Preliminary Site Assessment of the Pedricktown Support Facility Site, Sievers-Sandberg USARC, Route 130, Oldmans Township, Salem County, New Jersey

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EXECUTIVE SUMMARY

RMC Environmental Services, Inc. (RMC) conducted a Preliminary Site Assessment of the Pedricktown Support Facility (PSF) Site, Siever-Sandberg USARC, which is located on Route 130, in Oldmans Township, Salem County, New Jersey in November and December 1990. RMC contacted and interviewed Local, State, and Federal regulatory agencies and personnel, reviewed available aerial photographs and documentation, and conducted a site visit as part of the environmental assessment process. In addition, RMC conducted a limited wetlands and endangered species investigation and a soil gas survey, using the Petrex soil gas sampling method, on two areas of the site.

While the public records search revealed no current or previous violations on the site or in the immediate vicinity of the site, compliance with existing permits for sewage disposal were not current. In addition, registration of underground and above ground storage tanks was incomplete. The site walkover revealed additional concerns relating to the environmental issues and possible non-compliance with the regulations. In addition, review of past practices suggests that additional environmental concerns may be present on site. Information from the limited soil gas survey suggests that several possible contaminant plumes are emanating from on site sources. RMC's recommendations regarding these concerns are discussed in Section 7.0. Support data is included as appendices to the preliminary assessment report.

1.0 INTRODUCTION

1.1 Site Location

The Pedricktown Support Facility (PSF) site is located in northwestern Oldmans Township, Salem County, New Jersey. The site is adjacent to the Pedricktown North and South Disposal Areas, a diked area used for disposal of dredged sediments from the Delaware River. Both the PSF site and the disposal areas were part of the Siever-Sandberg USARC. The site is bound on the east by State Route 130, and by the disposal areas on the north, south, and west. A site location map is shown in Figure 1.0.

1.1.1 Acreage

The original Siever-Sandberg USARC comprised a contiguous block of 1,532 acres. The PSF site consists of approximately 127 acres. A map showing the layout of the PSF site, including its perimeter is shown in Figures 2.0 and 3.0.

1.1.2 Utilities

The support facility is serviced by a sewage treatment plant, which is located in the southwest corner of the site. Public water, which is stored in an on-site water tower prior to distribution throughout the post, and a public electric utility supply are provided for the site. Natural gas and fuel oil-fed boilers supply heat to living quarters, garages, and office buildings.

1.2 History of Ownership and Operation

The Delaware Ordinance Depot was established on the site of the PSF in 1918. It remained in operation until 1958 as the final assembly and storage

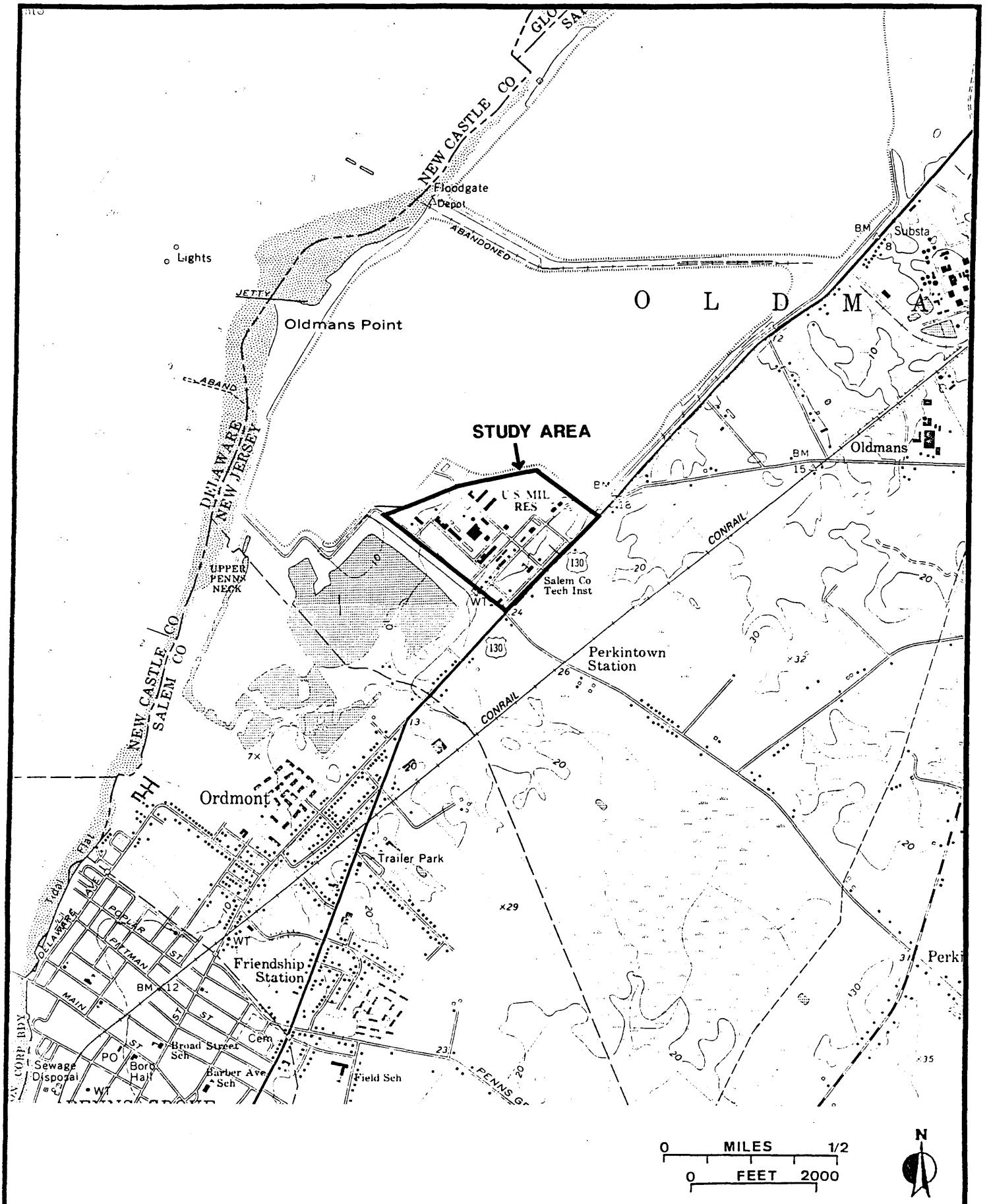

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FIGURE 1.0. Site Location Map
Oldman's Township, Salem County, NJ
Source: USGS Marcus Hook Quad, 1967
USGS Penns Grove Quad, 1967

point for munitions prior to off site shipment. During World War II, the site specialized in the manufacture of Pentolite based munitions, including grenades and rockets. In 1947, the site became the backup storage facility for the Picatinny Arsenal, Frankford Arsenal, and the Aberdeen Proving Grounds. In May 1959, jurisdiction of the site was transferred to the Chief Engineer of the Army Corps of Engineers for civil works purposes. In November 1959, all property, excepting the 127 acres comprising the PSF, was designated as the Pedricktown Disposal Facility for use as a dredged materials disposal area. In 1960, the PSF became headquarters for the 42nd and 43rd Artillery over the Nike missile sites in the Philadelphia area. A NORAD Command Center was built on the site. This group remained on site until 1965, at which time the buildings were turned over to the Salem County Technical Institute. The Salem County Institute moved to a new location with the arrival of the 21st Corps, 79th Army Reserve Command in the late 1960's. In 1974, the 21st Corps were replaced by the 78th Division of the Army Reserve. This group currently remains stationed at the PSF.

1.3 Purpose of this Study

The purpose of this study was to complete a preliminary assessment of the PSF site to determine whether site conditions are causing an impact on human health and the environment. It included a review of the records of the New Jersey Department of Environmental Protection, New Jersey Geological Survey, and previous technical reports, interviews with site personnel, and a site walk over. RMC limited its site walk over to easily accessible areas outside existing buildings. No audit or evaluation of buildings was included in this investigation. In addition, a soil gas survey using Petrex soil gas

samplers was completed in two selected areas of the PSF site. Based on this data, recommendations for additional investigations needed to further define site conditions are presented in Section 7.0.

2.0 SITE OPERATIONS

2.1 Prior Site Use

2.1.1 Interview with Previous Site Occupant

RMC contacted Hamilton G. Pedrick, an Oldman's Township Planning Board official for 33 years. According to Mr. Pedrick, the Pedricktown Support Facility and DOD properties were locally owned farms prior to World War I. At Mr. Pedrick's advise, RMC contacted Mr. Melvin Sparks, a long-time resident of the township. According to Mr. Sparks, in summer 1917 the Corps acquired his father's farm and others in the area. Mr. Sparks stated that the Pedricktown Support Facility occupies land that had been a farm owned by former New Jersey State Senator, William Styles.

2.1.2 Aerial Photograph Review

RMC reviewed a series of aerial photographs that are on file with the New Jersey Department of Environmental Protection. The photographs were taken during flights over the area in 1940, 1946, 1956, 1965, 1972, 1974, 1977, 1979, and 1986.

Date of Photographs/ Serial Numbers	Site Observation
11 March 1940 8 26 8 27 8 33 8 34	The lay-out of macadam roads is essentially the same as present. Piles of dark granular/material and a long trench or above ground pipeline are present behind Buildings 495, 474, and 464 (Figure 20). Soil is disturbed at the junction of numerous dirt roads/rail lines located to the north and northwest of Building 495. A row of disturbed patches of soil parallels the length of the eastern site boundary.

10 March 1946	More site buildings have been constructed. The trench behind Building 464 is not present. New buildings (471 and 480) have been constructed in this area.
1910 1896 1911 1897 1912 1898	
29 May 1956	Two barracks have been constructed (Buildings 351 and 371). The area behind Building 495 (where piles of dark granular/material were apparent in 1940) is still disturbed.
CND-3R-181 CND-3R-182 CND-3R-183	
11 July 1956	(No discernible difference in major site features from 29 May 1956 photographs.)
CND-6R-37 CND-6R-38 CND-6R-39	
13 January 1962	The Nike Missile Command Center has been constructed (over the trench or pipeline area depicted in the 11 March 1940 photographs). A helicopter landing pad has been constructed in the northern section of the site that had been previously occupied by a baseball diamond.
1116 90 3789 1116 90 3790 1116 90 3798 1116 90 3799	
30 April 1965	(No discernible changes in major site features from 13 January 1962 photographs.)
1495A26 1182 1495A26 1183	
8 August 1972	More offices/housing have been constructed in the southeastern section of the site. Sewage treatment/ maintenance buildings have been constructed in the southwest corner of the site.
CJP-IRC-3782 CJP-IRC-3783	
13 March 1974	(No discernible changes to major site features from 8 August 1972 photographs.)
2063 4 4273 2063 4 4274	
24 July 1977	The photographs revealed extensive off-site quarrying to the south of the support facility.
EPI-IRC-2889 EPI-IRC-2890	
16 March 1979	The off-site quarry to the south is waterfilled. Most of the DOD ordnance assembly plants and magazines, located off-site to the west and northwest of the support facility, are nearly covered with dredged river sediments.
67-4036 67-4037	

23 March 1986		(Could not detect any major changes to site due to small scale of photographs.)
JSS-IRC-664 JSS-IRC-665		

Note:

All photographs are on file with the NJDEP Division of Coastal Resources, Planning Group, CN401-9, Ewing Street, Trenton, New Jersey 08625.
Contact: Mike Ryan
Telephone: 609-633-7369
Fax #: 609-633-7950

2.2 Past Operations of Concern

2.2.1 Ordnance Disassembly/Chemical Plant

2.2.1.1 Location and Type of Operation

From 1918 to 1958, Buildings 495, 494, 485, 474, 464, 434, and adjacent grounds to the north were part of the Delaware Ordnance Depot, which was responsible for assembling artillery shells used during WWI, WWII, and the Korean War. Some of these buildings were used to renovate or disassemble ordnance and reclaim brass shell casings, while others may have been used as a chemical plant associated with ordinance processing.

2.2.1.2 Process, Raw Materials Used, and Waste Released

Aerial photographs taken in 1940 (see Section 2.1.2) show that a north-south trending railroad track lead into and along Building 495. The site walk over revealed a section of the track was still embedded in the concrete floor of that building. Aerial photographs also show large piles of dark granular material stockpiled in this area. An east-west trending trench or pipeline also crossed the area.

2.2.1.3 Description of Waste

At present, no stockpiled materials are located in the area. There are no surface manifestations of the former trench. No site records have been made available to RMC which describe the process that was performed during the brass recovery operation, so no comment can be made on the potential effect on the site of this operation. However, any waste streams produced during this operation would have included, but not been limited to, explosive compounds, oils and grease, hydraulic fluid, solvents, and heavy metals.

2.2.2 Nike Missile Command Center

2.2.2.1 Location and Type of Operation

Buildings 422, 432, 452, 461, and surrounding grounds were used as a Nike Command Center. Building 432 functioned as the missile command center, while Buildings 422 and 452 operated as power generation and support buildings. Structure 461 is a large capacity water tower. According to site personnel, the missile complex has been inactive since 1965.

2.2.2.2 Process, Raw Materials Used, and Waste Released

Due to the sensitive nature of the Nike Missile operation and its military mission, details of the missile command center operation are not available. Army site maps depict a series of underground fuel oil tanks adjacent to Buildings 432 and 422 (see Section 2.4 and Figure 2.0). The underground tanks have been abandoned in-place. The integrity of the tanks is unknown. A soil gas survey of the area, conducted by RMC in November 1990, revealed the possible existence of an extensive petroleum hydrocarbon plume (see Section 6.1).

2.2.3 Sewage Leach Fields

2.2.3.1 Location and Type of Operation

Prior to constructing the sewage treatment plant (Building 530) in the early 1970's, the grounds near the new sewage treatment plant were the discharge point for post sewage. Several post blueprints depict old leach fields in this area. Untreated sewage may also have been discharged directly into the Delaware River.

2.2.3.2 Waste Released

A soil gas survey conducted by RMC in November, 1990, reveals a possible plume of contamination emanating from this area (see Section 6.1). It is likely that hazardous and nonhazardous waste materials were disposed in this area, although no records exist for this type of activity.

2.2.4 Abandoned Pump Island/Underground Storage Tank(s)

2.2.4.1 Location and Type of Operation

Along Central Road, east of Helicopter Pad (Structure 315), is a pump island used for vehicle refueling. Observations recorded during the site walk over suggested that several underground storage tanks (UST's) could be present at this location.

2.2.4.2 Process, Raw Materials Used, and Waste Released

Although the abandoned pump island is in close proximity to the helicopter pad, post personnel claim that the island was never used for aircraft refueling. The pump island dispensed gasoline; no aviation fuel has ever been

stored in this location, as the pad has rarely been used to land helicopters. The capacity and integrity of the abandoned pump island UST's is undetermined.

2.2.5 Former Dump Area

2.2.5.1 Location and Type of Operation

Study of aerial photographs, corroborated by interviews, identified an unpermitted, on-site scrap metal dump. The dump was located northeast of Structure 590 along the western site boundary.

2.2.5.2 Process, Materials Used, and Waste Released

Post personnel stated that previous excavation in this area uncovered old shell casings and miscellaneous refuse. During the walk over of the area, RMC personnel found several partially-buried shell casings and metal fittings.

2.2.6 Abandoned Swimming Pool

2.2.6.1 Location and Type of Operation

A swimming pool (Structure 289) is located near the southeast corner of the support facility. The empty pool is in disrepair and apparently has not been in operation for many years. Pool water had apparently been treated with chlorine during operation.

2.2.6.2 Wastes

During the site walk over, RMC personnel located four chlorine gas tanks. The tanks are stored under a small lean-to that adjoins a building located on the west side of the pool area. It was not determined whether the tanks contained any gas.

2.2.7 Abandoned Pump Island/Underground Storage Tanks Near a Motor Pool

2.2.7.1 Location and Type of Operation

A U.S. Army underground tank location map [Drawing #16-06-01, Appendix A] depicts three tanks located underneath an abandoned pump island in front of Building 413. It is unknown if the tanks were abandoned in-place.

2.2.7.2 Process, Raw Materials, and Waste Released

The former pump island was used for refueling of motor pool vehicles or heavy equipment. It is believed that the UST's contained both gasoline and diesel fuel. Further discussion of the UST's is found in Section 2.5. The integrity of the tanks and associated piping is not known. The RMC soil gas survey, which is discussed in Section 6.1, suggests that a petroleum hydrocarbon plume is located in the area of the abandoned pump island.

2.2.8 Paint Shop

2.2.8.1 Location and Type of Operation

Post personnel have referred to Building 184 as a paint shop. Its location is shown in Figure 2. It is not known whether this is a current operation; the RMC site walk over did not reveal any activity in the vicinity of Building 184.

2.2.8.2 Process, Raw Materials, and Waste Released

No records were made available to RMC describing the paint shop operation. It is probable that during operation, this shop generated waste paint and paint thinners. The quantity of waste generated and the method of disposal have not been determined.

2.3 Present Operations of Concern

2.3.1 78th Division Motor Pool

2.3.1.1 Location and Type of Operation

Buildings 404 and 413, the motor pool, are used to maintain and repair numerous vehicles and heavy equipment, including troop transports, armored personnel carriers, and construction equipment. Building 404 houses approximately 13 garage bays. Drums of solvents and hydraulic fluid are stored inside Building 413; waste oil is stored behind Building 413.

2.3.1.2 Processes, Raw Materials Used, and Waste Released

Several processes or areas of concern are associated with motor pool operations:

- Pump Island and Underground Storage Tanks

  Two pump islands, one dispensing diesel fuel and the other gasoline, are located adjacent to Building 413. A 10,000 gallon capacity underground diesel fuel tank and a 10,000 gallon capacity underground gasoline tank supply fuel to the respective pump islands (Figure 2.0). The RMC soil gas survey indicates a possible contaminant plume emanating from this area (see Section 6.1). An abandoned pump island in front of Building 413 may also contribute to the plume.

- Waste Oil Tank

  A 1,000 gallon underground waste oil tank is located behind Building 413, in close proximity to the diesel and gasoline pump islands. The soils around the waste oil tank fill pipe are heavily oil-stained and likely contribute to the contamination plume detected in the RMC soil gas survey.

- Abandoned Gasoline Tank

  According to post personnel, an underground gasoline tank is located in front of Building 404 (Figure 2.0). In the past, the tank had serviced an auxiliary generator located inside the building. The tank is no longer in service; the capacity and integrity of the tank are not known.

- Fuel Oil Tank

  A fuel oil tank is buried within an earth-filled brick enclosure located behind Building 404 (Figure 2.0). According to post personnel, the tank supplies heating oil to the building's boilers. The integrity of the tank is undetermined, as is the ability of the enclosure to contain any potential leakage or spills.

- Vehicle Wash Rack

  A vehicle wash rack is also located behind Building 404. Wash water is directed to a drain that discharges to the storm sewer. A grease trap within the drain is emptied periodically and the grease is disposed by a contractor. Post personnel report that a heavy rain can overflow the trap, causing oil and trap to enter the sewer.

- Battery Renovation

  The last bay on the north end of Building 404 is used for battery servicing. Post personnel state that any battery acid which spills on the bay floor is washed away with water. During the site walk over, RMC personnel observed wash water flowing from the bay to the surrounding macadam drive-way. Surface flow in this area ultimately discharges to the environment via storm sewers.

- Temporary Drum/Waste Storage Area

An area along the edge of the macadam parking lot, behind the battery renovation bay (Building 404), is utilized for temporary waste storage. It was reported that wastes included old batteries, grease, solvents, and other vehicle maintenance materials which were stored in open bins, open drums, and sealed drums. Leaks or spills from this area enter the storm sewer or drain directly into the soils adjacent to the macadam lot.

2.3.1.3 Description of Wastes

According to post personnel and U.S. Army records (Appendix A), the 78th Division motor pool generates the following wastes:

- waste oil - approximately 70 gallon/month
- battery acid - approximately 50 gallons
- solvents - approximately 55 gallons
- brake fluid
- anti-freeze - approximately 200 gallon/year
- mineral spirits
- dye (added to gasoline)
- anti-static agent

Motor pool personnel stated that waste mineral spirits, dye, and anti-static agents are collected and disposed by Safety-Kleen, Inc. (Elgin, Illinois) approximately every two months. U.S. Army records indicate that dry cleaning solvent and anti-freeze wastes are turned into PDO, Philadelphia, Pennsylvania.

2.3.2 Sewage Treatment Plant (STP)

2.3.2.1 Location and Type of Operation

The STP is located within a fenced compound in the southwestern corner of the support facility. The compound primarily consists of the treatment plant (Building 530) and the post maintenance building (Building 506).

The plant treats post septage prior to discharge to the Delaware River. On-site storm sewers are not connected to the treatment plant and discharge directly into the Delaware River.

2.3.2.2 Processes, Raw Materials Used, and Waste Released

According to the U.S. Army records obtained from the New Jersey Department of Environmental Protection (NJDEP), "the Pedricktown STP is a Biological Extended Aeration type treatment plant utilizing powdered carbon in effluent polishing" (Appendix A).

According to the support facility engineer, Mr. Stanley Heinert, the plant produces very little sludge; it may take one or two years for enough sludge to accumulate to warrant disposal. Accumulated sludge is removed and disposed as needed by a licensed private hauler.

Domestic wastewater sludge reports obtained from NJDEP indicate that no sludge was produced during the 1989 nor 1990 reporting periods. Chemical analysis of sludge produced in 1987 reveals detectable concentrations of heavy metals and other selected chemical parameters (Appendix A).

The RMC soil gas survey revealed a possible contamination plume in the area of the STP. It was not determined if the contaminant plume results from past or present operations.

While excavating soil gas probe holes, RMC personnel uncovered cinders in the vicinity of the concrete pad and UST enclosure. No source for the cinders was determined from study of records obtained for the base. Study of the 1962 site survey map in the area near the treatment plant revealed an incinerator and chimney, which suggests burning of site wastes occurred. This may be a possible source for the cinders noted.

The RMC site walk over revealed that a wash rack attached to a small brick building is located between the STP and maintenance building. It is not known where discharge from the wash rack drain goes.

An abandoned electrical transformer is located on a concrete pad in the middle of the compound. A UST is buried within an earthen-filled brick enclosure adjacent to the concrete pad. The status, contents, and integrity of the tank is undetermined, as is the type of insulator liquids used in the transformer.

A boiler is located within the compound's maintenance building.

2.3.3 Warehouse/Maintenance Shop

2.3.3.1 Location and Type of Operation

Buildings 485, 491, and the adjacent area are apparently used to store and service miscellaneous equipment, spare parts, and appliances.

