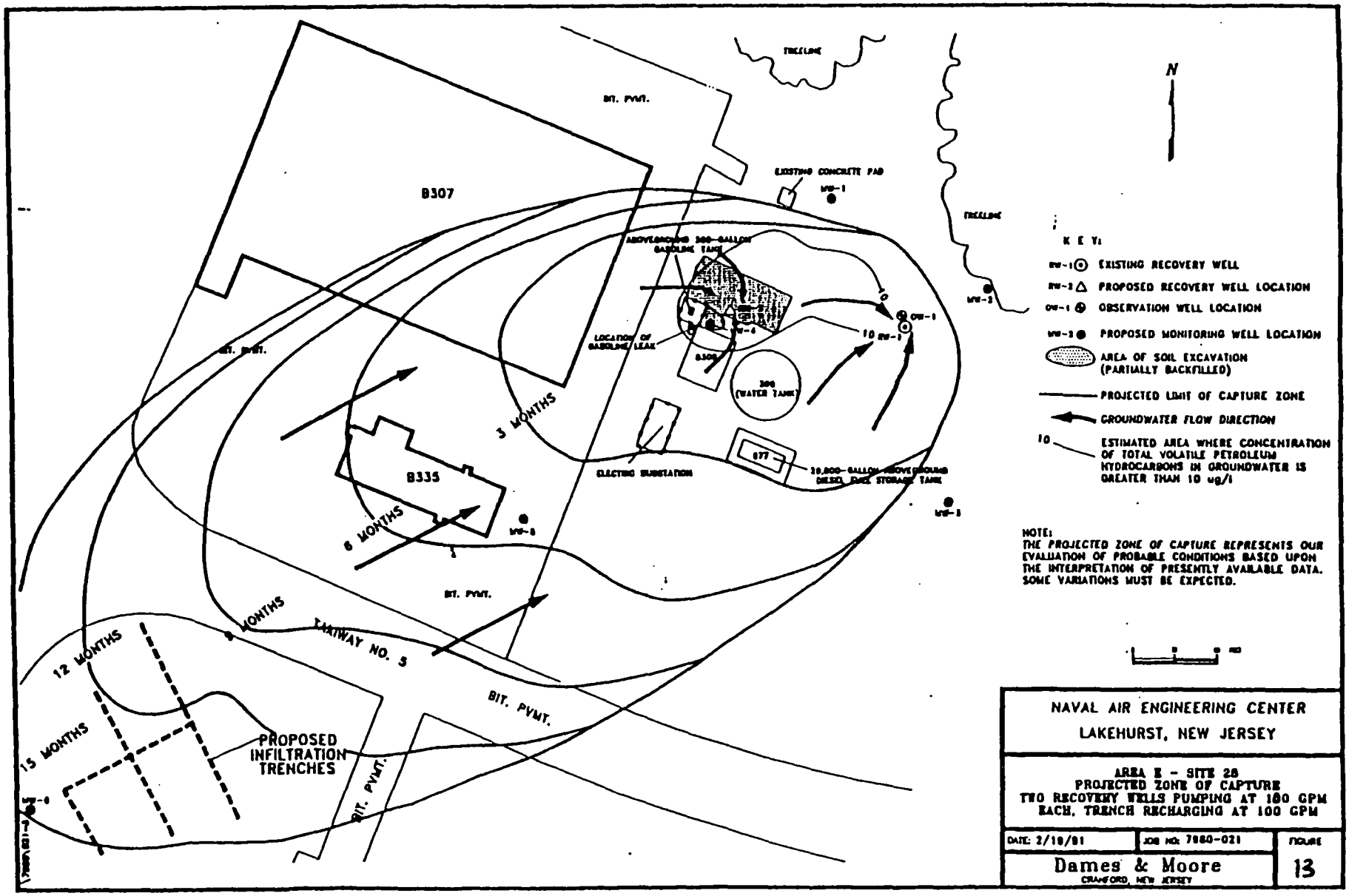
DATE: 9/27/90 | JOB NO: 07980-015 | FIGURE 10