2.3.3.2 Processes, Raw Materials Used, and Waste Released

A 6,000 gallon capacity heating oil UST is located adjacent to the west side of Building 485. The integrity of this tank is not known. Drums of solvent or oil are stored outside on a concrete pad adjoining the northeast corner of Building 491. An open, sawed-off drum, filled with rain water and waste oil, is also situated on the pad. There is no spill containment dike around the pad; the grounds adjacent to the pad are heavily oil-stained. Petroleum hydrocarbon contamination emanating from this area may contribute to the possible contaminant plume detected in the RMC soil gas survey performed in this area.

2.3.4 Heavy Equipment Wash Rack

2.3.4.1 Location and Type of Operation

A wash rack (Structure 590) is located along the western side of West Road, between Artillery and Depot Avenues. The wash rack apparently services heavy equipment stored on adjacent grounds to the east of West Road.

2.3.4.2 Processes and Waste Generated

Wash water generated during equipment cleaning is directed to a drain. It is not known if the wash water, which may contain oil and grease, is treated prior to ultimate discharge to the environment.

2.3.5 Headquarters Building

2.3.5.1 Location and Type of Operation

The headquarters building (Building 171) is located on Garrison Road near the intersection with Artillery Avenue. The Pedricktown Support Facility administrative offices are located in Building 171.

2.3.5.2 Processes, Raw Materials, and Wastes

A heating oil fill pipe at the rear of the building leads to a boiler in the basement. The soil around the pipe is oil-stained, apparently due to spillage during filling.

2.3.6 Old Coal Storage Bins

2.3.6.1 Location and Types of Operation

The old coal storage bins (Structure 471) are located adjacent to the western perimeter of the former Nike Missile Command Center. Coal is no

longer used to heat the post, so the three bins are used for shipping container storage.

2.3.6.2 Wastes

In addition to shipping container storage, the northernmost bin is also used to store discarded office furniture. Several drums of waste hydraulic fluid or other waste fluids were also observed in this bin. The front of the concrete bin is open-ended and this may allow uncontained spills to run onto the adjacent ground surface. RMC soil gas probe excavations near the bin area uncovered 1 to 3 inches of coal fragments.

2.4 History of Spills or Releases

Several recent oil spills or releases have been documented at the Pedricktown Support Facility. Information regarding the incidents was obtained from U.S. Army and NJDEP records (Appendix A). Incidents of past illegal dumping or burning in the adjacent Pedricktown Disposal Area or the off-site properties are not the focus of the RMC environmental assessment. RMC's review of data revealed no reports of fire or explosions on the site, nor incidents which may have resulted in a direct contact event. No citations for violations to the environment or human health have been issued.

26 November 1986 - During a #2 fuel oil delivery at Building 273, oil was forced out an uncapped line and onto the floor in the boiler room. Oil also spilled outside the building from a vent line. Approximately 8 cubic yards of soil were removed by ProTank, Inc.

11 October 1984 - A #2 fuel oil tank in Building 184 was over filled by 140 to 200 gallons. The spilled oil ran through a sand/cinder block con-

tainment wall onto the concrete floor and into a sump pit. An estimated 60 to 80 gallons of oil was pumped outside onto the soil. Approximately 29,000 pounds of contaminated materials were removed from the site by L.S. Riggins Oil Company and Browning-Ferris Industries.

5 June 1984 - Four 55 gallon drums of waste oil were dumped into a pond on Corps of Engineers' property, in the vicinity of the support facility. Oil was spilled into the pond and on the roadway leading to the pond. Army Reserve personnel were purported to have dumped the drums. The area was cleaned up and the drums were staged for disposal.

2.5 Inventory of Above Ground and Underground Storage Tanks

Table 1.0 identifies the locations, status, capacities, and contents of known aboveground and underground storage tanks (Figure 2.0). Possible locations of former tanks are also listed. Information for this table was compiled from U.S. Army site maps, interviews with post personnel, NJDEP records, and observations noted during the RMC site walk over. No samples were collected to verify the contents of the tanks.

The integrity of the tanks is unknown as no tank testing has ever been performed at the Pedricktown Support Facility. The U.S. Army has taken measures to guard against fuel oil spillage during tank filling by placing small containment vessels around active underground tank fill pipes (Appendix B). No containment vessels have been fitted to fill pipes leading to tanks inside buildings.

A U.S. Army tank location map obtained by RMC [Drawing #16-06-01, Appendix A] depicts underground storage tanks behind Buildings 273 and 171. During the site walk over, RMC observed fill pipes leading into the basements behind

TABLE 1.0 - INVENTORY OF UNDERGROUND AND ABOVE GROUND STORAGE TANKS, PEDRICKTOWN SUPPORT FACILITY AND VICINITY, OLDMAN'S TOWNSHIP, SALEM COUNTY, NEW JERSEY

Location	No. of Tanks	Type	Status	Capacity	Contents
Bldg. 278	2	UST (1)	Active	550 Gal. (ea.)	Fuel oil
Bldg. 277	2	UST	Active	550 Gal. (ea.)	Fuel oil
Bldg. 276	2	UST	Active	550 Gal. (ea.)	Fuel oil
Bldg. 274	1	UST	Active	1,000 Gal	Fuel oil
Bldg. 273	1	UST	Active	1,500 Gal	Fuel oil
T 272 (2)	U (3)	U	N/A (4)	N/A	Fuel oil ?
T 270 (2)	U	U	N/A	N/A	Fuel oil ?
T 283 (2)	U	U	N/A	N/A	Fuel oil ?
T 282 (2)	U	U	N/A	N/A	Fuel oil ?
Bldg. 130	1	UST	Abandoned	550 Gal. ?	Fuel oil
Bldg. 171	1	UST	Active	1,500 Gal.	Fuel oil
Bldg. 173	2	UST	Active	1,000/4,000 Gal.	Fuel oil
Bldg. 184	1	UST	Active	550 Gal.	Fuel oil
Helicopter Pad	1 (5)	UST	Abandoned	Unknown	Gasoline
Bldg. 177 South	1	UST	Active	1,000 Gal.	Fuel oil
Bldg. 177 North	1	UST	Abandoned (?)	550 Gal. ?	Fuel oil
Bldg. 179	1	UST	Active	1,000 Gal.	Fuel oil
Bldg. 404 Front	1	UST	Abandoned	N/A	Gasoline
Bldg. 404 Back	1	UST	Active	6,000 Gal.	Fuel Oil
Pump Island	3	UST	Abandoned	N/A	Gasoline/Diesel ?
North, Bldg. 413	1	UST	Active	10,000 Gal.	Gasoline
South, Bldg.413	1	UST	Active	10,000 Gal.	Diesel
Rear, Bldg. 413	1	UST	Active	1,000 Gal.	Waste Oil
North, Bldg. 422	1	UST	Abandoned	2,000 Gal.	Fuel Oil
West, Bldg. 422	1	UST	Abandoned	275 Gal.	Waste Oil
South, Bldg. 422	2	UST	Abandoned	12,000 Gal. (ea.)	Diesel
West, Bldg. 432	1	UST	Abandoned	8,000 Gal.	Fuel Oil
West, Bldg. 432	5	UST	Abandoned	19,000 Gal. (ea.)	Potable water
West, Bldg. 432	1	UST	Abandoned	7,000 Gal.	Pneumatic Fluids
West, Bldg. 432	2	UST	Abandoned	12,000 Gal. (ea.)	Water
Bldg. 322	1	UST	Active	5,000 Gal.	Fuel Oil
East, Bldg 351	1	AST (6)	Removed	N/A	Fuel Oil ?
East, Bldg 351	1	UST	Abandoned	N/A	Fuel Oil ?
West, Bldg 371	1	AST	Removed	N/A	Fuel Oil ?
West, Bldg 371	1	UST	Abandoned	N/A	Fuel Oil ?
Bldg. 380	1	UST	Active	5,000 Gal.	Fuel Oil
Bldg. 485	1	UST	Active	6,000 Gal.	Fuel Oil
Bldg. 506	1	UST	Active	1,000 Gal.	Fuel Oil
South, Bldg. 506	1	UST	Abandoned	N/A	Fuel Oil ?

NOTES:

1 UST - Underground storage tanks.
2 Building demolished.
3 U - Tank believed to be an underground storage tank.
4 N/A - Information not available.
5 Number of underground tanks at helicopter pad is unknown.
6 AST - Above ground storage tank.
7 RMC has identified only those tanks which were noted on site design diagrams or which were visually observed on our site walkover. Other tanks may be present on this site which were not documented.

both buildings. No underground fill pipes were observed; it is undetermined if underground tanks actually exist in these locations. Few of the Pedricktown Support Facility tanks are registered with NJDEP (Appendix A).

2.6 Federal or State Permits

2.6.1 Pedricktown Support Facility Waste Water Treatment Plant

The Pedricktown Support Facility Waste Water Treatment Plant operates under New Jersey Pollutant Discharge Elimination System (NJPDES) Permit No. NJ0024635. According to NJDEP - Bureau of Pretreatment and Residuals correspondence dated 8 August 1990, the required priority pollutant scan for the reporting period of February 1990 has not been received by NJDEP. The NJDEP may require the facility to increase the schedule of reporting for any or all constituents which may be detected on the priority pollutant scan (Appendix A). NJDEP also requires that the facility provide evidence of the hauler/disposal site utilized for any treatment plant sludge disposal. No proof of permitted sludge disposal has been obtained by RMC for this assessment. No evidence of any treatment plant discharge permit violations was provided by NJDEP.

2.6.2 Underground Storage Tanks

According to NJDEP - Bureau of Underground Storage Tanks, the Pedricktown Support Facility general tank registration file number is 0071994. The 1986 NJDEP - Underground Storage Tank Registration Questionnaire provided to RMC lists five underground tanks, identified as E1 through E5. A 1988 questionnaire updates the list to include three more tanks, identified as E-6 through E-8. None of the tank locations are provided on either questionnaire.

NJDEP requires all operating or existing, abandoned, or closed tanks to be registered. The Pedricktown Support Facility apparently has not complied with this requirement as numerous other tanks were identified during the RMC site assessment.

2.6.3 Boilers

The NJDEP Division of Environmental Quality, Air Pollution Control Program, Bureau of Engineering and Technology designates the Pedricktown Support Facility as Plant #65094. The facility is permitted to operate a fuel oil-fed, forced draft boiler in Building 273. The permit (Number 076592) expires on 25 November 1991. In 1987 an application was filed to operate a Weil-McLain boiler in Building 404. It is not known whether the Building 404 boiler permit was approved by NJDEP.

2.7 Inventory of Electrical Transformers

Numerous electrical transforms are located throughout the post. The majority are pole mounted and appear to be over ten years old. It is probable that most, if not all, of the transformers contain PCB insulating fluids. According to the post engineer, all the transformers are the property of the U.S. Army. No mention of transformer leaks were noted in any of the Army records reviewed by RMC. An inventory of transformers observed during the RMC site walk over is listed in Table 2.0.

TABLE 2.0 - INVENTORY OF ELECTRICAL TRANSFORMERS, PEDRICKTOWN SUPPORT FACILITY ,OLDMAN'S TOWNSHIP, SALEM COUNTY, NEW JERSEY

Location	No. of Transformers	Type	Status
Bldg. 229, South	1	PM (1)	Active
Bldg. 229, North	1	PM	Active
Adjacent to Rte 130	3	PM	Active
Bldg. 269, East	3	PM	Active
Bldg. 220	1	PM	Active
Bldg. 173	3	PM	Active
Bldg. 184,North	1	PM	Active
Bldg. 197	1	PM	Active
Bldg. 322	3	PM	Active
Bldg. 351	3	PM	Active
Bldg. 371	3	PM	Active
Bldg. 380,West	3	PM	Active
Bldg. 380,South	1	PM	Active
Bldg.434,South	1	PM	Active
Bldg. 464	3	PM	Active
Bldg. 474, South	1	PM	Active
Bldg. 495, South	3	GM (2)	Active
Bldg. 530,South	1	GM	Inactive

NOTES:

1 PM - Pole Mounted Transformer.

2 GM - Ground Mounted Transformer.

3 RMC has identified only those transformers which were noted on site design diagrams or which were observed on our site walkover. Other transformers may be present on this site, but were not documented.

3.0 GROUNDWATER CONSIDERATIONS

At the PSF site, groundwater routes offer the greatest potential for introduction and dispersal of contaminants into the environment. Proper hydrogeological characterization of subsurface conditions is essential to definition of the impact of site activities on the surrounding environment. Specifically, this section will address the following issues:

- Identification and geologic/hydrogeologic characterization of aquifers and aquitards in the PSF area.
- Location and characterization of water supply and monitoring wells in the immediate vicinity of the PSF site.
- Discussion, where possible, of groundwater quality.

Prior to preparing this report, discussions on groundwater related issues were held with representatives of state and local regulatory agencies. In addition, information on wells installed in the immediate vicinity was obtained from the State of New Jersey and from previously published technical reports.

This investigation was a preliminary assessment of the PSF. No groundwater samples were obtained nor were analysis of groundwater samples conducted during the preliminary assessment.

3.1 Site Geology and Hydrogeology

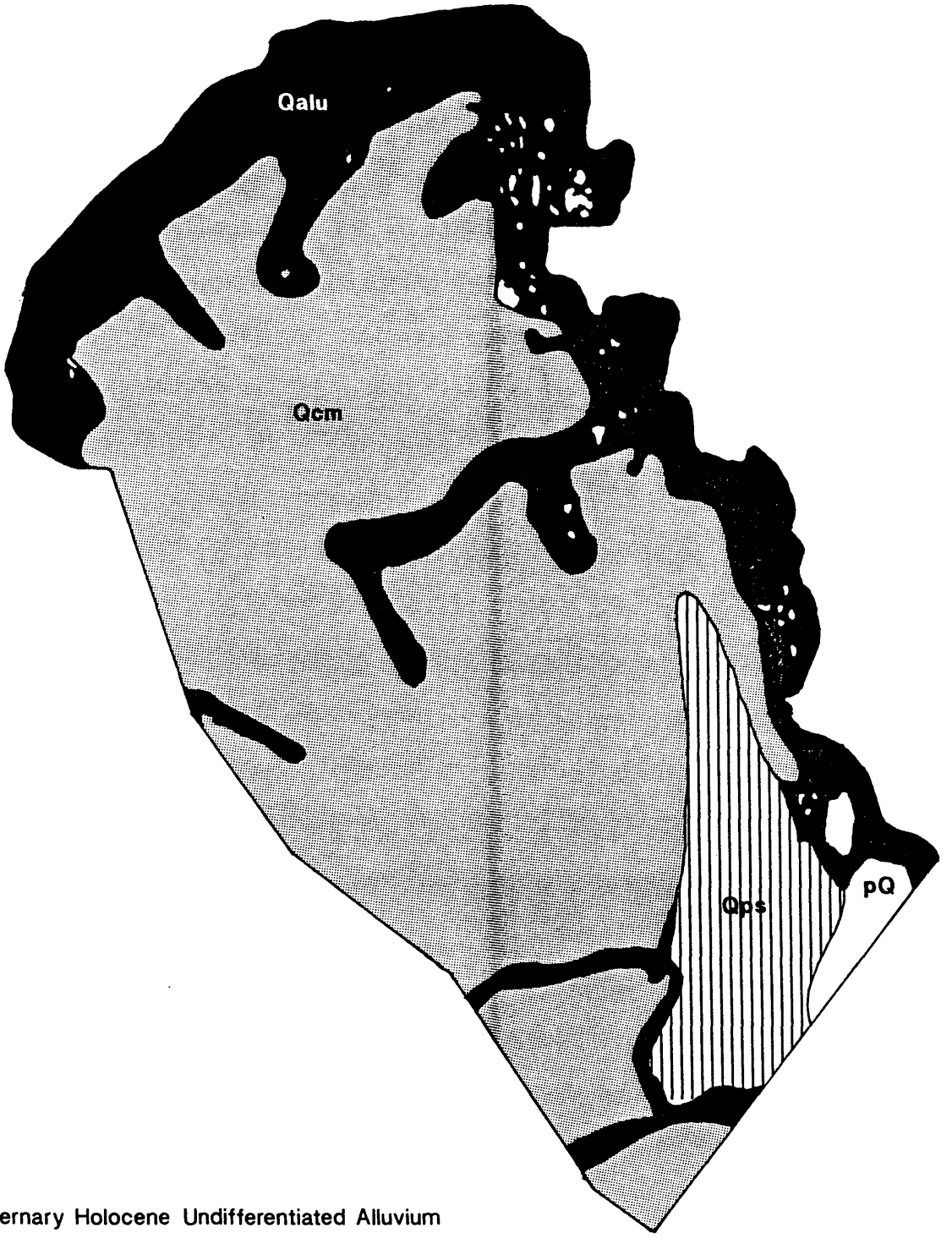
The PSF is located in the Atlantic Coastal Plain (ACP) physiographic province of New Jersey. In Salem County, the ACP is composed of unconsolidated Quaternary, Tertiary, and Cretaceous age sediments which lie unconformably over crystalline metamorphic rocks of Precambrian or early

Paleozoic age. Quaternary sediments include erosional outwash and organic materials associated with fluvial and paludal deposition and are generally flat lying. The distribution of Quaternary sediments in Northwestern Salem County is shown in Figure 4.0. Tertiary and Cretaceous sediments (and lightly consolidated sedimentary rocks) are part of a southeasterly thickening wedge of continental, coastal and marine materials associated with the formation and development of the ancestral Atlantic Ocean. These sediments generally strike northeast-southwest and dip to the southeast at 10 to 60 feet per mile. Subsurface relationship of Tertiary and Cretaceous sediments in Northwestern Salem County is shown in Figure 5.0. In Salem County, the unconsolidated sediments form a veneer which varies from a feather edge along the Delaware River to over 2,000 feet in southeastern parts of the county. The unconsolidated sediments lie unconformably over basement rock, the Wissahickon Formation, a Precambrian and early Paleozoic metamorphic rock. Figure 6.0 shows a schematic cross-section of the various formations in the immediate vicinity of the PSF, while Table 3.0 provides a stratigraphic column for the site.

3.1.1 Local Stratigraphy

The stratigraphy of subsurface formations at the PSF site is representative of the feather edge of deposition discussed above. Previous technical studies project the ultimate thickness of sediments above basement rock in this vicinity to range from 250 to 500 feet. Discussion of the localized stratigraphy presented below refers to Figure 6.0.

Basement rock in this portion of Salem County is the Wissahickon Formation, a member of the Glenarm "Series", the upper Precambrian (and possibly early Paleozoic) rocks which form the immediate basement in the Southeastern Pennsylvania, Southwestern New Jersey, and Delaware areas. The Wissahickon



KEY:

Qalu - Quaternary Holocene Undifferentiated Alluvium

Qcm - Pleistocene Cape May Formation

Qps - Pensauken Formation

pQ - PreQuaternary, Tertiary or Cretaceous Formation

NOT TO SCALE

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FIGURE 4.0. Surface Geology of Oldman's Township, Salem County, NJ
Reference: Rosenau, Lang, Hilton, and Rooney, 1969, Geology and Groundwater Resources of Salem Co., NJ, Sp. Rep. 33.