Dames & Moore
CRANFORD, NEW JERSEY

\7980\015-9


N
BUILDING 307
(WESTFIELD HANGAR)
PAVEMENT
APPROXIMATE LOCATION
OF POWER LINE
CEMENT PAD (FORMER
OIL STORAGE SHED)
ESTIMATED LOCATION
OF FORMER PAINT LOCKER
ABOVE GROUND
GASOLINE TANK
BLDG.
308
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND
DIESEL FUEL STORAGE TANK
10
1,000
10,000
100
KEY:
MONITORING WELL BU (DESTROYED)
SOIL GAS SAMPLE LOCATION
SOIL GAS AND GROUNDWATER SAMPLE
LOCATION WITH CONCENTRATION OF
XYLENES IN GROUNDWATER (ug/l)
GROUNDWATER SAMPLE LOCATION
ISOCONCENTRATION CONTOUR IN ug/l
ND NOT DETECTED
LOCATIONS DISPLAYING NO RESULTS
WERE NOT SAMPLED
0
50
100
SCALE IN FEET
REMEDIAL INVESTIGATION - PHASE III B
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
CONCENTRATION OF XYLENES
IN GROUNDWATER
SOIL GAS AND GROUNDWATER SURVEY
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 9/27/90
JOB NO: 07980-015
FIGURE
11
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-10


N
APPROXIMATE LOCATION OF POWER LINE
CEMENT PAD (FORMER OIL STORAGE SHED)
ESTIMATED LOCATION OF FORMER PAINT LOCKER
BUILDING 307 (WESTFIELD HANGAR)
PAVEMENT
ABOVE GROUND GASOLINE TANK
BLDG. 308
WATER TANK
TRANSFORMER
20,000 GAL. ABOVE GROUND DIESEL FUEL STORAGE TANK
10
OW-1
RW-1
KEY:
RECOVERY WELL LOCATION
OBSERVATION WELL LOCATION
WHERE CONCENTRATION OF TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER IS GREATER THAN 10 µg/l
MONITORING WELL BU (DESTROYED)
LOCATION OF GASOLINE LEAK
AREAS OF SOIL REMOVAL
BACKFILLED PORTION OF SOIL EXCAVATION
NOTE: EXTENT OF EXCAVATION BASED ON OBSERVATIONS RECORDED SEPTEMBER 12, 1990.
0
50
100
SCALE IN FEET
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
SITE MAP SHOWING LOCATION OF GASOLINE LEAK, AREAS OF SOIL REMOVAL AND WELLS
SITE 28 (WESTFIELD HANGAR) - AREA E
DATE: 1/30/91
JOB NO: 07980-015
FIGURE
12
Dames & Moore
CRANFORD, NEW JERSEY
\7980\015-11


N
TREELINE
BIT. PVMT.
B307
EXISTING CONCRETE PAD
MW-1
ABOVEGROUND 500-GALLON GASOLINE TANK
LOCATION OF GASOLINE LEAK
B308
MW-4
OW-1
10
RW-1
RW-2
MW-2
300 (WATER TANK)
3 MONTHS
B335
6 MONTHS
ELECTRIC SUBSTATION
677
10,000-GALLON ABOVEGROUND DIESEL FUEL STORAGE TANK
MW-5
MW-3
BIT. PVMT.
MONTHS
TAXIWAY NO. 3
12 MONTHS
15 MONTHS
PROPOSED INFILTRATION TRENCHES
BIT. PVMT.
BIT. PVMT.
KEY:
RW-1 EXISTING RECOVERY WELL
RW-2 PROPOSED RECOVERY WELL LOCATION
OW-1 OBSERVATION WELL LOCATION
MW-2 PROPOSED MONITORING WELL LOCATION
AREA OF SOIL EXCAVATION (PARTIALLY BACKFILLED)
PROJECTED LIMIT OF CAPTURE ZONE
GROUNDWATER FLOW DIRECTION
10 ESTIMATED AREA WHERE CONCENTRATION OF TOTAL VOLATILE PETROLEUM HYDROCARBONS IN GROUNDWATER IS GREATER THAN 10 ug/l
NOTE:
THE PROJECTED ZONE OF CAPTURE REPRESENTS OUR EVALUATION OF PROBABLE CONDITIONS BASED UPON THE INTERPRETATION OF PRESENTLY AVAILABLE DATA. SOME VARIATIONS MUST BE EXPECTED.
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY
AREA E - SITE 28
PROJECTED ZONE OF CAPTURE
TWO RECOVERY WELLS PUMPING AT 180 GPM EACH, TRENCH RECHARGING AT 100 GPM
DATE: 2/18/91
JOB NO: 7860-021
FIGURE
13
Dames & Moore
CRANFORD, NEW JERSEY