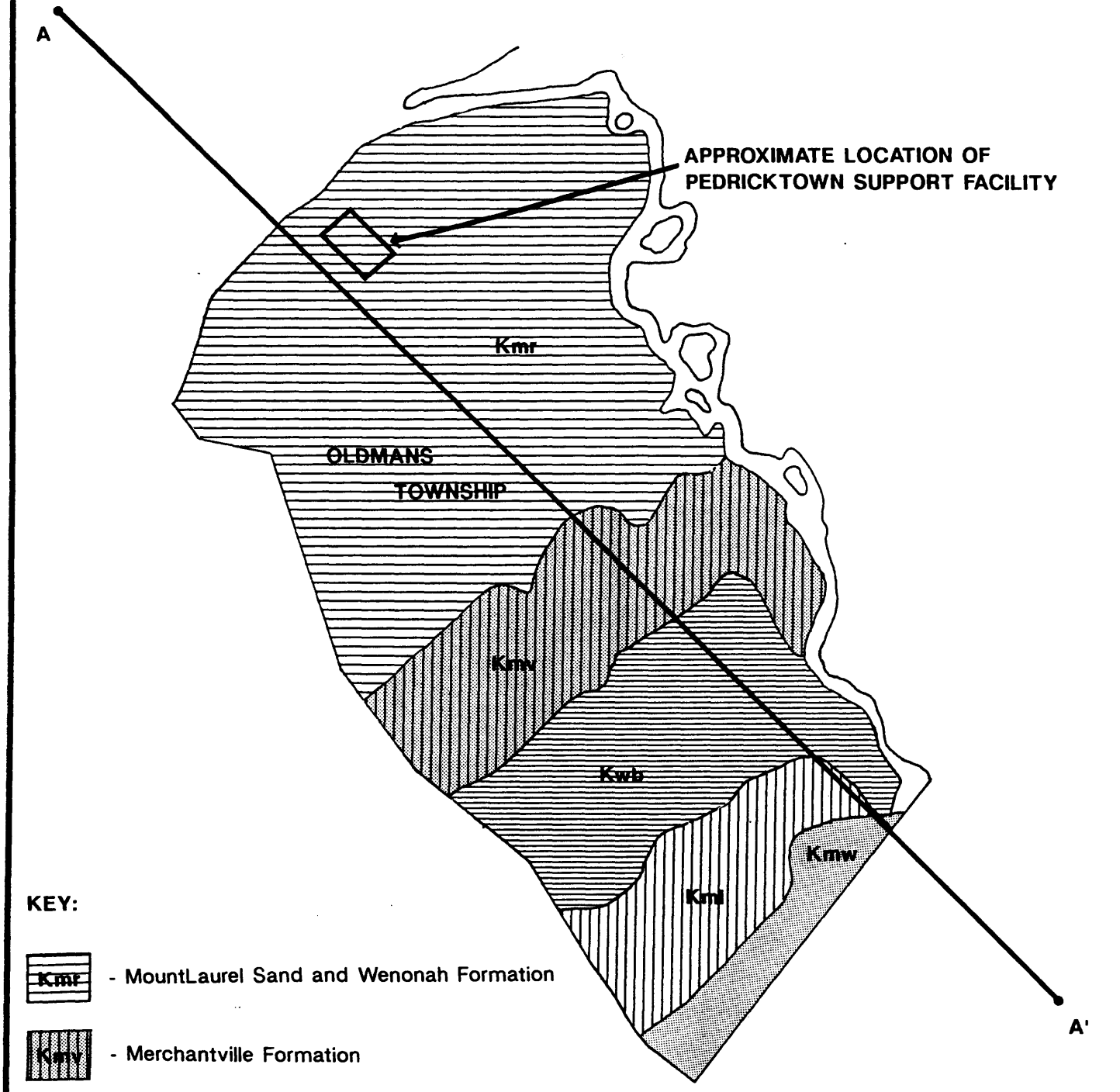

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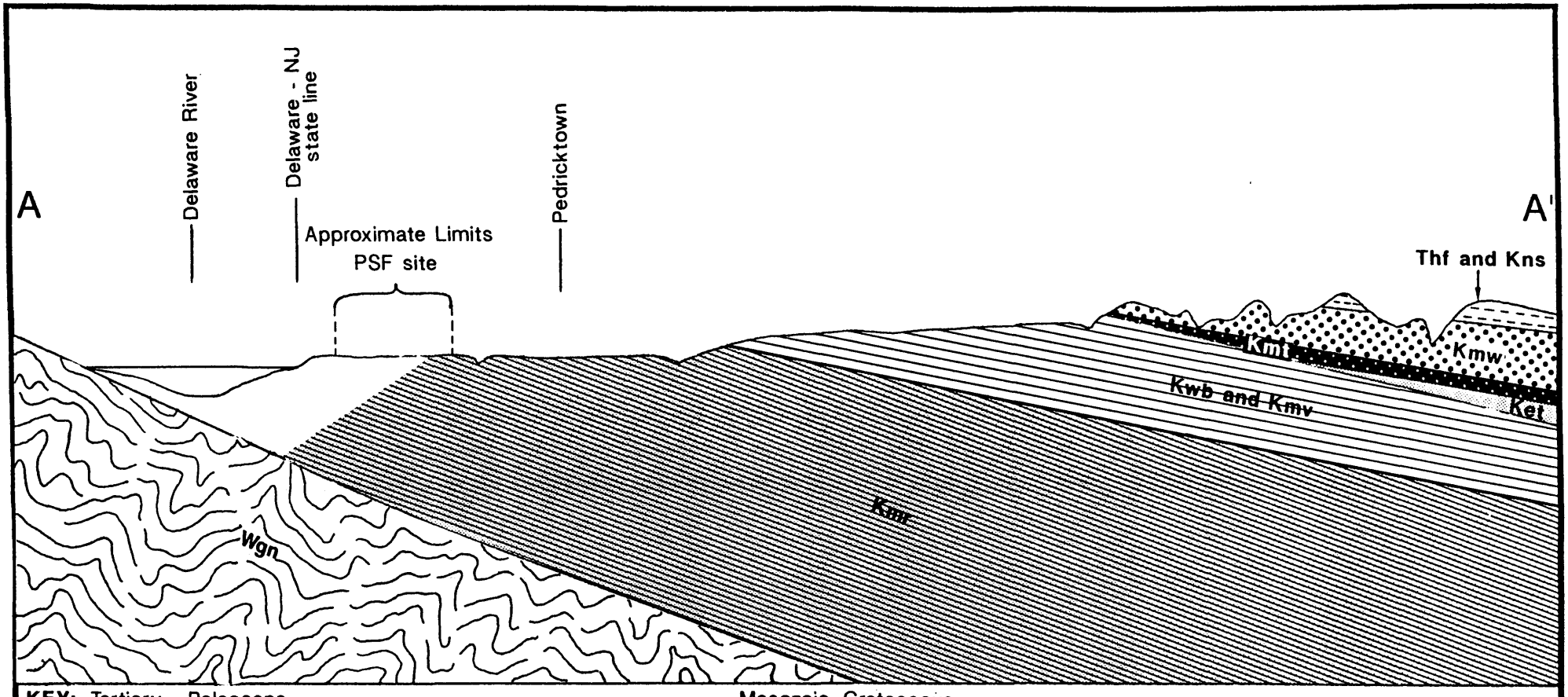
FIGURE 5.0. Subsurface Geology in Oldman's Township, Salem County, NJ
Reference: Rosenau, Lang, Hilton, and Rooney, 1969, Geology and Groundwater Resources of Salem Co., NJ, Sp. Rep. 33.



KEY: Tertiary Paleocene
- Thf - Hornerstown Sand

Mesozoic Cretaceous
- Kns - Navesink Formation
- Kmw - Mount Laurel Sand and Wenonah Formation
- Kmt - Marshalltown Formation
- Ket - Englishtown Formation

Mesozoic Cretaceous
- Kwb - Woodbury Clay
- Kmv - Merchantville Formation
- Kmr - Potomac Gp-Raritan and Magathy Formation

Precambrian
- Wgn - Wissahickon Formation

Note: Quaternary sediments not included on cross section.

FIGURE 6.0. Schematic Cross section of Oldman's Township, Salem County, N.J.

Reference: Rosenau, Lang, Hilton, and Rooney, 1969, Geology and Groundwater Resources of Salem Co., NJ, Sp. Rep. 33.

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TABLE 3.0 - LOCALIZED STRATIGRAPHY OF THE PSF SITE, OLDMANS TOWNSHIP, SALEM COUNTY, N.J.

Era	System	Formation	Description
Cenozoic	Quaternary	Undifferentiated sediments	Organic soils, medium to coarse sands, silts, and gravels.
Mesozoic	Cretaceous	Potomac Group - Raritan and Magothy Formations	Medium to fine quartz sands interbedded with variegated clays.
Precambrian		Wissahickon Formation	Gneiss and schist

has been described as a flysch succession of some 20,000 feet of metamorphosed graywackes, shales, and clastic conglomerates (submarine slumps). Regional metamorphism proceeded to a grade sufficient to create schists and gneisses out of the former flysch sediments.

Lying unconformably above the Wissahickon Formation is the Potomac Group-Raritan Formation-Magothy Formation, which is identified as the Potomac-Raritan-Magothy Aquifer because of the difficulty of correlating individual units over the region. Sediments of the Potomac-Raritan-Magothy Aquifer unit (PRM) are alternating variegated clays, fine to coarse grained quartz sands, silts, and gravels of Lower and lower Upper Cretaceous age.

The lower Merchantville Formation, a Middle Cretaceous glauconitic to micaceous gray to black clay which lies conformably over the PRM unit is located along the eastern portions of the PSF area. The Merchantville Formation, along with the overlying Woodbury Clay, form the Woodbury-Merchantville confining bed.

Lying unconformably over the Cretaceous sediments are undifferentiated Quaternary clays, silts, and organic clays associated with floodplain deposition from the Delaware River.

3.1.2 Hydrogeologic Parameters

Hydrogeologic parameters of the various formations in the PSF area have been gathered from previously published technical reports and hydrogeological studies in the Tri-State area. A synopsis of aquifers and aquicludes in the PSF area is given in Table 4.0.

The Wissahickon Formation is not considered an aquifer in New Jersey Coastal Plain. Further to the west, in Southeastern Pennsylvania, as well as Newark County, Delaware, the Wissahickon Formation does produce groundwater

TABLE 4.0 - Aquifers and Aquicludes in the Pedricktown Support Facility Area, Oldmans Township, Salem County, N.J.

Aquifer Name	*Yield*	*Permeability*	*Specific Capacity*	*Storativity*	*Transmissibility*	*Porosity*
Wissahickon Formation	2- 200 gpm 20 gpm ave. [1]	Not measurable, Fractured rock aquifer	0.01 to 10.0 gal/ft [2]	NA	> 2,000 gpd/ft [2]	< 5.0%
Potomac-Raritan-Magothy Aquifer	3- 860 gpm 300 gpm ave.	28.0 to 467.88 sq. ft./day	NA	9.0 X 10 to 1.5 X 10 gal/ft	5,000 to 20,000 gpd/ft	26.5 to 39.5%
Merchantville Formation	[3]	1.2 X 10 to 4.01 X 10 sq. ft. / day	NA	NA	NA	NA
Quaternary Alluvium	[4]	NA	5 to 50 gal/ ft. [2]	NA	> 100,000 gpd/ft	NA

NOTES:

1. Formation not productive in Salem County, N.J.
2. Data gathered from studies completed on correlative formations in Newark County, Delaware.
3. Formation is considered an aquiclude in Salem County, N J.
4. Formation has characteristics of an aquifer, but is not productive in Salem County, N.J.

from fractures. In these areas, the Wissahickon can produce from 2 to 200 gallons per minute, with an average production of less than 20 gallons per minute. Specific capacity of wells producing from the Wissahickon Formation in Newark County, Delaware ranges from 0.01 to 13.0 gallons per feet of drawdown. Permeability in the Wissahickon is insignificant because it results from fractured rock with an average porosity of less than 3%. In Newark County, Delaware, transmissibility of the Wissahickon is greater than 2,000 gallons per day per feet. There is no mention of any wells producing from the Wissahickon in Salem County, New Jersey. For purposes of this pre-assessment, the Wissahickon Formation will be considered an aquiclude in the PSF area.

The Potomac-Raritan-Magothy (PRM) Aquifer is the principal source of groundwater in western Salem County. In the area along the Delaware River, which includes the PSF area, the PRM aquifer consists of interbedded fine to coarse grained quartz sand aquifers separated by clay aquicludes. The first aquifer is found at a depth of 20 to 120 feet. It is separated from the second aquifer, which is located at a depth of 150 to 250 feet, by an aquiclude composed of a dense, variegated clay. A second clay aquiclude intervenes between the second and third sand aquifer, which is located at a depth of 300 to 390 feet. A fourth sand aquifer, found at a depth of 400 to 500 feet, is sandwiched between two clay and silt aquicludes, which in turn lie unconformably over the Wissahickon Formation.

Aquifers in the PRM unit have a yield ranging between 3 and 860 gallons per minute, with an average yield of 300 gallon per minute. The sands have an average permeability of 28 to 467.88 $feet^2$ per day and a porosity of 26.5% to 39.5%. The sand aquifers have a storativity which ranges from 9.0×10^{-5}

to 11.5 X 10^{-4} gallons per feet. The aquifer has a transmissibility which ranges from 5,000 to 20,000 gallons per day per foot.

The Merchantville Formation is an aquiclude. It has a measured permeability which ranges from 1.2 X 10^{-4} to 4.01 X 10^{-4} ft^2 per day. Since the formation is considered an aquiclude, it should have negligible porosity and no associated transmissivity.

Quaternary sediments are not considered an aquifer in the PSF area. There are no production wells which produce groundwater from this formation in the immediate vicinity of the site. Quaternary sediments are important because they allow the absorption and recharge of underlying aquifers through percolation of rainwater and other surface waters. In Newark County, Dela ware, where Quaternary sediments are considered an aquifer, the specific capacity of the unit ranges from 5 to 50 gallons per feet, while the transmissivity of the unit is greater than 100,000 gallons per day.

3.2 Residential and Monitoring Wells

3.2.1 Location and Ownership of Wells

Ten residential wells have been identified in the immediate vicinity of the PSF site. The residential wells vary in depth from 17 to 244 feet and range in size from 3" to 10" diameter steel or PVC construction. One of these wells is non-productive, three are used for irrigation purposes, and six are used as drinking water supply wells. Table 5.0 provides a summary of pertinent information on these wells. The location of these wells is shown on Figure 7.0.

No residential wells were identified on the PSF site. Water supply for the site has historically been obtained from the nearby municipality of Penns Grove, New Jersey, and stored in large above ground tanks for on site use.

TABLE 5.0 - WELL INVENTORY, PEDRICKTOWN SUPPORT FACILITY AND VICINITY,
OLDMAN'S TOWNSHIP, SALEM COUNTY, NEW JERSEY

Well Owner	Well Designator	Previous ID	Date Installed	Depth	Type	Measured Water Level	Flow Rate	Diameter	CASING		Screen		Screened Interval
									Type	Length	Slot Size	Length	
Dept. Army, Corps of Engineers	MW-1	EHW-6	6/27/80	33 ft	MW	3.56	10 gpm	4"	PVC	30'	0.020"	5'	30-35'
Dept. Army, Corps of Engineers	MW-2	EHL-1	6/30/80	55 ft	MW	4.86	10 gpm	4"	PVC	52'	0.020"	5'	50-55'
Dept. Army, Corps of Engineers	MW-3	EHL-2	7/1/80	25 ft	MW	5.74	10 gpm	4"	PVC	20'	0.020"	5'	20-25'
Dept. Army, Corps of Engineers	MW-4	EHW-7	7/2/80	42 ft	MW	4.89	10 gpm	4"	PVC	39'	0.020"	5'	37-42'
Dept. Army, Corps of Engineers	MW-5	EHW-13	6/30/80	187 ft	MW	5.73	7 gpm	4"	PVC	111'	0.020"	5'	38-43'
Dept. Army, Corps of Engineers	MW-6	EHW-12	6/26/80	25 ft	MW	15.83	3 gpm	4"	PVC	27'	0.020"	5'	20-25'
Dept. Army, Corps of Engineers	MW-7	EHW-11	7/10/80	72 ft	MW	12.2	5 gpm	4"	PVC	59'	0.020"	5'	57-62'
Dept. Army, Corps of Engineers	MW-8	EHW-8	7/3/80	42 ft	MW	7.67	10 gpm	4"	PVC	39'	0.020"	5'	37-42'
Dept. Army, Corps of Engineers	MW-9	EHW-9	7/16/80	27 ft	MW	5.93	10 gpm	4"	PVC	29'	0.020"	5'	22-27'
Dept. Army, Corps of Engineers	MW-10	EHW-10	7/19/80	18 ft	MW	7.05	10 gpm	4"	PVC	15'	0.020"	5'	13-18'
Dept. Army, Corps of Engineers	MW-11	EHL-4	7/8/80	37 ft	MW	8.23	10 gpm	4"	PVC	39'	0.020"	5'	32-37'
Dept. Army, Corps of Engineers	MW-12	EHW-2	7/16/80	68 ft	MW	7.02	10 gpm	4"	PVC	63'	0.020"	5'	63-68'
Dept. Army, Corps of Engineers	MW-13	EHW-5	7/10/80	47 ft	MW	9.64	10 gpm	4"	PVC	34'	0.020"	5'	34-37'
Dept. Army, Corps of Engineers	MW-14	EHW-4	7/14/80	52 ft	MW	8.98	10 gpm	4"	PVC	39'	0.020"	5'	39-44'
Dept. Army, Corps of Engineers	MW-15	EHW-1	7/16/80	187 ft	MW	-2.92	10 gpm	4"	PVC	111'	0.020"	5'	111-116'
Davidow Residence	PW-1	NA	6/5/56	39 ft	PW	3 ft	30 gpm	6"	Blank Steel	30' 8"	0.040"	6'	33-39'
Coelho Residence	PW-2	NA	4/29/60	27 ft	PW	7 ft	16 gpm	3"	Blank Steel	20'	0.020"	5'	22-27'
Deitrich Residence	PW-3	NA	6/11/84	60 ft	PW	9 ft	None	10"	PVC	40'	1	20'	NA.
Deitrich Residence	PW-4	NA	6/29/84	244 ft	PW	-27 ft	100 gpm	8"	Blank Steel	207'	0.045	20'	207-244'
Britton Residence	PW-5	NA	8/20/69	130 ft	PW	9.42 ft	75 gpm	4"	PVC	120'	0.020"	10'	120-130'
Cunard Residence	PW-6	NA	5/8/52	27 ft	PW	11 ft	20 gpm	3"	Blank Steel	20'	0.020"	6'	21-27'
Bridge Residence	PW-7	NA	6/19/53	17 ft	PW	4 ft	15 gpm	3"	Blank Steel	8'	0.020"	5'	12-17'
Wistar Residence	PW-8	NA	9/6/88	151 ft	PW	22 ft	10 gpm	4"	PVC	141'	0.020"	10'	141-151'
Hart Residence	PW-9	NA	11/4/86	55 ft	PW	NA	None	4"	PVC	44'	0.015"	10'	44-54'
Smith Residence	PW-10	NA	7/14/78	50 ft	PW	NA	None	4"	Blank Steel	40'	0.020"	10'	40-50'

NOTES:

1. Water levels for monitoring wells were measured 12/3/80 during high tide and were reported in a previous report.
2. Water levels for production wells were determined from information gathered from well records filed with the State of New Jersey
3. NA = Not Applicable
4. Information for monitoring well EHW -3 not obtained from State of New Jersey.

In addition, sixteen monitoring wells were installed in June and July, 1980 around the perimeter of the dredge sediment disposal area. These wells range in depth from 18 to 187 feet and are generally 4" diameter PVC construction. Table 5.0 provides a summary of information on these wells, while Figure 7.0 shows their location.

3.2.2 Productive Aquifers

Based on lithologic descriptions which accompany the well records, the productive aquifer for the identified residential and irrigation wells and the monitored interval in the monitoring wells is the PRM unit. In these wells, Quaternary alluvium comprises a layer which ranges between 5 to 20 feet in thickness. The productive zone is described as a medium to fine grained white quartz sand which is found at depths varying from 20 ft to 200 ft across the study area. This is consistent with the lithologic description of the first and second aquifer sands in the PRM aquifer. The productive sands identified in the well records are interbedded with variegated clays, which may act as aquicludes.

While no wells are located on the PSF site proper, at least forty eight shallow geotechnical borings were installed on the property. Logs of these borings, which record both encountered lithology and depth at which groundwater is encountered (piezometric surface), provide an insight into immediate hydrogeologic conditions on the site. A map showing depth to groundwater on the site is shown in Figure 8.0. Table 6.0 presents the boring information used in the development of Figure 8.0.

During the site activities, it was noted that dewatering was taking place on the site. A drainage trench with numerous manifolded pumps was installed to assist in removing groundwater from several areas of the site. RMC

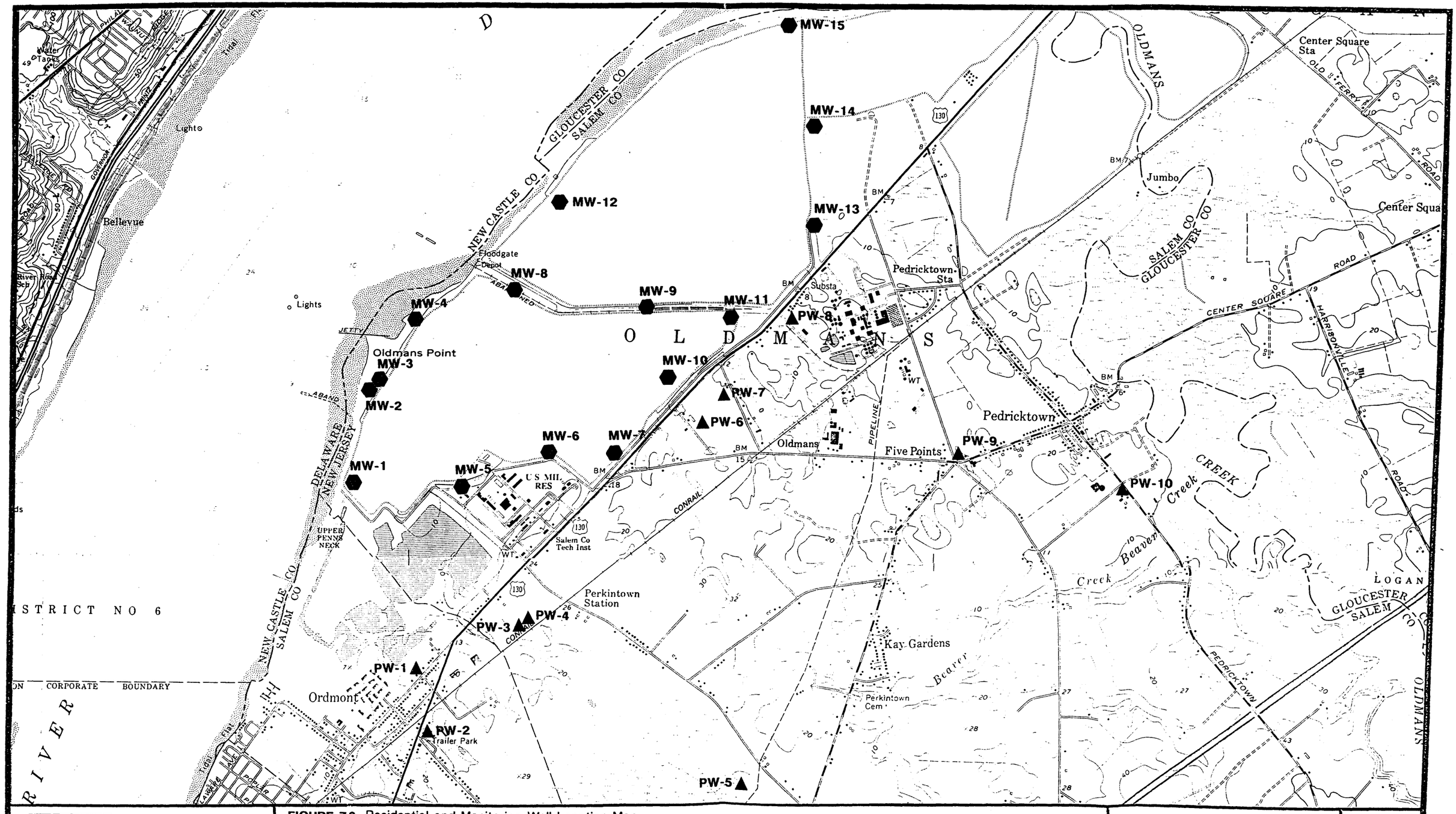

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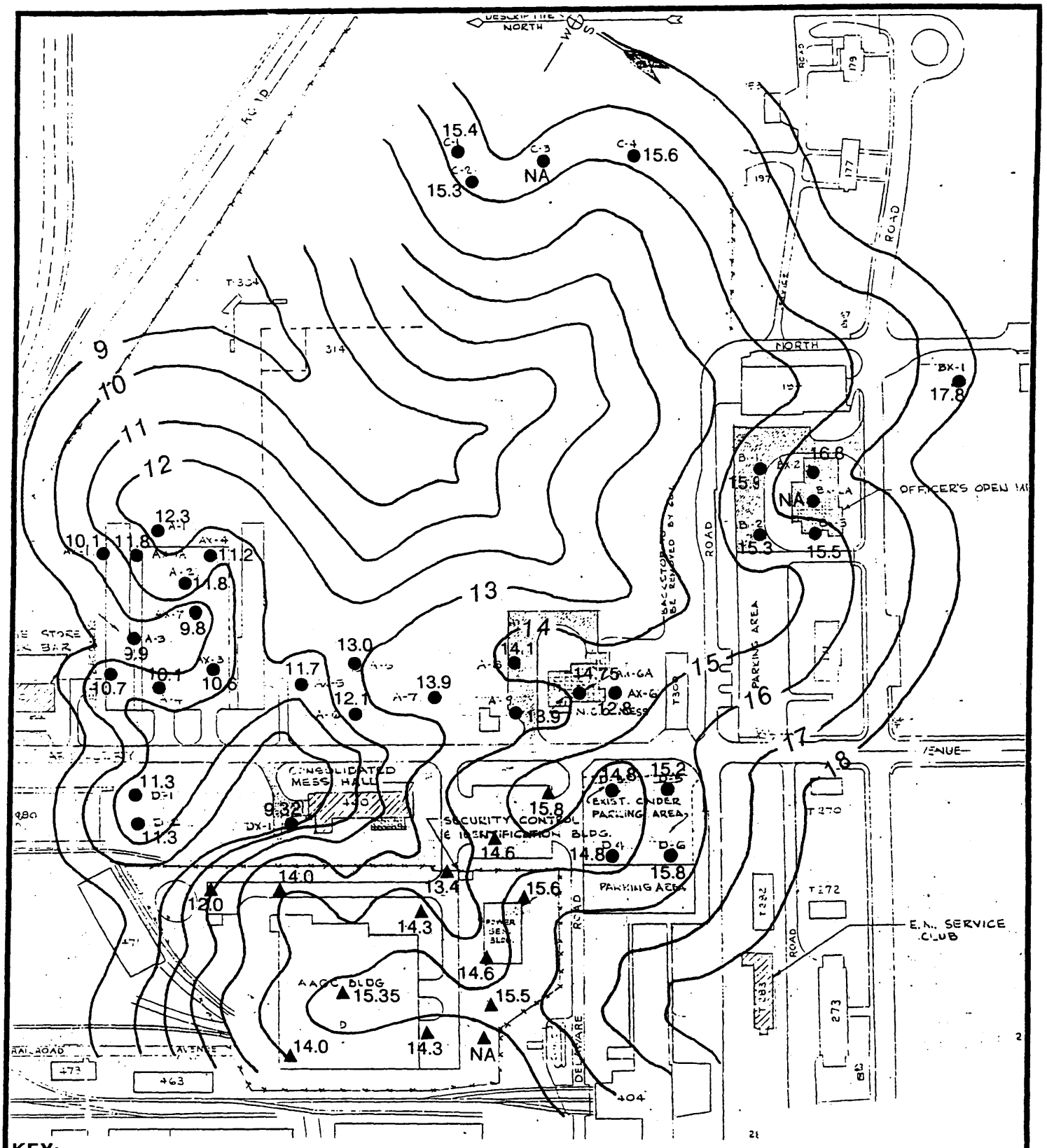
FIGURE 7.0. Residential and Monitoring Well Location Map
Oldman's Township, Salem County, NJ
Source: USGS Marcus Hook Quad, 1967
USGS Penns Grove Quad, 1967

0 MILES 1/2
0 FEET 2000

N



KEY:

~9~ Contours of equal piezometric value

● Borings installed 1959

▲ Borings installed 1958

N

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FIGURE 8.0. Piezometric Map Pedricktown Support Facility
Oldman's Twp. Salem County, NJ

TABLE 6.0 - WATER LEVEL DATA FROM GEOTECHNICAL BORINGS, PEDRICKTOWN SUPPORT FACILITY, OLDMANS TOWNSHIP, SALEM COUNTY, N.J.