APPENDIX A

Appendix A
List of Contacts and Interested Parties for the Navy Lakehurst site

Naval Air Engineering Center

Captain David J. Raffetto (908) 323-2380
Commanding Officer
Naval Air Engineering Center
Lakehurst, New Jersey 08733-5000

Lewis Lundberg, Executive Director (908) 323-2290
Naval Air Engineering Center
Lakehurst, New Jersey 08733-5000

Commander Thomas Breitzke (908) 323-2601
Public Works Officer
Naval Air Engineering Center
Lakehurst, New Jersey 08733-5065

Frank Montarelli, Public Affairs Officer (908) 323-2620
Naval Air Engineering Center
Lakehurst, New Jersey 08733-5041

Norther Division, Naval Facilities Engineering Command

Mr. Thomas G. Sheckels (215) 897-6424
Restoration Management Section
Northern Division
Naval Facilities Engineering Command
Philadelphia, Pennsylvania 19112-5094

Mr. Lonnie Monaco (215) 897-6431
Public Affairs Office
Northern Division
Naval Facilities Engineering Command
Bldg. 77L OW
Philadelphia, Pennsylvania 19112-5094

<u>Federal Elected Officials</u>

Senator William Bradley (201) 688-0960
1709 Vauxhall Road
P.O. Box 1720
Union, New Jersey 07083

Senator Frank R. Lautenberg (609) 757-5353
208 White Horse Pike
Suite18-19
Barrington, NJ 08007

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

Congressman Christopher H. Smith (908) 780-0707
655 Park Avenue
Freehold, NJ 07728

Congressman Frank Pallone, Jr. (201) 571-1140
540 Broadway
Room 119
Long Branch, New Jersey 07740

<u>State Elected Officials</u>

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

Senator John F. Russo (908) 240-2200
917 North Main Street
Toms River, New Jersey 08753

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

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

Assemblyman John Paul Doyle (908) 240-2200
917 North Main Street
Toms River, New Jersey 08753

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

U.S. Environmental Protection Agency Officials

Jeff Gratz (212) 264-6667
Project Manager
Room 2930, Division ERRD
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, New York 10278

John Filipelli (212) 264-6723
Federal Facilities Coordinator
Room 500
U.S. Environmental Protection Agency
Region II 26 Federal Plaza
New York, New York 10278

Superfund Community Relations Coor. (212) 264-2515
U.S. Environmental Protection Agency
Region II
Office of External Programs, Room 907
26 Federal Plaza
New York, New York 10278

New Jersey State Department of Environmental Protection
Christine Holstrom, Case Manager (609) 633-1455
Hazardous Waste Management
New Jersey Department of Environmental Protection
401 East State Street
Trenton, New Jersey 08625

Kevin Schick (609) 984-3068
Technical Coordinator
Hazardous Site Mitigation
New Jersey Department of Environmental Protection
401 East State Street
Trenton, New Jersey 08625

New Jersey Department of Health
J. Richard Goldstein, M.D. (609) 292-7837
New Jersey Department of Health
CN 360
Trenton, New Jersey 08625

Ms. Laurie A. Pyrch
New Jersey Department of Health
Environmental Health Service
Room 706
CN 360
Trenton, NJ 08625

New Jersey Pinelands Commission
Alan W. Avery, Jr., Commissioner (609) 894-9342
New Jersey Pinelands Commission
15 Springfield Road
New Lisbon, New Jersey 08064

Terrence Moore, Executive Director (609) 894-9342
New Jersey Pinelands Commission
15 Springfield Road
New Lisbon, New Jersey 08064

<u>Ocean County Officials</u>
Joseph H. Vicari, Director (908) 244-2121
Ocean County Board of Freeholders
CN2121
Toms River, New Jersey 08754

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

A. Jerome Walnut, Chairman (908) 349-1152
Ocean County Envirionmental
11 East 12th Street
Barnegat Light, New Jersey 08006

<u>Dover Township Officials</u>
Hon. W. Thomas Renkin (908) 341-1000
Mayor of Dover Township
P.O. Box 728
33 Washington Street
Toms River, New Jersey 08754

Ian Borden (908) 341-1000
Dover Township Environmental Commission
33 Washington Street
P.O. Box 728
Toms River, New Jersey 08754

Manchester Township Officials

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

Wynn A. Mauer, Chairman (908) 657-8121
Manchester Township Municipal Utilities Authority
One Colonial Drive
Lakehurst, New Jersey 08733