BORING NUMBER	INSTALLATION DATE	ELEVATION	DEPTH TO WATER
A-1-58	9/19/58	18.1 ft.	14.3 ft.
A-2-58	10/8/58	18.1 ft.	14.0 ft.
A-3-58	9/22/58	16.2 ft.	14.2 ft.
A-4-58	9/23/58	18.7 ft.	14.0 ft.
A-5-58	9/24/58	16.6 ft.	15.35 ft.
B-1-58	10/6/58	17.6 ft.	15.6 ft.
B-2-58	10/3/58	17.1 ft.	14.6 ft.
B-3-58	10/7/58	18.8 ft.	15.5 ft.
C-1-58	10/13/58	17.8 ft.	15.8 ft.
C-2-58	10/13/58	17.0 ft.	14.6 ft.
C-3-58	10/13/58	16.4 ft.	13.4 ft.
C-4-58	10/13/58	18.9 ft.	N.A.
C-5-58	10/13/58	14.2 ft.	12.0 ft.
A-1	6/12/59	15.3 ft.	12.3 ft.
A-2	6/12/59	14.8 ft.	11.8 ft.
A-3	6/12/59	14.4 ft.	9.9 ft.
A-4	6/12/59	14.1 ft.	10.1 ft.
A-5	6/12/59	17.0 ft.	13.0 ft.
A-6	6/12/59	16.1 ft.	12.1 ft.
A-7	6/12/59	17.9 ft.	13.9 ft.
A-8	6/12/59	18.6 ft.	14.1 ft.
A-9	6/12/59	17.9 ft.	13.9 ft.
AX-1	6/22/59	14.6 ft.	10.1 ft.
AX-1A	7/22/59	15.2 ft.	11.8 ft.
AX-2	6/11/59	14.6 ft.	11.1 ft.
AX-3	6/16/59	14.6 ft.	10.6 ft.
AX-4	6/18/59	15.2 ft.	11.2 ft.
AX-5	6/23/59	15.7 ft.	11.7 ft.
AX-6	6/24/59	17.8 ft.	12.8 ft.
AX-6A	7/7/59	18.0 ft.	14.75 ft.
AX-7	6/12/59	15.0 ft.	9.8 ft.
B-1	6/12/59	21.4 ft.	15.9 ft.
B-2	6/12/59	20.8 ft.	15.3 ft.
BX-1	6/29/59	23.3 ft.	17.8 ft.
BX-2	6/26/59	21.8 ft.	16.8 ft.
BX-2A	7/7/59	21.3 ft.	NA.
BX-3	6/25/59	21.1 ft.	16.1 ft.
C-1	6/15/59	19.6 ft.	15.4 ft.
C-2	6/15/59	19.8 ft.	15.3 ft.
C-3	6/15/59	20.3 ft.	NA.
C-4	6/15/59	20.1 ft.	15.6 ft.
D-1	6/12/59	14.9 ft.	11.4 ft.
DX-1	7/6/59	14.9 ft.	9.32 ft.
D-2	6/12/59	14.8 ft.	11.3 ft.
D-3	6/15/59	18.3 ft.	14.8 ft.
D-4	6/15/59	18.3 ft.	14.8 ft.
D-5	6/15/59	19.2 ft.	15.2 ft.
D-6	6/15/59	19.8 ft.	15.8 ft.

NOTES:

1. Data for borings installed in 1958 taken from Drawing # 16-14-01 A/AF, AN/FSG-1 Facilities, Missle Master Boring Logs, Revision #1 - 12/29/58
2. Data for borings installed in 1959 taken from Drawing # 16-14-01, Delaware Storage Activity Boring Logs - 5/18/60
3. NA = Not Applicable

understands that previous closure activities of the bunkers along the Delaware River, or installed dikes, have created an impermeability barrier that causes rainwater to accumulate and flood these sections of the site. This condition suggests significantly high percolation rates in the surface formations, and a possible method for introduction and dispersal of contaminants into the site groundwater.

3.2.3 Water Quality Data and Sampling History

No residential well or monitoring well groundwater samples were obtained as part of this investigation. Previous studies of groundwater quality in the PSF and Disposal Area [by Betz, Converse and Muddock (1980), by Envirocorp, Inc. (1989), and by the New Jersey Geological Survey (1969)] suggest that concentrations of priority pollutant metals were at or below detection limits, with the exception of manganese and iron, which were detected at concentrations equal to background levels. Total dissolved solids, total and fecal coliform, chlorides, sulfates, color and odor parameters also exceeded state water quality standards, but were attributed to proximity of the site to the Delaware River, incomplete development of the wells, and possible sampling or analytical error.

A second possible source of groundwater quality problems is infiltration of brackish or saline water from the Delaware River. Historically, the fresh water/brackish water interface on the river has stayed to the south of Salem, New Jersey. The combination of overuse of surface water supply, seasonal drought, and upstream diversion and damming has caused the interface to migrate north of Salem, New Jersey. As demand on surface water supplies increases, the possibility exists that increasing infiltration of brackish water, and subsequent degradation of groundwater supplies, will occur.

3.2.4 Potential for Contamination from Site Activities

The PSF site has numerous underground and above ground storage tanks used for storage of petroleum products. In addition, the history of the site includes both final assembly of munitions and a staging area for U.S. Army Reserve units. The nature of these activities includes the use of hazardous materials. Given the permeability associated with Quaternary and PRM sediments, and the generally shallow depth to groundwater, the potential for shallow groundwater contamination should be considered good.

No quantitative data was collected during this study which identifies the types or concentrations of contaminants in these sediments. However, a limited soil gas survey conducted in selected areas of the site indicates that some probable contamination of the soils and groundwater has occurred on the site. A more complete discussion of the soil gas survey is found in Section 6.1.

3.2.5 Applicable Regulations, Permits, and Violations

Based upon our review of the site records and the files of the Department of Environmental Protection, State of New Jersey, there is no evidence that any violations or citations directly related to contamination or misuse of groundwater on the PSF site have occurred or been issued. On 10 October 1988, a preliminary assessment was completed for U.S. EPA Region 2 which described possible groundwater contamination as a potential hazard to the environment and/or population. No further action was anticipated based on the information received.

The principal federal regulations which impact groundwater issues and are pertinent to the PSF site are the Clean Water Act (CWA) and the Resource

Conservation and Recovery Act (RCRA). In addition, the U.S. EPA identifies the New Jersey Coastal Plain Aquifer (NJCPA), of which the PSF site is a part, as a sole source aquifer. This requires EPA review of any federally funded project in the NJCPA or its streamflow source zone.

On a State regulatory level, portions of the New Jersey Water Pollution Control Laws, the New Jersey Water Quality Planning Act, and the New Jersey Ground Water Quality Standards are applicable to PSF site conditions.

4.0 SURFACE WATER AND WETLANDS CONSIDERATIONS

4.1 Surface Water Route

Surface water flow is the second method for dispersal of contamination from the PSF site. Proper hydrological characterization of the site is more difficult because site activities obscure surface features which may impact and influence surface water flow. Specifically, this section will address the following issues:

- Identification and hydrologic characterization of surface water flow in the PSF area.
- Location and characterization of wetlands and impact of site activities on any endangered species in the PSF area.
- Discussion, where possible, of surface water quality.

Prior to preparing this report, information on surface water flow in the immediate vicinity was obtained from the State of New Jersey and from previously published technical reports.

This investigation was a preliminary assessment of the PSF site. No surface water samples were obtained nor were analysis of surface water samples conducted during this phase of the investigation. Information on water quality was obtained from previously published technical articles.

4.1.1 Location of Surface Waters

No surface waters are located within the boundaries of the PSF site. The site is located approximately 0.75 miles east of the Delaware River, and approximately 2.25 miles south of Oldmans Creek. Several streams are located in the disposal area to the north and east of the site. In addition, a

drainage swale and diversion ditch are located to the southwest and northwest of the site boundaries.

Surface runoff from the site is restricted from entering the Delaware River directly by the impervious dike discussed in Section 3.2.2. During the site inspection, numerous drainage grates were identified across the property. These are part of a storm sewer/drainage system, which consists of numerous drop inlets or concrete catch basins which tie into several 18 inch diameter concrete storm water lines. These are used for removal of surface water from the site. Based on the site plan obtained by RMC, collected waters empty directly into the Delaware River without treatment.

4.1.2 Surface Water Utilization

Surface waters on the PSF site are not used as a drinking water supply, nor are they used for irrigation, recreational or industrial purposes. As discussed in Section 4.1.1, surface runoff is collected and disposed off site.

4.1.3 Water Quality and Sampling History

No surface water samples were collected as part of this investigation. Sampling of the Delaware River and Oldmans Creek occurs annually as part of a United States Geological Survey program. The Envirocorp, Inc. 1989 report indicates that water quality in the Delaware River from the immediate vicinity of the PSF site suggests that water quality is fair. This report also notes that water quality downgradient exhibits increased levels of phenol.

4.2 Wetlands and Endangered Species

4.2.1 Wetlands

RMC Environmental Services was instructed to develop an inventory of freshwater wetlands within a one-mile radius and coastal wetlands within a two-mile radius of the Pedricktown Support Facility study area (Figure 9.0) based on existing reference materials. For the purposes of this report, freshwater wetlands are those wetlands not affected by tidal fluctuations while coastal wetlands include all wetlands influenced by the tides regardless of whether they have brackish or freshwater regimes. Three readily-available references were consulted; they are: (1) the Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) quadrangles, (2) the Department of Environmental Protection (DEP) Tidelands maps, and (3) the Soil Conservation Service (SCS) Soil Survey for Salem County. Field verification of these references is beyond the scope of this study.

The National Wetlands Inventory is a nation-wide project in which the Fish and Wildlife Service has used interpretation of aerial photography (generally infrared film at high altitude) to compile a database of wetlands. Wetland types, locations, and approximate size have been mapped and overlain on U.S. Geological Survey (USGS) topographic base maps (scale: 1 inch = 2,000 feet).

The Tidelands maps are more detailed aerial photographs with the actual coastal wetland vegetation outlined and labelled. These maps, printed by the DEP at a scale of 1 inch = 200 feet, tend to be more reliable in determining the locations and boundaries of coastal wetlands. Their scale makes inclusion in this report impractical.

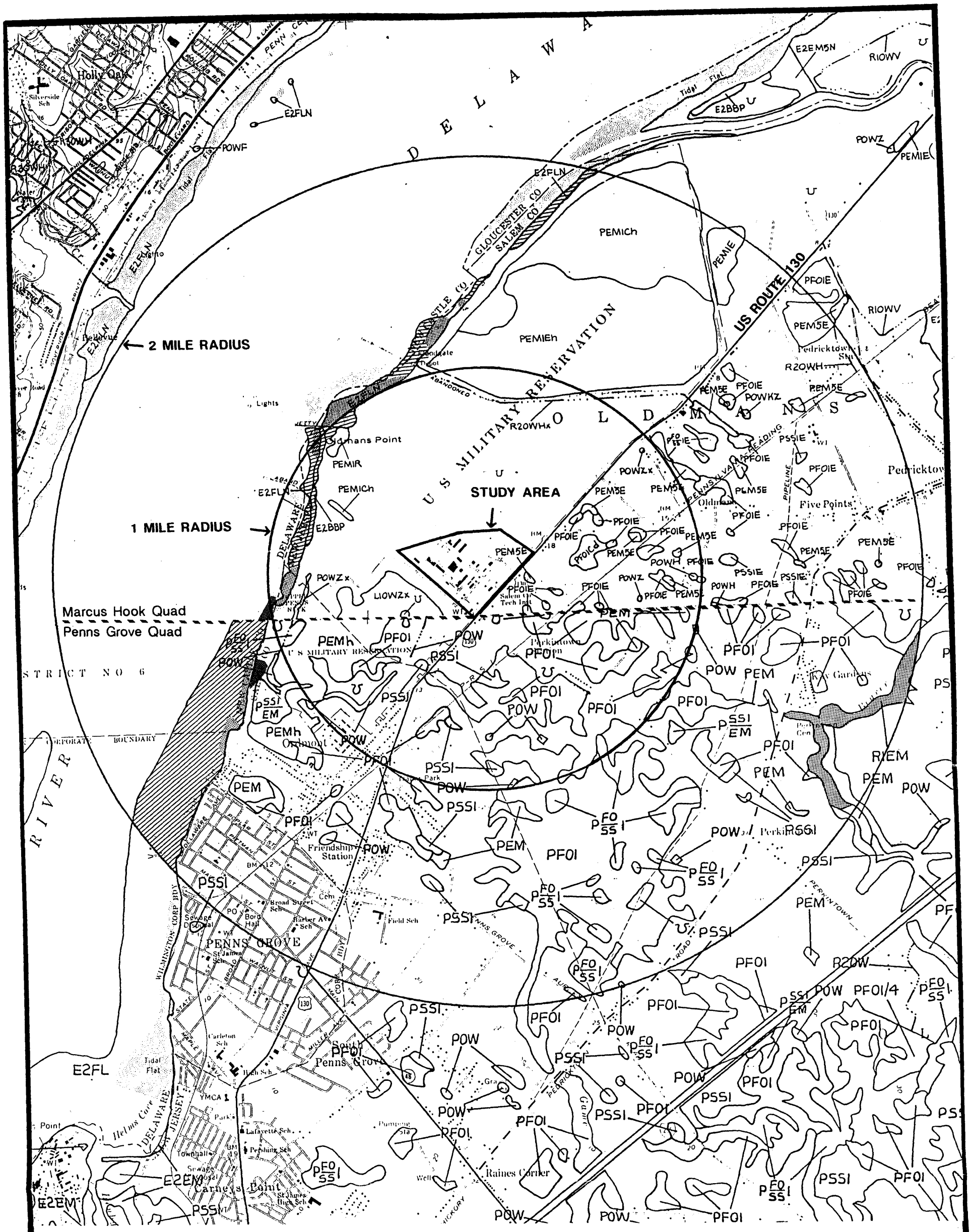

FIGURE 9.0. National Wetlands Inventory Map
Oldman's Township, Salem County, NJ
PEDRICKTOWN SUPPORT FACILITY
Source: USFWS NWI Marcus Hook Quad, 1981
USFWS NWI Penns Grove Quad, 1975

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The Salem County Soil Survey is also based on aerial photography but at a much smaller scale (1 inch = 1,320 feet) than the Tidelands maps (Figure 10.0). Different soil types are outlined on the photographs. The soil survey also provides descriptive information on each soil type, including their respective drainage class. From the drainage class, we can locate the more poorly drained soils and which are more likely to include wetlands.

All three of these maps used together give a fair concept of the general distribution of wetlands in the area; accuracy is limited by the scales of each reference and its associated inventory methodology.

4.2.1.1 Freshwater Wetlands

Review of the Marcus Hook and Penns Grove NWI quadrangles indicates no freshwater wetlands occur within the Pedricktown Support Facility study area. The soil survey maps approximately two-thirds of the study area as Klej loamy sand (KmA), a moderately well to somewhat poorly drained soil. Since this soil is listed in "Hydric Soils of New Jersey, 1987" as possibly containing hydric inclusions, soil borings in the field would be required for verification. The remainder of the study area is mapped as Galestown sand (GaB) and Evesboro sand (EvB), two excessively well drained soils. Wetlands occurring in these soils are highly unlikely. Adjacent to US Route 130, a small intermittent stream is shown on the soil survey to be flowing through both of these sandy soils. The probability of finding more than streambank wetlands here is slight due to the drainage class of the soils through which the stream flows.

Within a one-mile radius of the study area, a number of different types of freshwater wetland habitats are mapped by the NWI. Based on the Cowardin classification, these are categorized in either the palustrine or lacustrine

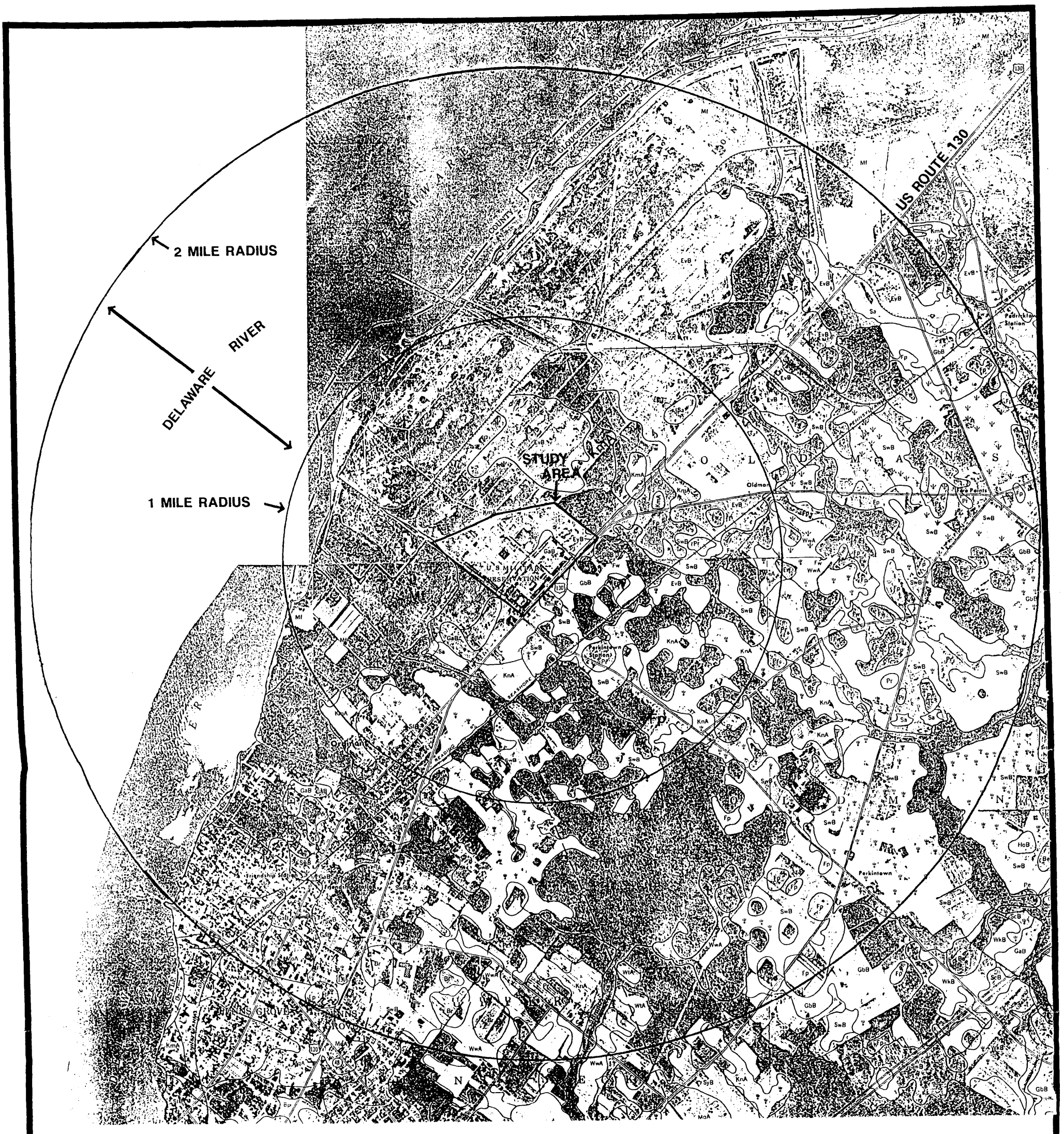

FIGURE 10.0. SCS Soil Survey Map
Oldman's Township, Salem County, NJ
PEDRICKTOWN SUPPORT FACILITY
Source: SCS Salem County Soil Survey, 1969

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ecological systems. Figure 9.0 and Table 7.0 show and describe the different types of wetlands and deepwater habitats mapped in the one-mile radius limit.

Palustrine wetlands cover approximately half of the area within the one-mile radius around the study area. Palustrine forested (PFO) wetlands are the most abundant. A third as many palustrine emergent (PEM) wetlands and a few scattered palustrine scrub/shrub (PSS) wetlands comprise a fourth of the wetlands. Most of the wetlands classified as palustrine forested in the southern half of the one-mile radius are mapped as Freshwater Marsh (Fw) on the soils map. The soils map designation of freshwater marsh covers a larger area than the combined wetland types shown on the NWI map.