William Jamieson, Jr., Chairman (908) 657-8121
Manchester Township Environmental Commission
One Colonial Drive
Lakehurst, New Jersey 08733

Jackson Township Officials

Hon. Arthur F. Conway (908) 928-1200
Mayor of Jackson Township
R.D. 4
P.O. Box 100
Jackson, New Jersey 08527

William A. Santos, Administrator (908) 928-1200
Township of Jackson
R.D. 4
P.O. Box 100
Jackson, New Jersey 08527

William Bangs, Chairman (908) 928-1200
Jackson Township Environmental Commission
R.D. 4
P.O. Box 100
Jackson, New Jersey 08527

Borough of Lakehurst Officials

Hon. Nicholas Kamai (908) 657-4141
Mayor of Lakehurst Borough
5 Union Avenue
Lakehurst, New Jersey 08733

Robert J. Morris (908) 657-4141
Borough of Lakehurst
5 Union Avenue
Lakehurst, New Jersey 08733

Plumstead Township Officials

Hon. Ronald S. Dancer (609) 758-2241
Mayor of Plumstead Township
31 Main Street
New Egypt, New Jersey 08533

Community Groups/Organizations

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

Media Organizations

Advanced News (908) 657-8936
2048 Route 37 West
Lakehurst, New Jersey 08733

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

Debra Coombe
Newark Star Ledger (908) 244-7171
27 Washington Street
Toms River, New Jersey 08753

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

Ocean County Leader (908) 899-1000
611 Laurel Avenue
Point Pleasant Beach, New Jersey 08742

Robert LaTorre (908) 793-0147
Ocean County Review
715 Boulevard
Seaside Heights, New Jersey 08751

Ocean County Reporter (908) 349-1501
8 Robbins Street
P.O. Box 308
Toms River, New Jersey 08754

Theresa Holifield (908) 349-3000
Ocean County Observer
CN 2449
8 Robbins Street
Toms River, New Jersey 08754

Shawn Marsh (201) 774-7700
WJLK Radio
Press Plaza
Asbury Park, New Jersey 07712

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

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

Gary Myervich (906) 341-8818
Adelphia Cable
830 Highway 37 West
Toms River, New Jersey 08753

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

Ed Rogers (609) 530-5252
WNJN-TV
1573 Parkside Avenue
Trenton, New Jersey 08638

APPENDIX B

SIGN-IN SHEET

PUBLIC HEARING
JUNE 26, 1991
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

"NO ACTION" SITES AND SITE 28 INTERIM REMEDIAL ACTION

Name	Address/Affiliation	Telephone No.
CONSTANTINE TSENTAS	DAMES & MOORE CRANFORD, NJ	908-272-8300
LARRY DANIELS	DAMES & MOORE CRANFORD, NJ	908-272-8300
Carole J. Angelin	NAEC Public Affairs	908-323-2620
Joe W. Looby	NAEC Legal	908-323-2571
Jeffrey Gratz	USEPA Region II Project Manager	212-264-6667
Douglas Rothermel	Ocean County HD CN2191 Toms River NJ	908 341 9700
Charles E. Mink	NAEC Public Works Dept	908-323-2601
Kevin Schick	NJDEP/BGERA	(609) 984-1825
Tom R. Curtis	NJDEP/BFCM	(609) 633-1455

SIGN-IN SHEET

PUBLIC HEARING
JUNE 26, 1991
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

"NO ACTION" SITES AND SITE 28 INTERIM REMEDIAL ACTION

Name	Address/Affiliation	Telephone No.
LINDA WELKOM	NJDEP / BGWPA	(609) 292-8427
IRENE DOMICAN	NAEC PUBLIC AFFAIRS	323-2620
FRANK [illegible]	NAEC Public Affairs Office	323-2620
Lucy Bottomley	NAEC ENVIRONMENTAL	323-2612
Aarti Dalal	NAEC Environmental	323-7800
MARLENE JANKOWSKI	NAEC	323-7800
Michael Figura	NAEC Environmental	323-1012
LONNIE MONACO	North Div IEM Proj Mgr	(215) 897-6432
TED HEITMAN	Borough of Lakehurst Councilman	908-657-7474

SIGN-IN SHEET

PUBLIC HEARING
JUNE 26, 1991
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