One wetland located southwest of the study area falls on the dividing line between the Marcus Hook (April, 1981) and Penns Grove (November, 1975) quadrangles. On the more recent (Marcus Hook) quadrangle, the area is classified as lacustrine limnetic open water/unknown bottom, intermittently exposed/ permanent, diked/impounded (L1OWZx). The southern section of this wetland on the Penns Grove quadrangle is mapped as palustrine emergent, diked/impounded (PEMh). This type of discrepancy in NWI mapping is uncommon in our experience. One possible reason could be the fact that these two adjoining quadrangles were not photographed at the same time of year. A winter photograph may not show vegetation as well as a summer/fall photograph either because winter/early spring water levels are high or that winter ice has destroyed plant remnants. Also, it is possible that the physical conditions have changed over the six intervening years between photographs. This wetland is partially mapped on the soil survey (1963 photos) as Made Land (Mf) with a variable drainage class. This does not resolve the conflict without an on-site field inspection. Another mapped unit of Made Land along the river

Table 7.0. National Wetland Inventory Map Legend

To use the NWI legend: Begin with the first letter (Ecological System) and proceed to subsequent levels (if present the full description of each NWI mapping unit.

Ecological System and Subsystem:

E2	Estuarine Intertidal
L1	Lacustrine Limnetic
P	Palustrine
R1	Riverine Tidal
R2	Riverine Lower Perennial

Class:

BB	Beach/Bar
EM	Emergent
FL	Intertidal Flat
FO	Forested
OW	Open Water/Unknown Bottom
SS	Scrub/Shrub

Subclass:

1	Persistent
5	Narrow-Leaved Persistent

Water Regime:

Non-Tidal		Tidal	
C	Seasonal	P	Irregular
E	Seasonal Saturated	N	Regular
H	Permanent		
K	Artificial		
R	Seasonal Tidal		
Z	Intermittently Exposed/Permanent		

Special Modifier:

d	Partially Drained/Ditched
h	Diked/Impounded
x	Excavated

EXAMPLE: PEM1Ch
P--Ecological System and Subsystem
EM--Class
1--Subclass
C--Water Regime
h--Special Modifiers

On the NWI map, a small section of the Delaware River's shoreline is mapped as estuarine intertidal beach/bar, irregular (E2BBP). A larger stretch of the river is classified as estuarine intertidal flat (E2FL or E2FLN). Both of these areas contain emergent vegetation on the Tidelands maps. The river's shoreline is mapped by the SCS as Made land with two exceptions. The first is a small coastal wetland inundated by the tidal fluctuations and mapped as Tidal Marsh (Tm). The second small area farther south is mapped as Dune Land (Dz), a constantly moving sand without soil characteristics, and probably a nonwetland.

4.2.1.3 Summary

Analysis of available wetland mapping indicate that roughly half of the area within one mile of the study area is freshwater wetland. The NWI maps and the Soil Survey are fairly reliable guides for making this level of determination. However, the NWI typically does not capture the smaller wetland pockets or precisely locate boundaries of larger wetlands. The same is true for the county soil survey; the SCS tends to include smaller hydric pockets within larger mapping units. Discrepancies in the NWI mapping such as discussed in Section 4.2.1.1 are unusual but further illustrate the limits of NWI information.

Few coastal wetlands occur within two miles of the study area. The inventory presented of coastal wetlands within this two-mile radius is deemed more reliable because of the additional information provided by the DEP Tidelands maps. Reliability is greater due to both the scale and field verification that support the mapping.

The inventory conducted above does not allow firm conclusions to be drawn about the presence or absence of wetlands in any particular location,

only a probability of presence or absence. In this context, the study area itself has a moderate to low probability of containing wetlands due to the presence of an SCS-listed hydric soil on the site, but nothing indicated on the NWI map. If the exact locations of the freshwater wetlands within the site are a priority, then a detailed on-site field investigation is warranted. A general overview is probably sufficient for the surrounding areas, which is adequately supplied by the references. However, any areas potentially impacted by site development activities should be field-checked.

4.2.2 Endangered Species

The screening of the study area for the presence of Federal or State listed endangered or threatened species was accomplished by checking existing database for records of confirmed sightings. Within the State of New Jersey, the DEP's Division of Fish, Game, and Wildlife and the SCS cooperate in compiling records for the state's Endangered and Nongame Species Project. The result is a continual stockpiling of information from individuals and organizations into a database for easy access to the public. For the purposes of this report, the potential existence of endangered species within a one-mile radius was investigated.

The Natural Heritage Program Database for New Jersey contains no records of rare or endangered species occurring on or within a one-mile radius of the study area. Since a section of the Delaware River falls within the one-mile radius, Delaware's Natural Heritage Inventory was also accessed. The State of Delaware's database locates no species within the study area's surrounding mile radius which are currently reported as rare or endangered.

The letters from the Natural Heritage Program of New Jersey and the Natural Heritage Inventory of Delaware and accompanying information are enclosed

in Appendix C. The Natural Heritage Program response also includes a statement entitled "Cautions and Restrictions on the Natural Heritage Data". It states that: "The quantity and quality of data collected by the Natural Heritage Program is dependent on the research and observation of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys". However, it is our experience that, unless some unusual or high-quality habitat in the study area or a classified species itself is sighted, no further investigation is warranted.

The Natural Heritage Program letter does not include the possibility of migratory birds flying over and/or landing in the area. The accompanying material lists the potential threatened and endangered vertebrate species in Salem County. The Federal status, type of occurrence in the county, and brief description of habitat are given. This kind of information leads to the conclusion of a high probability of migratory birds in the vicinity.

4.3 Potential for Surface Water Contamination from Site Activities

The presence of an impervious dike between the PSF site and the Delaware River minimizes surface runoff into the Delaware from the site. Flow of surface water from the site's storm sewer system into the Delaware River should cause minimal surface water contamination problems. The drainage system could become a pathway for dispersal of contamination should accidental spills occur near a drainage grate or should hazardous materials be flushed into them.

4.4 Permit/Violation History

RMC identified no previously issued violations or citations for surface water related violations in the NJDEP records. The preliminary assessment

completed on 10 October 1988 for U.S. EPA Region 2 described a situation in which drum storage runoff could enter the sewer system as a potential hazard to the environment and/or population. No further action was anticipated based on the information received.

5.0 AIR QUALITY STUDIES

5.1 Air Quality Determinations

5.1.1 Building 273 Boiler

5.1.1.1 Sampling Event and Quantitative Data

A NJDEP Source Emissions and Source Data Form and associated permit application forms (Appendix A) indicate that the Building 273 boiler emissions were sampled in 1986.

Results of the 1986 sampling conducted on the Building 273 boiler appear to have been within accepted NJDEP limits.

Air Contaminants from Building 273 Boiler

Contaminant Name	Emissions without Control (lbs/hr)	Allowable	How Determined
Particulate	.0236	.0236	AP-42
Sulfur Oxide	.33984	.34	AP-42
Carbon Monoxide	.059	.059	AP-42
Hydrocarbon	.0065608	.012	AP-42
Nitrogen Oxide	.236	.26	AP-42

5.1.2 Building 404-A Boiler

5.1.2.1 Sampling Event and Quantitative Data

Building 404-A Boiler was in 1987. The NJDEP Source Emissions and Source Data Form from the sampling event is presented in Appendix A with associated permit application forms.

Results of the 1987 sampling are presented below. It is not known if air contaminant concentrations fell within acceptable NJDEP limits.

Air Contaminants from Building 404-A Boiler

Contaminant Name	Emissions without Control (lbs/hr)	Allowable	How Determined
Sulfur Oxide	.684288	unknown	AP-42
Carbon Monoxide	.1188	unknown	AP-42
Hydrocarbon	1.321056	unknown	AP-42
Nitrogen Oxide	.4752	unknown	AP-42

5.2 History of Inspections

5.2.1 Inspection Reports

An NJDEP Field Investigation Assignment Report indicates that an inspection was conducted on 15 May 1987. The report does not report any complaints, observations, nor recommendations. No evidence of air quality violations pertinent to the Pedricktown Support Facility in records available from NJDEP.

6.0 SOIL STUDIES

Soils at the PSF site are part of either the Kjel Series or the Galestown Series. A detailed discussion of these soils is included in Section 4.2 and are summarized in Table 9.0. Soils from the Kjel Series are found over most of the site.

Previous geotechnical borings discussed in Section 3.2.2 were studied and show a limited soil profile on the PSF site, with the soil veneer varying between 0.5 and 1.5 feet thickness. Underlying the soil profile is a coarse unsorted sand typical of river floodplain deposition.

No soil sampling was included as part of this preliminary assessment of the site.

6.1 Soil Gas Studies

As part of the preliminary assessment contact, a soil gas survey of two selected areas was requested. The soil gas survey was completed by RMC, in conjunction with the Northeast Research Institute, Inc. (NERI) using the Petrex soil gas sampling methodology. NERI acted as a subcontractor to RMC and provided training on the installation of the Petrex samplers, laboratory analysis of the collectors, and preliminary interpretation of the collected data.

6.1.1 Theory and Sampling History

Petrex soil gas surveying utilizes a static collection device for geochemical analysis of soil and shallow groundwater. The Petrex sampler consists of a Kimax test tube with either two or three Ni-Fe-Mg wires coated with activated charcoal tips. The two wire unit is for field surveying while the

Table 9.0. SCS Salem County Soil Survey Map Legend

Symbol	Soil Name	Drainage Class
Br	*Berryland-Othello complex	very poorly
Dz	Dune land	
EvB,EvC	Evesboro sand	excessively
Fp	Fallsington-Pocomoke-Berryland complex	poorly
Fw	*Fresh water marsh	
GaB	Galestown sand	excessively
GbB	Galestown-Sassafras-Klej complex	excessively
Gp	Gravel pits	
KmA	**Klej loamy sand	moderately well to somewhat poorly
KnA	**Klej-Woodstown-Galestown loamy sands	moderately well to somewhat poorly
Mf	Made land	variable
MoA,MqA	Matapeake silt loam	well
Pr	Pocomoke-Berryland loamy sands	very poorly
Ps	Pocomoke sandy loam	very poorly
Sa	Sand pits	
SfB	Sassafras loamy sand	well
SwB	Sassafras-Galestown-Woodstown loamy sands	well
SyB	Sassafras-Woodstown sandy loams	well
Tm	Tidal marsh	
WtA	Woodstown-Fallsington-Klej complex	moderately well
WwA	Woodstown-Klej-Sassafras loamy sands	moderately well

KEY: NJ Listed Hydric Soils:

* Soils that nearly always display consistent hydric conditions.
** Soils displaying hydric conditions in few places with additional on-site field verification needed to determine if hydric.

three wire unit is for QAQC (Field Blank) purposes. In the lab, one wire is analyzed using Curie Point pyrolosis/mass spectroscopy (MS), while the second wire is preserved for back up analysis. In the three wire units, the third wire is used to calibrate the MS unit.

In the field, a small diameter hole at least 14 inches deep is installed at the node points of the grid. It is critical to install the sampler at a depth of 14 to 18 inches. The hole size is relatively unimportant. The previously decontaminated Kimax tube and recharged wire collectors are opened and installed in the hole with the open end of the tube inserted down. The hole is covered with soil and the Petrex sampler is allowed to stabilize and measure the ambient vapor content of the soil. It usually takes from 1 to 2 weeks to complete the Petrex survey. Several control collectors are installed along with the other sampling units and are collected at three day and ten day intervals. Typically, the control collectors are set up in a three point triangulation.

After collection, the Petrex samplers were capped, labeled, and bagged for shipment to the Lakewood, Colorado laboratory for analysis. Compounds were analyzed by comparing mass spectra from the survey data to a reference library of mass spectra for pure compounds and mixtures. The resulting data was then displayed in the form of isopleth contour maps based on ion flus data for the individual compounds.

Soil gas studies were completed near the motorpool refueling depot (Area 1) and at the waste treatment facility (Area 2). A total of 100 Petrex samplers were installed on a 25 by 25 foot grid in both of these areas. Petrex samplers were installed on 6-8 November 1990. The first control sampler was collected on 13 November 1990. The second control sampler was collected on 20 November 1990. Final collection of all installed Petrex samplers occurred on 27

and 28 November 1990. Sample location maps and results of the study are included in Appendix D.

6.1.2 Results of the Study

Based on the Petrex sampling, four contour maps were developed:

- Combined Dichloroethene (DCE), Trichloroethane (TCA), and Trichlorofluoromethane
  (Freon 11)
- Combined Trichloroethene (TCE) and Tetrachloroethene (PCE)
- Combined Dichlorobenzene (DCB) and Trichlorobenzene (TCB)
- Combined Aromatics and Naphthalenes

These maps are included in Appendix D.

DCE, TCA, and Freon 11 were included on one map because they have coincident peaks which were detected at unique and similar locations. TCE and PCE were combined because they were detected at similar locations, as were DCB and TCB and the naphthalenes and the aromatics.

6.2 Potential for Soil Contamination

In Area 1, the map showing DCE, TCA, and Freon 11 shows indications of concentrated contamination with a westward moving plume emanating from an area west of Building 432. Several small areas of minor contamination, indicative of single spill incidents, are found west of the motor pool building and north of Building 464. The map showing TCE and PCE shows two localized high concentrations west of the motorpool building and a high concentration with a northwestward moving plume north of Building 464. A small westward moving plume of

lower concentration is identified west of Building 432. On the map showing DCB and TCB, two areas of high concentration are identified, one north of Building 464 and one west of Building 432. The area of high concentration west of Building 432 shows a plume with apparent eastward movement. The map showing combined aromatics and naphthalenes shows high concentrations west of Building 432 and north of Building 464. Several localized, lower concentrations are indicated east of Building 432, north of Building 422, and west of the motorpool building. These concentrations can be attributed in part to existing or previously abandoned underground storage tanks. This is especially true of the concentrations identified west of Building 432, the Nike Control Center, and Building 404, the motorpool building. Underground storage tanks in the area west of the motorpool were reported to be closed or replaced. This area is also used for vehicle refueling. The concentrations identified in these areas may be attributed to spillage of gasoline or diesel fuel or other compounds associated with on-site maintenance activities. The source of the concentrations east of Building 432, north of Building 422, and north of Building 464 are not obvious, as no underground storage tanks were identified in the area. RMC believes that these concentrations may be associated with activities which took place in these buildings or with spillage. There is no evidence to suggest that any of the identified contamination plumes is associated with leaks from transformers because there is no association between transformer location and plume concentrations.

In Area 2, the map showing DCE, TCA, and Freon 11 shows concentrated contamination emanating from Buildings 506 and 531 with a large westward moving plume. One small area of minor contamination, indicative of a single spill incident, is found at the southeastern corner of the study area. The map showing TCE and PCE shows a large area of high concentrations emanating from building

506 with a westward and southeastward plume. No concentrations were identified on the map showing DCB and TCB. The map showing combined aromatics and naphthalenes shows several lower, apparently localized, concentrations south and west of Buildings 530 and 531. The concentrations identified in Area 2 are suggestive of activities taking place in Building 506. While there is one underground storage tank located southwest of Building 506, the size and composition of the identified plume is more consistent with spillage or improper disposal of volatile organic compounds. The additional random identified concentrations could be associated with localized spills or with the past use of the area as an incinerator/waste treatment facility. There is no evidence to suggest that the identified contaminant plumes are associated with transformer leaks or spills.

7.0 RECOMMENDATIONS FOR FURTHER ACTION

RMC's Preliminary Site Assessment of the Pedricktown Support Facility site identified several areas of concern which should be addressed. These areas include, in no particular order of concern, the following:

- Underground and Above Ground Storage Tank Systems
- Transformers
- Operation of the Motor Pool
- Storm Sewer Systems and Surface Runoff
- Other Site Operations

7.1 Underground and Above Ground Storage Tank Systems

RMC's review of the underground and above ground storage tanks on the PSF site suggests that few of these tanks comply with either NJDEP or U.S. EPA regulations. At minimum, many of the UST's have not been registered with NJDEP. In addition, many of the UST's are no longer used on site, but have not been properly closed. Because the soil gas survey seems to indicate that contaminant plumes are migrating away from areas with abandoned and active UST's, RMC makes the following recommendations:

1. All tanks should be brought into compliance with NJDEP registration requirements.
2. Areas with abandoned or active UST's which are also located in areas identified on the soil gas survey as hosting contaminated plumes should have a site assessment conducted to determine the lateral and vertical extent, as well as composition, of contamination.

3. Areas with abandoned UST's should have, at minimum, a soil gas survey conducted. If conditions warrant, a site assessment should be completed.
4. Areas with active UST's should have a leak detection monitoring system installed.

RMC believes that deficiencies with the UST's on the PSF site could best be resolved by preparing a site work plan which addresses the needs and solutions for all UST's. The work plan would require NJDEP approval prior to implementation.

7.2 Transformers

Numerous pole mounted and ground based transformers have been identified on the PSF site. RMC's preliminary review suggests that insulating fluids in these transformers may be PCB based. RMC recommends that a detailed investigation of these transformers be conducted. If after identification of serial numbers with the manufacturer it is determined that PCB's were used as insulator fluid, then these transformers should be replaced or drained of PCB fluids by a licensed electrical contractor. Soil samples should be collected to determine whether leakage of fluid has occurred.

7.3 Operation of the Motor Pool

The area around the motor pool building includes several areas of concern. Numerous UST's and above ground tanks are located in the area and have been addressed above, in Section 7.1. In addition, drainage grates located both outside the motor pool building and inside the building in the maintenance bays all

apparently tie into the site storm sewer system. At least one sump was observed inside the motor pool building; its ultimate outflow is unknown.

The last bay in the motor pool building, and its adjacent outside area, were used for reconditioning and recharging batteries. Battery acids used in reconditioning may spill into drainage grates. In addition, spent batteries, drums, and bins of oil, grease, and solvents are often stored in the grassy area.

RMC recommends that a more responsible method of storage of drums and containers be used on the site. At minimum, storage pallets with containment systems should be used for storage of these materials. Soil sampling of the area around the last bay should be completed to determine whether battery reconditioning and materials storage has affected it. Recommendations relative to the storm drains will be discussed below.

7.4 Storm Sewer System and Surface Runoff

The storm sewer system on the PSF collects water from surface drains across the site and ultimately releases this water into the Delaware River. As noted in the section on motor pool activities, spills and runoff from the motor pool area often flow or are washed into the storm water drainage system. Some of these materials may be hazardous or listed materials. Other drains on the base are equally susceptible to spillage of hazardous materials.

Based on our understanding of the Federal regulations, the storm water runoff system may require a permit application, if not a National Pollution Discharge Elimination System (NPDES) permit, for release into the Delaware River. If this is the case, then characterization of the storm sewer runoff may be required. In addition, sediment in the drains and runoff collectors should be analyzed for hazardous content.

No problem is anticipated with surface runoff, because the combination of drainage grates and perimeter dikes prevents sheet flow of rainwater off the site. Care should be taken to minimize spillage on the site because soils and unconsolidated sediments underlying the site are highly permeable.

7.5 Sewage Treatment Plant

RMC's review of the state's records on the sewage treatment plant suggests that the 1990 priority pollutant scan was not submitted in a timely manner. This testing should be completed so that the NPDES permit cannot be rescinded. In addition, manifests from the hauler and owner/operator of the disposal facility should be obtained and submitted to NJDEP. Soil samples should be collected from the old septic system leach fields near Building 530. RMC recommends the development of a waste management program for the PSF site to insure compliance with existing and anticipated permitting requirements.

7.6 Other Site Operations

RMC makes the following recommendations on areas at the PSF site not discussed above:

1. Numerous boilers were identified during the site walkover. Permits for only two of these units were identified in the NJDEP files. All boilers on site should be brought into compliance.
2. The on-site scrap metal dumping area previously located northeast of Building 590 should be sampled for, at minimum, priority pollutant metals.
3. Four chlorine tanks near the apparently abandoned swimming pool may constitute a hazard. These tanks should be removed by trained professionals and disposed in a safe manner.

4. Numerous storage drums and containers were identified on the site. Proper storage procedures, including a container pallet system, should be utilized to bring drum storage into compliance with the Resource Conservation and Recovery Act (RCRA).
5. The soil gas survey identifies a possible contaminant plume apparently emanating from Building 506 and 531. Soil sampling should be conducted in this area to determine the lateral and vertical extent, as well as composition, of contamination. Monitoring wells should also be installed upgradient and downgradient of this area to determine the groundwater geochemistry.
6. The soil gas survey identified possible contamination plumes in the open area north of Building 464. Review of site operations identified the area north and northwest of Building 464 and east of West Road as being the hub of manufacturing and assembling activities on the site. RMC recommends that the soil gas survey should be extended into this area. Based on this survey, soil sampling and monitoring wells could be installed to further define subsurface conditions.

7.7 Additional Considerations

In addition to the previously listed concerns and their effect on the Pedricktown Support Facility, consideration should also be given to their effect on local properties, flora, and fauna. It should be noted that unless more specific testing is completed to quantify and properly characterize the type(s) of contamination identified above, accurate projections as to its toxicologic effect on flora, fauna, and the food chain, as well as physical effect on adjacent properties, cannot be made.

Of greatest concern to RMC is the effect that unregulated discharge from the site via storm sewers will have on the ecology of the Delaware River. There is minimal surface ponding in the PSF, so any contaminants which are released will not be collected there. If contaminants accompany storm runoff, then there is a high probability that the runoff could affect fauna in the river, including fish, molluscs, and other aquatic life. If contaminants do affect the aquatic life in the river, then it is possible that they could enter and detrimentally affect the food chain.

Groundwater contamination associated with the underground storage tanks, spillage, and other site activities, and the sewage treatment plant, has not been completely defined by the studies to date. It is likely that the identified contamination plume could migrate to the Delaware River if the source of contamination is not remediated. If it does this, it also could affect the aquatic life in the river and enter the food chain.

While not quantified during this study, leaks of dielectric fluids associated with the on-site transformers, including any possible PCB fluids, could also pose a threat to fauna and the food chain. PCB's are identified as carcinogens, and as such, pose a significant threat to human health and the environment.

No comments can be made on the effect of identified and potential contamination on flora in the PSF area. This assessment was completed in late Fall - early Winter, after the normal growing season. A wetlands delineation conducted during growing season would be better able to identify stressed vegetation. Stressed vegetation would be associated with spills of regulated compounds, as well as shallow groundwater pollution. While no stressed vegetation was identified during this assessment, the potential for such to exist is good.