"NO ACTION" SITES AND SITE 28 INTERIM REMEDIAL ACTION

Name	Address/Affiliation	Telephone No.
N.G. Schumacher	500 A Buckingham Lakehurst	657-5486
Ernie Colby	OC Observer	349 3000
B. ZUBA	NAEC	3237546
Lisa Ritchie	WJRZ 100.1FM	270-5757
D.K. Fitts	CO. NAEC Lakehurst	323 ~~883~~ 2380
Terry Lathner	Manchester Twp Env. Commission Pinelands Preservation Alliance	609-893-4747
Jill Meredith	NAEC	323-7800
Joe Bishop	WOBM.	269-0977
R. Kirkbright	NAEC	323-2608

SIGN-IN SHEET

PUBLIC HEARING
JUNE 26, 1991
NAVAL AIR ENGINEERING CENTER
LAKEHURST, NEW JERSEY

"NO ACTION" SITES AND SITE 28 INTERIM REMEDIAL ACTION

Name	Address/Affiliation	Telephone No.
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ENVIRONMENTAL OFFICER	MANCHESTER TWP	

APPENDIX C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278

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JUN 14 1991

Captain David Raffetto
Commanding Officer
Naval Air Engineering Center
Lakehurst, New Jersey 08733-5000

Re: NAEC Lakehurst Site 28 Proposed Plan

Dear Captain Raffetto:

This is to notify you that, after reviewing NAEC Lakehurst's Remedial Investigation and associated documents, the U.S. Environmental Protection Agency (EPA) supports NAEC Lakehurst's Proposed Plan for an Interim Remedial Action at Site 28. As the Plan is subject to public comment, we are deferring our final concurrence on the proposed action until we have reviewed comments from the public, the Navy's responsiveness summary, and the draft Record of Decision.

The purpose of this interim remedial action is to contain and treat a plume of contaminated ground water (primarily petroleum hydrocarbons which leaked from a fuel pipeline) emanating from Site 28. The Proposed Plan for Site 28 consists of the following:

- extraction of contaminated ground water
- pre-treatment system for the removal of metals, solids, etc., from ground water
- air stripper for removal of volatile organic compounds (VOCs) from the ground water
- activated carbon absorber for air stripper effluent
- granular activated carbon polishing filter for residual VOC and semi-volatile removal from treated ground water
- reinjection of treated ground water (which will meet Federal and State drinking water standards) by spray irrigation or infiltration trenches upgradient of contaminated ground water.

This interim action is meant to address the immediate concern of contaminant migration in ground water at Site 28. Ground water contamination concerns at Areas C (Sites 10, 16, and 17) and H (Site 32) are being addressed by ongoing interim actions. Additional areas of concern, as well as residual soil contamination and final ground water cleanup determinations at

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Site 28, will be addressed in future actions. In accordance with the Interagency Agreement between EPA and the Navy, draft Records of Decision for final actions at Site 28 as well as all other areas of concern at NAEC Lakehurst shall be submitted to EPA no later than January, 1993.

We are pleased to continue the cooperative working relationship established with NAEC Lakehurst to address environmental concerns. If you have any questions regarding the subject of this letter, please call me at (212) 264-2525, or Jeffrey Gratz, USEPA Project Manager at (212) 264-6667.

Sincerely,

Constantine Sidamon-Eristoff
Regional Administrator

cc: I. Curtis, NJDEP
R. Kirkbright, P.E., NAEC Lakehurst
O. Monaco, North, Div., Navy

APPENDIX D

Let's protect our earth

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
LANCE R. MILLER, DIRECTOR
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(609) 633-1408
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Mr. Robert Kirkbright, P.E.
Director of Engineering
Department of Navy
Lakehurst NAEC
Lakehurst, NJ 08733-5000

21 JUN 1991

Dear Mr. Kirkbright:

Re: Proposed Interim Remedial Action Plan (PIRAP)
Lakehurst Naval Air Engineering Center (NAEC)
Lakehurst Township, Ocean County

The Department has reviewed the second Draft of the PIRAP and accept it as submitted with the incorporation of the following minor modifications:

1. In the Scope and Role of Interim Remedial Action Section of page 4, in the first sentence of the first paragraph, the word "is" following "...is being implemented..." should be removed.

2. The columns in Table I should be properly aligned.

If you should have any questions, please feel free to contact me at (609) 633-1455.

Sincerely,

Ian Curtis, Case Manager
Bureau of Federal Case Management

kj

c: Bob Hayton, Section Chief, BFCM
Kevin Schick, BEERA
Linda Welkom, BGWPA
Sandy Krietzman, DWR

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