The effect of any potential contamination from the PSF site on adjacent properties is minimized by the fact that the site is bound by associated military properties on the north and south and military properties and the Delaware River on the west. Only the eastern boundary of the property is privately held. Storm sewer flow and most of the identified groundwater contaminant plumes travel from east to west. This would suggest that the most likely property to be affected by the PSF site would be the adjacent military property located between the western boundary of the PSF site and the Delaware River. There is some evidence to suggest that at least one of the identified groundwater contamination plumes is moving from west to east. If this plume remained unremediated, there is a possibility that it could migrate east of the PSF site and affect the groundwater on privately held property.

Spillage of fuels or other regulated liquids would effect local areas and not jeopardize adjacent properties unless they were of sufficient quantity to enter the groundwater system or storm sewer system. They should generally pose minimal threat to the adjacent properties. Spills or leaks of dielectric or PCB fluids from transformers should also be localized events, and should not affect adjacent properties unless the leak is associated with an explosion and/or fire. In this instance, PCB particulates could be introduced to the ambient air around the site. There is no evidence that this has occurred on the PSF site to date.

Base on the evidence currently available to RMC, there is little reason to suspect that the identified concerns of the PSF site have affected local flora, fauna, or the food chain, or adjacent properties. However, more data needs to be collected before a final determination can be made.

8.0 REPORT LIMITATIONS

8.1 Scope of Activity

This report is based upon the application of scientific principles and professional judgment as well as subjective professional interpretation of the collected data. Professional judgments expressed in this report are based on the scientific observations and information currently available within the limits of the availability of those data, the negotiated scope of work, the project budget, and the projected schedule. If more definitive conclusions are desired by the client than are warranted by the currently available data, then RMC Environmental Services, Inc. (RMC) reminds the client that our organization (RMC) is bound by strict codes of professional ethics as well as state and federal regulations which prohibit the misinterpretation or misapplication of data. It is specifically RMC's intent that the conclusions and recommendations stated here are intended as guidance and not necessarily a firm course of action except where explicitly stated as such. We make no warranties, expressed or implied, including, without limitation, warranties as to the merchantability or fitness of the study area for a particular purpose. In addition, the information provided to you in this report is not to be construed as legal advice.

8.2 Limitation on the Use of the Report

RMC Environmental Services, Inc. is not engaged in environmental auditing and reporting for the purposes of advertising, sales promotion, or endorsement of any client's interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report has been prepared for the exclusive use of the client or the

client's lender, and agrees that RMC reports or correspondence will not be used or reproduced in full or part for any purpose other that informational purposes for the client and his lender, and may not be used or referenced in any prospectus or offering circular.

APPENDIX A - Regulatory Records

Underground Storage Tanks

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY TRAINING CENTER AND FORT DIX
FORT DIX, NEW JERSEY 08640- 5501

Environmental/Natural
Resources Division

AUG 14 1990

PMC Environmental Services Inc.
Tri-County business Campus
Attn: Richard J. Sichler, Senior Hydrogeologist
88 Robinson Street
Pottstown, Pennsylvania 19464

RE: Underground Storage Tank listing,
US Army Reserve Center, Pedricktown
New Jersey

Dear Mr. Sichler:

The following is the information you requested pertaining to the above referenced subject.

Tank Number	Capacity	Contents
171	1,500	# 2 fuel oil
173-1	1,000	# 2 fuel oil
173-2	4,000	# 2 fuel oil
184	1,000	# 2 fuel oil
273	1,500	# 2 fuel oil
274	1,000	# 2 fuel oil
322	5,000	# 2 fuel oil
380 (PX)	5,000	# 2 fuel oil
404	6,000	# 2 fuel oil
485	6,000	# 2 fuel oil
413-1	14,000	# 2 fuel oil
413-2	10,000	Diesel

Also in front of the Power Generator Building there is a 2,000 gallon tank with # 2 fuel oil, in addition to the tank next to the fire water pump hose which is said to be over 2,000 gallons. This information was provided from the Army Corps of Engineers map 16-06-01 A/AF dated June 6, 1959.

Please contact Mr. Mitch Collins for further correspondence on this matter at (609) 562-3050.

Sincerely,

Joseph R. Haug

Joseph R. Haug
Chief, Environmental/Natural
Resources Division

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resources
CN-029
Trenton, New Jersey 08625

0071994
PEDRICKTOWN SUPPORT FACILIT

AM1.	☐	☐
AUTH.	☐	☐
SP. ROUTE	☐	☑
SITE PLN.	☐	☑
SIGN.	☑	☐
COMCODE	11719	

RECEIVED
MAY 0 8 1986
DEPT. ENVIRON. PROTECTION
Division Water Resources
WQM - Administration

UNDERGROUND STORAGE TANK REGISTRATION QUESTIONNAIRE

Bureau of Ground Water Quality Management
Underground Storage Tank Section
(609)984-9736

COMPLIANCE WITH THIS REGISTRATION WILL MEET ALL REGISTRATION REQUIREMENTS OF THE FEDERAL LAW. P.L. 93-616, THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984, SUBTITLE 1, SECTIONS 9001-9010.

General Facility Information

1. Facility name: Pedricktown Support Facility
2. Facility location: Route 130 (NUMBER AND STREET)
   Pedricktown (CITY OR MUNICIPALITY)
   Salem (COUNTY) NJ (STATE) 08067 (ZIP CODE)
3. Owner's mailing address: U.S. Army Training and Doctrine Command (NUMBER AND STREET)
   Fort Dix (CITY OR MUNICIPALITY)
   Burlington (COUNTY) NJ (STATE) 086405501 (ZIP CODE)
4. Owner's name: Department of the Army
5. Contact person (Facility Operator) Howard E. Kimpton (PERSON OR TITLE)
6. Contact telephone number: 609 (AREA CODE) 562 (EXCHANGE) 3119 (NUMBER)
7. Total number of facility underground storage tanks: 0005 (Complete Questions 12 thru 33 for each tank)
8. Total facility underground storage tank capacity (gallons): 003000
9. Type and status of owner (mark all that apply).

A. ☒ CURRENT B. ☐ FORMER C. ☐ STATE OR LOCAL GOVERNMENT D. ☐ PRIVATE OR CORPORATE E. ☐ OWNERSHIP UNCERTAIN F. ☒ FEDERAL GOVT. (GSA FACILITY I.D. NUMBER) (GSA ID. 34775)

10. Two copies of a site plan are submitted with this registration. A. ☐ YES B. ☒ NO

Submit two (2) copies of SITE PLAN showing facility or property boundary, buildings and the location of ALL underground storage tanks. EITHER, an existing engineering site plan, if available, OR a neat and legible hand-drawn sketch of the site may be submitted. In either case the site plan or sketch MUST show the location and distances that tanks, buildings, and dispensers are from the facility's property boundary. Include all tanks that are operating or existing, (E); abandoned, (A); or closed, (C). Each underground tank on the site plan or sketch shall be numbered in accordance with the instructions for question 12. The number assigned to a tank on the site plan or sketch MUST match and be identical to the tank identification number assigned to that tank on this form.

INCLUDE FACILITY NAME, OWNER'S NAME, FACILITY ADDRESS AND TELEPHONE NUMBER ON ALL SITE PLANS.

11. All underground tanks used after January 1, 1974 including those taken out of operation, (UNLESS THE TANK WAS **REMOVED FROM THE GROUND**) must be included in this registration. All in-ground tanks shall be reported as underground tanks on this questionnaire regardless of their current status; Existing, E; Abandoned, A; or Closed C.

SPECIFIC TANK INFORMATION

	TANK NO.	TANK NO.	TANK NO.	TANK NO.	TANK NO.
ank Identification Number	E1	E2	E3	E4	E5
;ASRN Number (Hazardous Substances Only)					
ank Age (Years)	44	25	23	26	02
ank Size (gallons)	004000	005000	006000	006000	010000
ank Contents (MARK ONE X)					
. Leaded gasoline	☐	☐	☐	☐	☐
. Unleaded gasoline	☐	☐	☐	☐	☒
. Alcohol enriched gasoline	☐	☐	☐	☐	☐
. Light diesel fuel (No. 1-D)	☐	☐	☐	☐	☐
.. Medium diesel fuel (No. 2-D)	☐	☐	☐	☐	☐
. Waste oil	☐	☐	☐	☐	☐
. Kerosene (No. 1)	☐	☐	☐	☐	☐
. Home heating oil (No. 2)	☒	☒	☒	☒	☐
. Heating oil (No. 4)	☐	☐	☐	☐	☐
.. Heavy heating oil (No. 6)	☐	☐	☐	☐	☐
. Aviation fuel	☐	☐	☐	☐	☐
1. Hazardous substances (per Fact Sheet)	☐	☐	☐	☐	☐
. Other; Please Specify					
ank and Piping Construction (MARK ALL THAT APPLY X)	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping
.. Bare steel	☐ / ☒	☐ / ☒	☐ / ☒	☐ / ☒	☐ / ☒
. Carbon steel	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Stainless steel	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Aluminum	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Polyvinyl chloride	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Concrete	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Bronze	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Earthen walls	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Fiberglass reinforced plastic	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
.. Fiberglas-clad steel	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Painted/asphalt steel	☒ / ☐	☒ / ☐	☒ / ☐	☒ / ☐	☒ / ☐
1. Vaulted	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Composite	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Iron (cast or ductile)	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Non-metallic	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Other; Please Specify					
ank and Piping Structure (MARK ALL THAT APPLY X)	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping
.. Single wall	☒ / ☒	☒ / ☒	☒ / ☒	☒ / ☒	☒ / ☒
. Double wall	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Manway in tank	☐	☒	☒	☒	☒
ternal Tank and Piping Lining (MARK ONE X)	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping
.. Rubber	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Epoxy	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Alklyd	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Phenolic	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Glass	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. Clay	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
. None	☒ / ☒	☒ / ☒	☒ / ☒	☒ / ☒	☒ / ☒
4. Other, Please Specify					

Tank I.D. No.	TANK NO. E1		TANK NO. E2		TANK NO. E3		TANK NO. E4		TANK NO. E5	
ank and Piping Lining installed (MARK ONE X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
.. At purchase of tank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Retrofitted	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
econdary containment (MARK ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
. Liner	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Vault	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Double wall	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. None	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
. Other, Please Specify										
xternal Type/Application of Cathodic rotection (MARK ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
. Wrapped	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Sprayed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
-. Sacrificial anode	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐
. Impressed current	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. None	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒
. Other, Please Specify										
lonitoring/detection method ARK ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
. Automatic sampling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Manual sampling	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
. Ground water monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. System in secondary containment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. System outside backfill	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
System within piping (piping leak detector)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. None	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒
ype of monitoring/detection system ARK ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
. Continuous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Event activated	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
. Audio	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Visual	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐
. Electric sensor	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Stock/inventory control (manual)	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
. Stock/inventory control (electronic)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Tile drain	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Vapor sniff wells	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Internal inspection	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other, Please Specify										
. None	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒
-esting history recorded (MARK ALL THAT APPLY X)										
. Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. No	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
-. Test Result (MARK IF LEAKING NOW)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
eak/spill occurrence (MARK ALL THAT APPLY X)										
. Within the past 1 year	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. Within the past 1 to 5 years	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. More than 5 years ago	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
. No Records	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒

Tank I.D. No.	TANK NO. E1	TANK NO. E2	TANK NO. E3	TANK NO. E4	TANK NO. E5
Tank Status (MARK ONE X) A. Active (operational)	☒	☒	☒	☒	☒
B. Inactive (non-operational)	☐	☐	☐	☐	☐
C. Closed (temporarily out-of-service)	☐	☐	☐	☐	☐
D. Closed (permanently out-of-service)	☐	☐	☐	☐	☐
E. Abandoned, in place	☐	☐	☐	☐	☐
F. Abandoned, in place, filled only	☐	☐	☐	☐	☐
G. Abandoned, in place, sealed only	☐	☐	☐	☐	☐
H. Abandoned, in place, filled and sealed	☐	☐	☐	☐	☐
J. Seasonal	☐	☐	☐	☐	☐
K. Prior retrofitting work, Please Specify					
L. Other, Please Specify					
Spill recovery system on-site (MARK ONE X) A. Yes	☐	☐	☐	☐	☐
B. No	☒	☒	☒	☒	☒
Overfill protection (tank only) (MARK ONE X) A. Yes	☐	☐	☐	☐	☐
B. No	☒	☒	☒	☒	☒
Emergency shut-off mechanisms (dispensers) (MARK ONE X) A. Yes	☐	☐	☐	☐	☒
B. No	☒	☒	☒	☒	☐

oxes 27 E, F, G or H above have been answered - answer questions 31, 32 and 33 below.

Substance last used in tank (MARK ONE X) A. Leaded gasoline	☐	☐	☐	☐	☐
B. Unleaded gasoline	☐	☐	☐	☐	☐
C. Alcohol enriched gasoline	☐	☐	☐	☐	☐
D. Light diesel fuel (No. 1-D)	☐	☐	☐	☐	☐
E. Medium diesel fuel (No. 2-D)	☐	☐	☐	☐	☐
F. Waste oil	☐	☐	☐	☐	☐
G. Kerosene (No. 1)	☐	☐	☐	☐	☐
H. Home heating oil (No. 2)	☐	☐	☐	☐	☐
J. Heating oil (No. 4)	☐	☐	☐	☐	☐
J. Heavy heating oil (No. 6)	☐	☐	☐	☐	☐
K. Aviation fuel	☐	☐	☐	☐	☐
L. Hazardous substances (per Fact Sheet)	☐	☐	☐	☐	☐
M. Other, Please Specify					
Estimated date last used (month/year)	Mo. Yr.	Mo. Yr.	Mo. Yr.	Mo. Yr.	Mo. Yr.
Estimated quantity (gallons) left in tank					

OWNER OR OWNER'S AGENT CERTIFICATION

rtify under penalty of law that I have personally examined and familiar with the information submitted in this and all attached uments, and that based on my inquiry of those individuals ediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete.

(SIGNATURE)

O'BRENE RICHARDSON, Col, CE
(PRINT OR TYPE NAME)

Director of Engineering & Housing
(TITLE)

11. All underground tanks used after January 1, 1974 including those taken c -REMOVED FROM THE GROUND) must be included in this registratio underground tanks on this questionnaire regardless of their current statu

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APR 2 1 1988

SPECIFIC TANK INFORMATION

	TANK NO.	TANK NO.	TANK NO.	TANK NO.	TANK NO.
Tank Identification Number	E6	E7	A8		
CASRN Number (Hazardous Substances Only)					
Tank Age (Years)	26	03	26		
Tank Size (gallons)	010000	012000	008000		
Tank Contents (MARK ONE X)					
A. Leaded gasoline	☐	☐	☐	☐	☐
B. Unleaded gasoline	☐	☐	☐	☐	☐
C. Alcohol enriched gasoline	☐	☐	☐	☐	☐
D. Light diesel fuel (No. 1-D)	☐	☐	☐	☐	☐
E. Medium diesel fuel (No. 2-D)	☒	☐	☐	☐	☐
F. Waste oil	☐	☒	☐	☐	☐
G. Kerosene (No. 1)	☐	☐	☐	☐	☐
H. Home heating oil (No. 2)	☐	☐	☒	☐	☐
I. Heating oil (No. 4)	☐	☐	☐	☐	☐
K. Heavy heating oil (No. 6)	☐	☐	☐	☐	☐
L. Aviation fuel	☐	☐	☐	☐	☐
M. Hazardous substances (per Fact Sheet)	☐	☐	☐	☐	☐
N. Other; Please Specify					
Tank and Piping Construction (MARK ALL THAT APPLY X)	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping
A. Bare steel	☐ / ☒	☐ / ☒	☐ / ☒	☐ / ☐	☐ / ☐
B. Carbon steel	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
C. Stainless steel	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
D. Aluminum	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
E. Polyvinyl chloride	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
F. Concrete	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
G. Bronze	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
H. Earthen walls	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
J. Fiberglass reinforced plastic	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
K. Fiberglas-clad steel	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
L. Painted/asphalt steel	☒ / ☐	☒ / ☐	☒ / ☐	☐ / ☐	☐ / ☐
M. Vaulted	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
N. Composite	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
P. Iron (cast or ductile)	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
R. Non-metallic	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
S. Other; Please Specify					
Tank and Piping Structure (MARK ALL THAT APPLY X)	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping
A. Single wall	☒ / ☒	☒ / ☒	☒ / ☒	☐ / ☐	☐ / ☐
B. Double wall	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
C. Manway in tank	☒	☐	☒	☐	☐
Internal Tank and Piping Lining (MARK ONE X)	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping	Tank / Piping
A. Rubber	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
B. Epoxy	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
C. Alklyd	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
D. Phenolic	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
E. Glass	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
F. Clay	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐
G. None	☒ / ☒	☒ / ☒	☒ / ☒	☐ / ☐	☐ / ☐
H. Other, Please Specify					

OCT 03 1988

UST NO. FW0071994

Tank I.D. No.	TAI..	TA'	INK N..	TANK NO.	TANK NO.
	E4	E7	A3		

ık and Piping Lining installed (MARK ONE X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
At purchase of tank	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Retrofitted	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
condary containment (MARK ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
Liner	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Vault	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Double wall	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
None	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐
Other, Please Specify										
ernal Type/Application of Cathodic tection (MARK ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
Wrapped	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sprayed	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sacrificial anode	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
mpressed current	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
None	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐
Other, Please Specify										
nitoring/detection method K ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
Automatic sampling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Manual sampling	☒	☐	☒	☐	☐	☐	☐	☐	☐	☐
Ground water monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
System in secondary containment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
System outside backfill	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
System within piping (piping leak detector)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
None	☐	☒	☐	☒	☒	☒	☐	☐	☐	☐
pe of monitoring/detection system K ALL THAT APPLY X)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
Continuous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Event activated	☒	☐	☒	☐	☐	☐	☐	☐	☐	☐
Audio	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Visual	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Electric sensor	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Stock/inventory control (manual)	☒	☐	☒	☐	☐	☐	☐	☐	☐	☐
Stock/inventory control (electronic)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tile drain	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Vapor sniff wells	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
nternal inspection	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other, Please Specify										
None	☐	☒	☐	☒	☒	☒	☐	☐	☐	☐
sting history recorded (MARK ALL THAT APPLY X) Yes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐
Test Result (MARK IF LEAKING NOW)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
ak/spill occurrence (MARK ALL THAT APPLY X) Within the past 1 year	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Within the past 1 to 5 years	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
More than 5 years ago	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No Records	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐

Spills or Releases

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY TRAINING CENTER AND FORT DIX
FORT DIX, NEW JERSEY 08640- 5501

Environmental/Natural
Resources Division

SUBJECT: USAPC Pedricktown - Additional Background Information

RMC Environmental Services
Tri County Business Campus
ATTN: Art Ryan
88 Robinson Street
Pottstown, PA 19464

Dear Mr. Ryan:

As per your request, please find enclosed three documents concerning the above referenced subject. It is hoped this information will be a congenial supplement to your present data base.

For further communication on this matter, please contact Mr. Mitch Collins at (609) 562-3050/3191.

Sincerely,

Joseph R. Haug
Chief, Environmental Division

Enclosure

CNV

EKSOYET

3 JUL 1984

AFZD-EH-ENRD

SUBJECT: Oil Spill at Seivers-Sandburg USARC, Pedricktown, New Jersey

Commander
HQ 78th Division (Training)
SQT Joyce Kilmer USAR Center
ATTN: AFKA-GCB-FE
Edison, New Jersey 08817

1. On 5 June 1984, this office was informed of an oil spill at the Seivers-Sandburg USARC, which was subsequently investigated and cleaned up by the Fort Dix DEH Environmental Branch.

2. Following is information on this incident:

a. On 5 June 1984, Mr. Moore the DEH Maintenance Foreman at Pedricktown informed the Fort Dix DEH Environmental Branch that a spill occurred on 5 June 1984. According to Mr. Moore, a resident of Swedesboro, New Jersey (Mr. Gordon Huff) followed an Army truck which he observed spilling oil on Route 130, to Corps of Engineer property and observed military personnel dump four drums of petroleum product from the truck into a pond. Mr. Huff informed the military personnel that the [illegible] cary

[illegible], [illegible]. On 5 June, Mr. Durkin and Mr. Nick Ferrante (Reserve Center Facility Manager) notified Mr. Moore of the spill.

b. Upon being alerted of the spill incident, the Fort Dix DEH Environmental Branch proceeded to investigate, report and clean up the spill. Investigation showed:

(1) Four 55 gallon drums of waste oil were dumped into a pond on Corps of Engineer property, in the vicinity of the USARC. Oil was spilled on the roadway leading to the pond, as well as the pond itself. Fortunately wind and water currents did nto move the oil slick over the entire pond surface (reducing clean-up costs and damage).

(2) The dumping was performed by an unidentified group of personnel in "Army" uniforms, using and "Army" truck. The unanimous opinion of individuals question during the interview was that the perpetrators were members of a Pedricktown-based Reserve Unit.

ORIGINATOR: Mr. Haug
AFZD-EH-ENRD/ej/3050/1 Jul 84

ATZD-EH-ENRD

NOV 1 3 1984

MEMORANDUM FOR RECORD

SUBJECT: Oil Spill at the Sievers-Sandburg USARC, Building 184, Pedricktown, NJ

1. On 11 October 1984 at 1430, Mr. Nicholas Cavallaro, Fort Dix Environmental Branch, received a call from Mr. Kelsey Moore, DEH Engineer at Pedricktown, that a 1000 gallon No. 2 Fuel tank had been overfilled by approximately 140 to 200 gallons. Mr. L. S. Meredith of the Environmental Branch was dispatched to investigate the spill.

2. Mr. Meredith arrived at Pedricktown at 1800 and contacted Mr. Guy Eyler, ECS Supervisor and Mr. Charles Thorne, Heavy Mobile Equipment Repairman. They showed Mr. Meredith the location of Building 184 and the oil spill site.

3. Mr. Meredith, when making his observations of the spill, noted that a large amount of No. 2 Fuel Oil had been spilled in the sand/cinder block wall containment area. The spilled oil ran thru the sand/block wall out onto the concrete floor and into a sump pit. Approximately 140 to 200 gallons was spilled and about 60 to 80 gallons was pumped outside onto the ground.

4. At 1834 Mr. John Riggins and Mr. Mark Buonadonna, both representatives of L. S. Riggins Oil Company, arrived to start the spill clean-up. SpeedyDry was put down on the concrete floor inside building. All contaminated material, soil and Speedy Dry was put on and covered with plastic.

5. On 12 October 1984 Mr. Bill Dunfee from the New Jersey Department of Environmental Protection and Mr. Richard Cummines, Operations Manager for L. S. Riggins Oil Company, met at the spill site. Mr. Dunfee was satisfied with the clean-up operation. Mr. Cummines contacted Browning-Ferris Industries to finish cleaning up the spill. Mr. Cummines stated that Mr. Moore told him that the cap on top of the 1000 gallon tank was left off. Mr. Cummines said that is what caused the spill. Mr. Dunfee stated that even if the cap was left off, you can't put 1140 gallons on a 1000 gallon tank. When Mr. Meredith initially arrived at the spill scene on 11 October 1984, the oil cap was secured on the tank, but it was obvious the spill originated from the capped area. Mr. Dunfee cited L. S. Riggins Oil Company for negligence and failure to report the spill. The spill was originally reported to the State by Fort Dix not by L. S. Riggins Oil Company.

6. Clean-up was completed on 26 October 1984. Approximately 29,000 pounds of contaminated materials was removed from the site. Copies of the manifests used to transport the material to a disposal facility are attached.

Encl

L. S. MEREDITH
Environmental Specialist

17-06

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY TRAINING CENTER AND FORT DIX
FORT DIX, NEW JERSEY
08640-5501

16 JAN 1987

State of New Jersey
Department of Environmental Protection
Division of Waste Management
RD 1 Route 70
Vincentown, New Jersey 08088

Dear Mr. Frow:

In accordance with NJAC 7:1E-2:2, the following information is submitted regarding the spill incident at Building 273, Seivers-Sandburg USARC, Pedricktown, New Jersey, that occured on 26 November 1986. This incident was telephonically reported to your office on 26 November 1986.

Description of Discharge incident: During a #2 fuel oil delivery, the pressure forced oil out an uncapped line and onto the floor in the boiler room. Oil also spilled outside the building from the vent line. Approximately 8 cubic yards of soil were removed.

Description of measures taken to clean-up the discharge: The services of ProTank were retained to clean-up the spill and remove the comtaminated material. The material was put into drums and later removed. Attached for your information is a copy of the manifests for this clean-up.

Steps taken to prevent a recurrence of the discharge incident: The uncapped line was capped and the oil delivery company was told to reduce the flow rate as the oil level in the tank neared the top.

Point of contact for further information concerning this matter is Mr. Thomas Higgins, (609) 562-3191 or 562-3050.

Sincerely,

O. GENE RICHARDSON
Colonel, CE
Director of Engineering
and Housing

Enclosure

CF:
HQ Training and Doctrine Command

RECEIVED
JAN 23 1987
Division of Waste Mgmt.

LINDA FYI → FILE TO.

Water and Wastewater Analysis
Atomic Absorption
Gas Chromatography

[illegible]
[illegible] INC.
123 SEAMAN AVENUE
BEACHWOOD, NEW JERSEY 08722
(201) 341-1211

State Certified
Drinking Water Laboratory
Consulting Service

FORT DIX CONTRACT DABT35-M-87-0103

#069
/01/86

LAB ANALYST M. Elin
LABORATORY ID #15083

LE #	ANALYSIS
201	PETROLEUM HYDROCARBONS = 171 mg/Kg

1 ST
ANALYSIS

RECEIVED
FEB 2 1987
Division of Waste Mgt.

Water and Wastewater Analysis
Atomic Absorption
Gas Chromatography

LABS, INC.
123 SEAMAN AVENUE
BEACHWOOD, NEW JERSEY 08722
(201) 341-1211

State Certified
Drinking Water Laboratory
Consulting Service

FORT DIX CONTRACT DABT35-M-87-0103

071
/19/86

LAB ANALYST M. Elin
LABORATORY ID #15083

E #	ANALYSIS PETROLEUM HYDROCARBONS
2	87 mg/Kg

2ND
ANALYSIS

17-6.2

Field file

WASTE MANAGEMENT INVESTIGATION
Case #: 84-06-04-07S

Inspector: David E. Bute Date: 6/6/84 Time: 1108 hours

Business Name: U.S. Army Reserve Center Telephone:
(Responsible Party) Pedricktown

SPILL LOCATION

Street: Route 130
Town: Pedricktown
County: Salem

Lot: Block: Type Ownership: U.S.Army

Local Health Department Representative Contacted: Joanne Mitchell

Date: 6/6/84 Time: 0950 hours Affiliation: Salem County Health Department

Origin of Complaint: Pat Firestone

Complaint: **Dumping of Drums**

FINDINGS:

On June 6, 1984, this writer met with Mr. Michael Cascioli (Fish and Game) at the dumping site. At the time of my inspection, it was noted that the area had been cleaned up and the drums had been removed from the dumping site to a location at the rear of the U.S. Army Reserve Center on Route 130. (See picture #1.) After talking to a number of personnel at the Pedricktown installation and the Fort Dix E.P.A. office, Howard Kimpton, it was established that the drums were dumped by Army Reserve personnel; however, the names were unknown. The reason for the dumping was that the Reserve Unit was getting ready for an Inspector General inspection.

The disposal will be handled by Fort Dix E.P.A. office and when it is complete they will send us a letter with all of the disposal information in it.

CONCLUSION:

The area has been cleaned up and the drums have been staged for disposal.

RECOMMDENDATION:

That the Fort Dix E.P.A. office handle this case.

David E. Bute
Principal Environmental Technician

FOS8:lk
cc:file
attachment - photo

Waste Assessment Reports

NEW

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION
01 STATE: NJ | 02 SITE NUMBER:

II. SITE NAME AND LOCATION

01 SITE NAME	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER			
Pedricktown Support Facility	Siever-Sandberg USARC			
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE
Pedricktown	NJ	08067	Salem	

09 COORDINATES: LATITUDE 39 46 00.N | LONGITUDE 075 25 00 W

10 DIRECTIONS TO SITE (Starting from nearest public road)

I-295 south to Route 130; past Commodore Perry Bridge. Installation is west of Route 130 before Penns Grove.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Military/US Army	Siever-Sandberg USARC		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Pedricktown	NJ	08067	( )
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
Same			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☒ B. FEDERAL US Army (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ (Specify) ☐ G. UNKNOWN

14 OWNER-OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED ___/___/___ ☒ C. NO

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 9 20 88 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☒ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER _____ (Specify)
CONTRACTOR NAME(S): Roy F. Weston, Inc.

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
_____ (BEGINNING YEAR) | _____ (ENDING YEAR) ☒ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
1. Waste oil
2. Brake fluids, solvents, anti-freeze

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Possible groundwater and sewer contamination.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspection at your discretion) ☐ D. NONE (No further action needed; complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
Stanley Heinert	Pedricktown Support Facility			609-299-
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Commander-Fort Dix	US Army		(609) 562-3050	10 / 4 / 8 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

3191

Assessment Performed by Roy F. Weston, Inc, West Chester, PA
Point of Contact: Kit Blackburn, (215)-344-3724

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- A SOLID
- B POWDER, FINES
- C SLUDGE
- D OTHER _____ (Specify)
- E SLURRY
- X F LIQUID
- G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS 21,000 gal

NO OF DRUMS < 10

03 WASTE CHARACTERISTICS (Check all that apply)

- A TOXIC
- B CORROSIVE
- C RADIOACTIVE
- X D PERSISTENT
- E SOLUBLE
- F INFECTIOUS
- G FLAMMABLE
- H IGNITABLE
- I HIGHLY VOLATILE
- J EXPLOSIVE
- K REACTIVE
- L INCOMPATIBLE
- M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	1,000	gallons	Underground storage ta
SOL	SOLVENTS	< 5	drums	
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	< 5	drums	Brake fluid and anti-f
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See appendix for most frequently cited CAS numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OLW	Waste oil	999	Underground tank	100%	
OLW	Gasoline	999	Underground tank	100%	
SOL	Solvents	999	Drums (Temporary	100%	
IOC	Brake fluid, anti-	999	Drums Storage)		
	freeze				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sampling results)

Waste Site Summary Report prepared by Roy F. Weston, Inc.

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NJ
02 SITE NUMBER:

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) X POTENTIAL ☐ ALLE
04 NARRATIVE DESCRIPTION

Potential if drums/tanks were to leak (UST's not leak tested).

01 X B SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) X POTENTIAL ☐ ALLE
04 NARRATIVE DESCRIPTION

Potential if drums/tanks were to leak.

01 ☐ C CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLE
04 NARRATIVE DESCRIPTION

01 ☐ D FIRE EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ALLE
04 NARRATIVE DESCRIPTION

01 ☐ E DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEG
04 NARRATIVE DESCRIPTION

01 X F CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) X POTENTIAL ☐ ALLEG
04 NARRATIVE DESCRIPTION

Potential if drums/tanks were to leak.

01 ☐ G DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEG
04 NARRATIVE DESCRIPTION

01 ☐ H WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEG
04 NARRATIVE DESCRIPTION

01 ☐ I POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED _____
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEG
04 NARRATIVE DESCRIPTION

2 of 21

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NJ
02 SITE NUMBER:

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ J DAMAGE TO FLORA
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K DAMAGE TO FAUNA
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ L CONTAMINATION OF FOOD CHAIN
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M UNSTABLE CONTAINMENT OF WASTES
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____
04 NARRATIVE DESCRIPTION

01 ☐ N DAMAGE TO OFFSITE PROPERTY
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ O CONTAMINATION OF SEWERS STORM DRAINS WWTPs
02 ☐ OBSERVED (DATE _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Drum storage area runoff enters sewer system.

01 ☐ P ILLEGAL/UNAUTHORIZED DUMPING
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

No further action anticipated based on information received.

V. SOURCES OF INFORMATION

Waste Site Summary Report prepared by Roy F. Weston, Inc.

EPA FORM 2070-12 (7-81)

US Army Reserve Center Environmental
Questionnaire

1. US Army Reserve Center

Date: 12-Sept. '85

a. USARC Name: SIEVERS-SAYRE USARC Prepared by: L.S. Meredith
b. Address: Pedricktown, N.J. 08067-5000
c. USARC POC: Nick Ferrante
d. Phone: 609-299-6100/AV 944-3257
e. No. of full time employees: 62
f. Current reserve strength: 490
g. Average personnel strength during training periods: 155
h. Frequency of training: Three WEEKENDS Per Month
i. No. and types of military vehicles: 733pcs. Light, Heavy & support equipment

2. Wastewater/Potable Water	Yes	No
a. Does the USARC have or generate any of the following:		
(1) Septic tank system	___	X
(2) Wastewater treatment plant	X	___
(3) Oil/water separator(s)	___	X
(4) Vehicle washrack	X	___
(5) Vehicle maintenance shop	X	___
(6) Boiler plant wastewater	___	X
(7) Cooling tower wastewater	___	X
(8) Potable water well(s)	___	X
b. Is all wastewater discharged to a municipal sanitary sewer system?	___	X
c. Are there any waste discharged to surface water?	X	___
If yes, what waste(s)? W.W.T.P Effluent		
d. Are there any waste discharged to storm sewers?	___	X
If yes, what waste(s)? ___		

3. Solid/Hazardous Waste		
a. Are there any abandon landfill(s) on USARC property?	___	X
If yes, explain: ___		
b. Does the USARC generate used oil?	X	___
(1) Quantity generated per month: 70 g Per Mo. est.		
(2) Name of generator(s): ASMA		
(3) Is used oil stored in drums?	___	X
(4) Is used oil stored in tanks?	X	___
(5) Tank capacity(s)/location(s): Bldg. 413 1000 gal. U.G. 450 g in tank (12-85)		
c. Does the USARC generate used solvent?	X	___
(1) Type: Dry Cleaning Solvent		
(2) Quantity: 55 gal.		
(3) Disposal method: Turn into PDO. Phila Pa.		
d. Does the USARC generate battery acid?	X	___
(1) Quantity: 50 gal.		
(2) Disposal method: D.T.O.		
e. Does the USARC generate any other hazardous waste?	___	X
If yes, list the name(s), quantity(s), location(s) and disposal method(s).		
200 gal Per Year of Anti-Freeze		
Disposal: PDO Phila Pa.		

f. Are there any indication of past or present spills? If yes, list location(s), suspected material(s) and areal contamination. ___ ___

4. Air Pollution

a. Does the USARC have a heating plant? ___ X
If yes, what type of fuel is used? _____

b. Does the USARC have fuel storage facilities? X ___
(1) Type of fuel(s) stored? #2 Fuel Oil
(2) Are any tanks above ground? X ___
If yes, Where are they located and what are their capacities? Bldg. 184 1000 gal
Bldg 273 1500 gal. 506 100000 l.

(3) Are any tanks below ground? ___ ___
If yes, Where are they located and what are their capacities? Bldg. 413 Mo Gas 10,000 gal. Diesel 10,000 gal.
Bldg. 171 · 15000 Bldg. 172 · 10000 & 4,000 & Bldg. 177 · 10000
Bldg. 179 · 1000 Bldg. 279 · 10000 Bldg. 276 N 550 276 S 550
Bldg. 277 N 550 277 S 550 Bldg. 278 N 550 278 S 550
Bldg. 322 · 50000 Bldg. 506 10000 Bldg. 380 · 50000 Bldg. 404 50000, Bldg. 485 [illegible]

(4) Are there any fuel dispensing facilities? Bldg. 422 2000 ___ X
If yes, are they equipped with vapor recovery systems? Yes

c. Is there any suspected/known friable asbestos present? X ___
If yes, list locations/quantities: Bldg. 404
Work Request put in before 21 May 85
JOB # 850311

5. Indicate other air, water, solid waste or hazardous waste pollution problems or information: No observed

USATHAMA Waste Site Report

Property Number: 34775 Property Name: PEDRICKTOWN SUPPORT FACILITY

Date of Printing: 11/21/88
Last Update: 11/20/88

Site Number	Site Name	Waste Site Characterization	ISM Scores	Comments	IRP Status
1	WASTE OIL STORAGE	Type: WASTE OIL Qty: 1000 GALLON (MAX) Permit: NONE	Surface Water: 0.0 Ground Water : 14.1 Air Quality : 0.0 Total Score : 8.2	UNDERGROUND STORAGE TANK HAS NOT BEEN LEAK TESTED. SURROUNDING SOIL STAINED BECAUSE OF SPILLAGE WHILE POURING OIL INTO TANK. PRACTICE CHANGED TO PREVENT SPILLAGE.	PA : 1 SI : N RI : N FS : N RD : N
2	DRUM STORAGE AREA	Type: BRAKE FLUID, SOLVENTS AND ANTI-FREEZE Qty: 10 DRUMS Permit: NONE	Surface Water: 0.0 Ground Water : 7.1 Air Quality : 0.0 Total Score : 4.1	STORED OUTDOORS IN DRUM STORAGE AREA PRIOR TO DISPOSAL. CONTENTS DISPOSED OF OFF-SITE.	PA : 1 SI : N RI : N FS : N RD : N
3	SEWAGE TREATMENT PLANT	Type: SEWAGE AND WASTE WATER Qty: 22000 GPD Permit: NJ DEP NPDES# 0024635	Surface Water: 0.0 Ground Water : 3.3 Air Quality : 0.0 Total Score : 1.9	PERMITTED SEWAGE TREATMENT PLANT. EVIDENCE OF GROUND WATER INFILTRATION INTO SEWER PIPES. NO EVIDENCE OF ANY DISCHARGE PERMIT VIOLATIONS. SCORED POTENTIAL GROUNDWATER RELEASE W/MINIMUM TOX/PERS. VALUES.	PA : 2 SI : N RI : N FS : N RD : N

ISM { Installation scoring model

USATHAMA Waste Site Report

Date of Printing: 11/21/88
Last Update: 11/20/88

erty Number: 34775 Property Name: PEDRICKTOWN SUPPORT FACILITY

4 VEHICLE WASH RACK

Type: GREASE AND OIL IN THE WASH WATER

Qty: INSIGNIFICANT

Permit: NONE

Surface Water:
Ground Water :
Air Quality :

Total Score :

WASH RACK HAS GREASE TRAP. TRAP EMPTIED PERIODICALLY AND DISPOSED OF BY CONTRACTOR. NO SCORE DUE TO THE INSIGNIFICANT WASTE QUANTITY. DISCHARGED TO SEWER.

PA : I
SI : N
RI : N
FS : N
RO : N

5 UNDERGROUND STORAGE TANKS

Type: DIESEL/GASOLINE

Qty: 20000 GALLONS

Permit: NONE

Surface Water: 0.0
Ground Water : 8.1
Air Quality : 0.0

Total Score : 4.7

NO EVIDENCE OF LEAKS; HOWEVER, NOT LEAK TESTED.

PA : I
SI : N
RI : N
FS : N
RO : N

no score - not a concern

USATHAMA Property Report

operty Number: 34775 Name : PEDRICKTOWN SUPPORT FACILITY Date of Printing: 11/21/88
IS Number : NJ-210522270 Address: SIEVERS-SANDBERG USARC Last Update: 11/20/88

PEDRICKTOWN
NJ 08067

Coord.: 39DEG 46MIN N 75DEG 25MIN W

earest Town : PENNS GROVE, NJ Base Population : 90
opulation : 6000 Command : 1ST ARMY

PA Region : 2 Support Facility: FORT DIX

nvironmental Coordinator Name : STANLEY HEINERT
nvironmental Coordinator Address: SIEVER SANDBERG USAR CENTER

PEDRICKTOWN
NJ 08067-5000

nvironmental Coordinator Phone : (609)299-3252

ate of Form Response : 09/22/88

ame of Respondee : RICHARD SHULTZ
itle : DAC 1175th TTU
ime Associated : 18 YEARS

urface Water Uses: NONE

round Water Uses : DRINKING, COMMERCIAL, INDUSTRIAL

omments : PROPER NAME: SIEVERS-SANDBERG USARC. RESERVE TRAINING CENTER, ADJACENT TO WW1 DEPOT (NOW COE PROPERTY.)

Number of Waste Sites: 5

Maximum Score : 8.2

Confidence Factor : B

05/09/90 14:45

11/5/88

RTECS RECORD NUMBER	66968
LAST REVISION DATE	8701
UPDATE HISTORY	Complete Update on 09/08/87
RECORD LENGTH	447
RTECS ACCESSION NUMBER	NIOSH/TY3342200
NAME OF SUBSTANCE	1,3-PROPANEDIOL, 2,2-BIS((NITROOXY)METHYL)-, DINITRATE (ester), mixt. with 2-METHYL-1,3,5-TRINITROBENZENE, (DOT)
CAS REGISTRY NUMBER	8066-33-9
SYNONYMS	PENTOLITE
SYNONYMS	PENTOLITE, dry or containing less than 15% water (DOT)
SYNONYMS	UN 0151 (DOT)
MOLECULAR FORMULA	C7-H5-N3-O6 .C5-H8-N4-O12
MOLECULAR WEIGHT	543.32
STANDARDS AND REGULATIONS	DOT-HAZARD:CLASS A EXPLOSIVE; LABEL:EXPLOSIVE A; CFRGBR 49,172.101,86; Code Fed Regul
STANDARDS AND REGULATIONS	DOT-IMO:CLASS A EXPLOSIVE; LABEL:EXPLOSIVE A; CFRGBR 49,172.102,86; Code Fed Regul

SS 2 /C?
USER:

Sewage Treatment Plant

Let's protect our earth

John
24653

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

CN 029
Trenton, N.J. 08625-0029

Office of
Director

(609) 292-1637
Fax # (609) 984-7938

AUG 8 1990

Mr. Joseph Haug
United States Army Training Center and Fort Dix
Natural Resources Division
Fort Dix, N.J. 08640-5501

Re: Priority Pollutant Scan
Pedricktown Support Facility
NJPDES Permit No. NJ0024653

Dear Mr. Haug:

In accordance with Sludge Quality Assurance Regulations (SQAR), N.J.A.C. 7:14-4.7, the owner or operator of a domestic treatment works shall submit a full priority pollutant scan on the domestic wastewater sludge produced at the domestic treatment works for the priority pollutants listed in Appendix C (enclosed). In addition, the largest 15 purgeable volatile organic peaks, 10 acid extractable peaks and 15 base/neutral extractable peaks shall be identified and reported. The report shall be submitted to the Department of Environmental Protection on or before the first day of the third month following the last day of the reporting period. The reporting periods for each category shall be as follows:

1. The reporting period for categories 1 and 2 shall be the month of February during years ending in five or zero (i.e. 1990, 1995).
2. The reporting period for categories 3, 4 and 5 shall be the month of August, annually.

A review of our files indicates that the required priority pollutant scan for the reporting period of February 1990 has not been received and needs to be submitted in order to complete and update our file on your facility.

A written notice of intent to comply with SQAR is required to be submitted within thirty (30) days of the receipt of this letter. Failure to fully submit the required information will result in a violation of the reporting requirements of the Sludge Quality Assurance Regulations.

The Department may, after the receipt of a priority pollutant scan, require a domestic treatment works to increase the schedule of reporting for any or all constituents which are detected on a priority pollutant scan.

Should you have any questions or if you have recently submitted the required information, please contact me at the address above or by phone at (609) 633-3823.

Sincerely,

John Murphy, Environmental Specialist
Bureau of Pretreatment and Residuals
Department of Environmental Protection

WFM361

enclosure: Appendix C

New Jersey Department of Environmental Protection
Division of Water Resources

DOMESTIC WASTEWATER SLUDGE REPORT

RECEIVED
MAY 02 1990
DEPT OF ENVIRON PROTECTION
Division Water Resources
Bureau of Information Systems

DISCHARGE PERMIT NO.	REPORTING PERIOD Mo.	Yr.	REPORTING CATEGORY
0024635	03	1990	2

Page 1 of 1

FACILITY NAME: _____

A. REPORTING CATEGORY INFORMATION

1. Permitted Wastewater Flow	(MGD)	A1:	00.03
2. Industrial Contribution	(% of influent)	A2:	00.
3. Average Daily Septage Treated	(Gallons/Day)	A3:	00.

B. INFORMATION ON SLUDGE PRODUCED IN TREATMENT PROCESSES

1. Average Total Solids of Sludge	(% by weight)	B1:	00.0
2. Average Daily Sludge Production	(Gallons/Day)	B2:	00000.
3. Average Daily Sludge Production	* (Dry Tons/Day)	B3:	0.00

*C. INFORMATION ON SLUDGE REMOVED FOR ULTIMATE MANAGEMENT

1. Complete ONLY If Liquid Sludge Is Removed:			
a. Total Solids of Liquid Sludge	(% by weight)	C1:	.
b. Average Daily Sludge Removal	(Gallons/Day)	C2:	.
2. Complete ONLY If Dewatered Sludge Is Removed:			
a. Total Solids of Dewatered Sludge	(% by weight)	C3:	.
b. Complete ONE of the following:			
i. Average Daily Sludge Removal	(Gallons/Day)	C4:	.
Total Solids of 2.b.i.	(% by weight)	C5:	.
ii. Average Daily Sludge Removal	(Wet Cu. Yds./Day)	C6:	.
iii. Average Daily Sludge Removal	(Wet Tons/Day)	C7:	.
3. Total Average Daily Sludge Removal	* (Dry Tons/Day)	C8:	.
4. pH of Sludge Removed	(Standard Units)	C9:	.

D. ULTIMATE SLUDGE MANAGEMENT SITE (See Codes on Reverse)

METHOD CODE	HAULER REGISTRY	FACILITY/OPERATION	PERMIT NO.
		WIOI SLUDGE PRODUCED	

E. PATHOGEN REDUCTION INFORMATION (See Codes and Complete Reverse)

METHOD CODE	FACILITY/OPERATION	PERMIT NO.	FOR DEP USE ONLY PSRP	FOR DEP USE ONLY PFRP

CERTIFICATION OF AUTHENTICITY

JOSEPH R HAUG	ENRD Chief	J. R. Haug	16 April 90
Name of Authorized Agent (Print)	Title	Signature	Date

Laboratory Name S.R. HENDERSON LAB INC Cert. No. 15083

* Equations for calculation of Dry Tons are on back of form.

Enter 0 if sludge is removed from Treatment Works site during the reporting period. If none removed, so state in Section D.

Division of ...

DOMESTIC WASTEWATER SLUDGE REPORT

DISCHARGE PERMIT NO.	REPORTING PERIOD Mo.	Yr.	REPORTING CATEGORY		
1010214[6]315	1 1 2	1 1 9 1 8 1 9	2	1 1	Page 1 of 1

CILITY NAME: _____

REPORTING CATEGORY INFORMATION

1. Permitted Wastewater Flow	(MGD)	A1:	1 0 0 . 0 3
2. Industrial Contribution	(% of influent)	A2:	1 0 0 .
3. Average Daily Septage Treated	(Gallons/Day)	A3:	1 0 0 0 .

INFORMATION ON SLUDGE PRODUCED IN TREATMENT PROCESSES

1. Average Total Solids of Sludge	(% by weight)	B1:	.
2. Average Daily Sludge Production	(Gallons/Day)	B2:	.
3. Average Daily Sludge Production	* (Dry Tons/Day)	B3:	.

**C. INFORMATION ON SLUDGE REMOVED FOR ULTIMATE MANAGEMENT

1. Complete ONLY If Liquid Sludge Is Removed:			
a. Total Solids of Liquid Sludge	(% by weight)	C1:	.
b. Average Daily Sludge Removal	(Gallons/Day)	C2:	.
2. Complete ONLY If Dewatered Sludge Is Removed:			
a. Total Solids of Dewatered Sludge	(% by weight)	C3:	.
b. Complete ONE of the following:			
i. Average Daily Sludge Removal	(Gallons/Day)	C4:	.
Total Solids of 2.b.i.	(% by weight)	C5:	.
ii. Average Daily Sludge Removal	(Wet Cu. Yds./Day)	C6:	.
iii. Average Daily Sludge Removal	(Wet Tons/Day)	C7:	.
3. Total Average Daily Sludge Removal	* (Dry Tons/Day)	C8:	.
4. pH of Sludge Removed	(Standard Units)	C9:	.

D. ULTIMATE SLUDGE MANAGEMENT SITE (See Codes on Reverse)

METHOD CODE	HAULER REGISTRY	FACILITY/OPERATION	PERMIT NO.
		W10 SKUDGE PRODUCED	

E. PATHOGEN REDUCTION INFORMATION (See Codes and Complete Reverse)

METHOD CODE	FACILITY/OPERATION	PERMIT NO.	FOR DEP USE ONLY PSRP	PFRP

CERTIFICATION OF AUTHENTICITY

JOSEPH HAUG	CHIEF ENGRD		18 JAN 90
Name of Authorized Agent (Print)	Title	Signature	Date

Laboratory Name S R HENDERSON LAB ITCert. No. 15083

* *Equations for calculation of Dry Tons are on back of form.*

... if sludge is removed from Treatment Works site during the reporting period. If none removed, so state in Section ...

... removed from Treatment Works ...

HEAVY METALS AND SELECTED CHEMICAL PARAMETERS REPORT

DISCHARGE PERMIT NO. 0024635 (1–7)

REPORTING PERIOD MO. YR. 0187 (8–11) THRU MO. YR. 0387 (12–15)

PRESENT REPORTING CATEGORY 1 (16) 2 (17)

NJDEP USE (18)

	LIQUID PHASE	SOLID PHASE (DRY BASIS)	TOTAL (DRY BASIS)
ENIC	E- (35–38)	E- (41–44)	3.8 E- 0.7 (37–42)
MIUM	E- (43–48)	E- (45–54)	1.1 E- 0.5 (55–60)
OMIUM	E- (61–66)	E- (67–72)	4.2 E- 0.5 (73–78)
PER	E- (79–84)	E- (85–90)	6.3 E- 0.4 (91–96)
D	E- (97–102)	E- (103–108)	1.9 E- 0.4 (109–114)
CURY	E- (115–120)	E- (121–126)	4.0 E- 0.7 (127–132)
KEL	E- (133–138)	E- (139–144)	2.1 E- 0.5 (145–150)
C	E- (151–156)	E- (157–162)	1.0 E- 0.3 (163–168)
TAL NITROGEN	E- (25–30)	E- (31–36)	1.7 E- 0.2 (37–42)
MONIA NITROGEN	E- (43–48)	E- (49–54)	5.0 E- 0.3 (55–60)
RATE NITROGEN	E- (61–66)	E- (67–72)	2.5 E- 0.4 (73–78)
& GREASE	E- (79–84)	E- (85–90)	2.3 E- 0.4 (91–96)
ENOLS	E- (97–102)	E- (103–108)	2.9 E- 0.6 (109–114)
OSPHORUS	E- (115–120)	E- (121–126)	2.7 E- 0.4 (127–132)
LCIUM	E- (133–138)	E- (139–144)	6.1 E- 0.4 (145–150)
AGNESIUM	E- (151–156)	E- (157–162)	2.3 E- 0.3 (163–168)
OTASSIUM	E- (169–174)	E- (175–180)	2.5 E- 0.3 (181–186)
YANIDE	E- (187–192)	E- (193–198)	9.5 E- 0.7 (199–204) *

ACCEPTED

RESIDUALS MANAGEMENT SECTION

PERMITTEE NAME: Fort Dix WWB-334

LAB NAME: Henderson lab. Inc.

PERMIT NO.: 15083

AUTHORIZED AGENT: M. Ellis

AGENT'S TITLE: Lab Manager

SIGNATURE: M. Ellis, Jr.

DATE: 2/25/87

WATER QUALITY MANAGEMENT ELEMENT

TOXIC ORGANIC COMPOUNDS REPORT

DISCHARGE PERMIT NO.	REPORTING PERIOD MO. YR.		THRU MO. YR.		PRESENT REPORTING CATEGORY		NJDEP USE
0214635	01	87	03	87	I	3	

	LIQUID PHASE	SOLID PHASE (DRY BASIS)	TOTAL (DRY BASIS)
	E-	E-	50 E- 07 *
DANE	E-	E-	50 E- 07 *
IN	E-	E-	50 E- 07 *
	E-	E-	50 E- 07 *
	E-	E-	50 E- 07 *
CHLOR	E-	E-	50 E- 07 *
CHLOR E	E-	E-	50 E- 07 *
IE	E-	E-	50 E- 07 *
XYCHLOR	E-	E-	50 E- 07 *
	E-	E-	50 E- 07 *
	E-	E-	50 E- 07 *
	E-	E-	50 E- 07 *
	E-	E-	50 E- 07 *
HENE	E-	E-	50 E- 07 *

RECEIVED
FEB 26 1987
EPT
NJ DEPT. OF ENVIRONMENTAL PROTECTION
Division of Water Resources
Bureau of Permits Admin.
RESIDUALS MANAGEMENT SECTION

ACCEPTED
RESIDUALS MANAGEMENT SECTION

FACILITY NAME	LAB NAME
Fort Dix WW9-335	Henderson Labs. Inc.
AUTHORIZED AGENT: 15083 M. Ellis	AGENT'S TITLE: Lab. Manager
SIGNATURE: M. Ellis	DATE: 2/25/87

State of New Jersey
Department of Environmental Protection
Division of Water Resources
ATTN: Sludge Management Program
P. O. Box CN-029
Trenton, New Jersey 08625

Gentlemen:

This is in response to your letters dated 29 November 1983 requesting the current status of the sludge management plans for the Fort Dix (NJ0004855), Pedricktown (NJ0024635), Franklin Lakes (NJ0021946) and Livingston (NJ0021938) Wastewater Treatment Plants (WWTP).

The current status of the above mentioned plans are as follows:

1. USATC & FORT DIX WWTP - NJ0004855

The Fort Dix WWTP is presently being included in the Burlington County Sludge and Septage Management Plan. The county's plan is being formulated and is considering potential process and disposal sites for county-wide sludge management. Various sludge disposal alternatives such as centralized composting of dewatered sludge, centralized co-composting of dewatered sludge with solid waste, centralized co-incineration of dewatered sludge, etc. are being evaluated by the county for inclusion in their plan. The county expects to finalize their plan around May 1984. Once their plan has been finalized, Fort Dix will take all necessary action required to comply with it, to include initiating contracts, procurring equipment, modifying existing facilities, etc.

2. PEDRICKTOWN SUPPORT FACILITY WWTP - NJ0024635

The Pedricktown WWTP's sludge is no longer being landfilled. The WWTP's sludge will be pumped/removed on an as required basis by a private contractor and will be disposed of in accordance with the requirements of the New Jersey Pollutant Discharge Elimination System Regulations, N. J. A. C.7:14-2.5(M). Since this facility produces an extremely small quantity of sludge, it is anticipated that a disposal contract will only be required on a bi-annual basis. A copy of the removal contract will be forwarded to your office when prepared.

3. FRANKLIN LAKES FAMILY HOUSING WWTP - NJ0021946

The Franklin Lakes WWTP's sludge will be disposed of by private contract in accordance with N. J. A. C. 7:14-2.5(M). Projects are being initiated by Fort Dix to modify the facility's existing sludge handling equipment prior to the 15 March 1985 deadline so the sludge may be processed/disposed of at one of the State Approved Sewage Authority Incinerators.

4. LIVINGSTON FAMILY HOUSING WWTP - NJ0021938

The Livingston WWTP's sludge will be disposed of by private contract in accordance with N. J. A. C. 7:14-2.5(M). Projects are being initiated by Fort Dix to modify the facility's existing sludge handling equipment prior to the 15 March 1985 deadline so the sludge may be processed/disposed of at one of the State Approved Sewage Authority Incinerators.

Specific questions pertaining to the above information should be directed to either Mr. Joseph R. Haug or Mr. Howard E. Kimpton at (609) 562-3191/3050.

Sincerely,

M. F. DOUGHERTY
Colonel, CE
Director of Engineering and Housing

CF:
WWTP Branch

Salem

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY TRAINING CENTER AND FORT DIX
FORT DIX, NEW JERSEY 08640

DSPTRG & TNG DIV JUN 1 1982

ATZDEH-U

State of New Jersey
Department of Environmental Protection
Division of Water Resources
P.O. Box CN-029
Trenton, New Jersey 08625

DEP 961
JUN 9 1982
Dept. Environmental Protection
Division of Water Quality Management

Re: Sludge Disposal Plan
NPDES No. NJ0024635

Gentlemen:

In accordance with N.J.A.C. 7:14A-3.13, the following sludge disposal plan is being submitted for your review and approval.

1. The Pedricktown STP is a Biological Extended Aeration type treatment plant utilizing powdered carbon in effluent polishing. The plant does not produce sludge, all sludge is returned and utilized as food mass for the biological process.

2. In the event sludge is generated at the PSTP, Ft. Dix would require, by contract a licensed private hauler to remove and dispose the sludge in accordance with the disposal parameters dictated by the NJDEP.

In summary, Ft. Dix proposes to have all sludge generated at the Pedricktown Sewage Treatment Plant, hauled by a licensed private hauler.

Sincerely,

M. F. Dougherty

M. F. DOUGHERTY
Colonel, CE
Director of Engineering and Housing

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
P.O. BOX CN 029
TRENTON, NEW JERSEY 08625

JOHN W. GASTON JR., P.E.
DIRECTOR

Army
0024635

Pedricktown-US Army Sup. Fac.
USATC DEH Environmental Branch
Fort Dix, NJ 08640

Attn: Fac Engineer

RE: Use of a Commercial Hauler for Sludge Disposal

Dear Permittee:

Our office has recently received your correspondence concerning plans for sludge disposal via a commercial hauler. Contracts or copies of agreements with a specific hauler are accepted by this Bureau as evidence of compliance with NJPDES Regulation 7:14-2.5(m), only if a legal disposal site is indicated. Our office is currently attempting to finalize our inventory of facilities utilizing registered haulers. You are in receipt of this letter because:

_____ You have provided copies of agreements with a commercial hauler, but no ultimate disposal site was shown. To satisfy the regulatory requirement you must provide a written statement indicating the final disposal site for your sludge.

__X__ You have stated that no contract with a specific hauler exists at this time. It will be necessary for you to provide evidence of the hauler utilized and his disposal site when services are eventually rendered.

You are reminded that state regulations assess responsibilities for proper waste management on collector/haulers, disposal sites, and generators. Consistent with this requirement all NJPDES permits under Section 15.E require permittees to submit proof of permitted disposal. Your early submission of site information is important. We would like to keep this information as current as possible, please let us know if changes in disposal sites or collectors occur. Thank you for your cooperation.

Direct correspondence to: Helen Chase, Bureau of Ground Water Discharge Permits, Division of Water Resources, CN-029, Trenton, N.J. 08625

Cordially,

Greg Honachefsky
Bureau of Ground Water Discharge Permits

Air Quality

VEM-017

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF ENVIRONMENTAL QUALITY
AIR POLLUTION CONTROL PROGRAM
BUREAU OF ENGINEERING AND TECHNOLOGY

All Correspondence must indicate your APC PLANT ID NUMBER

rmit/Certificate Number 970592 LUS NUMBER 8636T2A APC PLANT ID 05094

(Mailing Address)

US ARMY TRAINING CENTER & FORT DIX
ATZU-EHN TEXAS AVE
FORT DIX NJ 08640

(Plant Location)

PEDRICKTOWN TEXAS FAC(SILVE
RT 130
PEDRICKTOWN

pplicant's Designation of Equipment BLDG 273 BOILER
J. Stack No. 001 No. of Stacks 001 No. of Sources 01
riginal Approval 11/25/86 Effective 11/25/86 **Expiration** 11/25/91

PERMIT TO CONSTRUCT, INSTALL OR ALTER CONTROL APPARATUS OR EQUIPMENT
AND
CERTIFICATE TO OPERATE CONTROL APPARATUS OR EQUIPMENT (5 YEAR DIRECT)

THIS PERMIT AND PERMANENT (5 YEAR) CERTIFICATE IS BEING ISSUED UNDER THE AUTHORITY OF CHAPTER 106, P.L. 1967 (N.J.S.A.26:2C-9.2), AND IS BEING ISSUED WITHOUT A FIELD INSPECTION. HOWEVER, FIELD INSPECTIONS ARE SCHEDULED FOR THE FUTURE AND APPROPIATE ACTIONS WILL BE TAKEN IF SUCH INSPECTIONS DISCLOSE DEVIATIONS FROM YOUR APPLICATION.

YOU MAY BE ENTITLED TO AN EXEMPTION OF TAXATION IF YOUR EQUIPMENT IS TAXED AND IS CONSIDERED TO BE AN AIR POLLUTION ABATEMENT FACILITY. A TAX EXEMPTION APPLICATION MAY BE OBTAINED FROM THIS SECTION.

IF IT IS NECESSARY TO AMEND YOUR EMERGENCY STANDBY PLANS, PLEASE CONSULT WITH THE APPROPRIATE FIELD OFFICE. (SEE OTHER SIDE)

THIS DOCUMENT MUST BE READILY AVAILABLE FOR INSPECTION AT THE PLANT.

AIR POLLUTION CONTROL
SOUTHERN FIELD OFFICE
FEB. 26 1987
RECEIVED

. Department of Environmental Protection
ision of Environmental Quality
-027
nton, New Jersey 08625

Approved by: _____
Supervisor
New Source Review Section

SALEM COUNTY 02/17/87-05

FIELD INVESTIGATION ASSIGNMENT REPORT

TYPE OF INVESTIGATION REQUIRED	INSPECTOR ASSIGNED (Code No.)	DATE ASSIGNED	REQUIRED COMPLETION DATE	ACTUAL COMPLETION DATE	COUNTY	NO.	SUBCHAPTER	UNITS/ TIME	INSPECTOR'S INITIALS
☐ COMPLAINT ☐ ORDER/NOP COMPLIANCE ☒ APEDS ☐ OTHER	NC 042			5/15/87	-	1	SP ASSIGN.	24	mac

COMPLAINT Date Rec'd _____ Tel. No. _____ Name _____
Time _____ Address _____

Name and Address Alleged Violator _____ Nature of Violation _____ Recorded by _____

Complaint Investigation Results:
Date: _____
Time: _____
Verified:
☐ Yes ☐ No

OBSERVATIONS: _____

ORDER, NOP, A.C.O. COMPLIANCE
Company _____
Location _____
NJAC 7:27 _____ Order, NOP, A.C.O. Dated: _____
Compliance _____ Log No. _____
(If no, give reason) A.C.O. Item: _____

APEDS
Company UNITED STATES GOVT. USAR CENTER
Location RTE 130 PEDRICKTOWN
Inspect Stack No. _____
INPUT GRANDFATHERED SOURCE & STACK DATA
Cycle _____ A1 _____ A2 _____ NSPS _____ NESHAPS _____ PSD _____

OTHER
Company _____
ID No. _____ Location _____
Type of Inspection/Activity _____
Results _____

RECOMMENDATIONS:

Supervisor's Review
Initials: _____ Date: 5-15-87

:Q-047 U.S. ARMY TRAINING CTR. & FORT DIX

APC STACK LOG

PLANT I.D. 65094

ACK O.	CERTIFICATE NO.	DESCRIPTION OF EQUIPMENT	DATE LOGGED
01	76592	BLDG 273 Boiler	
02		404-A/WEIL McLAIN BOILER	

EDS USE ONLY

DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY TRAINING CENTER AND FORT DIX
FORT DIX, NEW JERSEY

08640-5501

APR 1 1987

NJ Department of Environmental Protection
Bureau of Air Pollution Control (Mike Sabol)
P.O. Box CN-027
Trenton, New Jersey 08625

SRD

Dear Mr. Sabol:

Enclosed are permit application forms VEM-003 and VEM-004 for the grandfathered boilers; one boiler is at the 50th A.D. UTES, Route 539, New Egypt, New Jersey 08533 and the other boiler is at the Pedricktown Support Facility (Sievers-Sandburg) USARC, Route 130, Pedricktown, New Jersey 08067.

If you have any questions regarding the above specifications, please contact Mr. L.S. Meredith of the Environmental Branch at (609) 562-3191 or 3050.

Sincerely,

O'Brene Richardson
Colonel, CE
Director of Engineering and Housing

Enclosure

CF:

Off-Post Coordinator

BUREAU OF AIR POLLUTION CONTROL

PERMIT-CERTIFICATE REVIEW FORM

A. FEE [illegible] TRANSACTION NUMBER _____ DATE LOGGED 11-6-86 LOG NO. 180-3872

B. PLANT/STACK ID NUMBER 65094/01 CANCEL P/CT _____ LEGAL ACTION NONE New

C. COMPANY U.S. ARMY TRAINING CENTER AND FORT DIX (PEDRICKTOWN)

COMPANY DESIGNATION OF EQUIPMENT BLDG 273 BOILER

CONTROL APPARATUS NONE

EMISSIONS	MW	VP	PPM OTL	PPM ACT	WITHOUT CON. lb./h	WITHOUT CON. T/y	WITH CON. lb./h	WITH CON. T/y	EFF	ALLOWABLE	NJAC 7:27 -
PART					.0236	0.1				.0236 (4%)	8.1 (4.3)
SO_2					.34	1.49				.34	4.1
CO					.059	.26				.059	5.1
CHy					.007	.03				.012	5.1
NO.					.236	1.03				.26	5.1
ADDITIONAL STATEMENTS											

D. EVALUATOR M. P. Sabol DATE 11/8/86 TIME UNITS 1 8

☒ APPROVE

☐ DISAPPROVE DUE TO: ☐ INSUFFICIENT INFORMATION ☐ NOT STATE OF THE ART ☐ EQUIPMENT VIOLATES _____

AIR POLLUTION CONTROL SOUTHERN FIELD OFFICE

FEB 02 198[illegible]

RECEIVED

STACK TEST FOR _____

E. ADDITIONAL REGULATIONS

☐ EOP ☐ NESHAPS ☐ CARCINOGEN ☐ MODELLING

☐ PSD ☐ EPA AUDIT ☐ PINELAND

☐ NSPS

F. PRE-SCREEN RECOMMENDATION 5yr GROUP LEADER T. Micci DATE 11-25-86

☑ CONCUR ☐ ADDITIONS _____

G. SUPERVISOR [signature] DATE NOV 25 1986

☑ APPROVE

☐ DISAPPROVE

P/CT START-UP _____ DURATION 05 LETTER NUMBER 05

ENFORCEMENT DATA MANAGEMENT
J. GRAY

RECEIVED Dec 3 1986

Side 1

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR POLLUTION CONTROL

APPLICATION FOR
PERMIT TO CONSTRUCT, INSTALL OR ALTER CONTROL APPARATUS OR EQUIPMENT
AND
CERTIFICATE TO OPERATE CONTROL APPARATUS OR EQUIPMENT

RECEIVED
NOV 5 6 25 PM '86
NJ DEPT. OF ENVIRONMENTAL PROTECTION
DIVISION OF LAW QUALITY

TO: New Jersey Department of Environmental Protection
Bureau of Air Pollution Control
CN-027, Trenton, NJ 08625

Read Instructions Before Completing Application

SECTION A

1. Full Business Name: U.S. Army Training Center and Fort Dix
2. Mailing Address: ATZD-EHN (No.) Texas Ave. (Street) Fort Dix (City) N.J. (State) 08640-5501 (Zip Code)
3. Division and/or Plant Name: Pedricktown Support Fac. (Sievers-Sandburg USARC)
4. Plant Location: Route 130 (No.) (Street) Pedricktown (City) NJ (State) 08067 (Zip Code) Salem (County)
5. Location of Equipment on Premises (bldg., dept., area, etc.): Bldg 273
6. Nature of Business: US Army Reserve Center
7. Estimated Starting Date of Construction: 3 November 1986
8. Date Equipment to be put in use: 3 December 1986
9. Plant Contact: Stanley Heinert (Name (print or type)) (Title) 609-299-3252 (Telephone No.)

SECTION B

REASON FOR APPLICATION *(Check One)*

- [x] New Equipment without Control Apparatus
- [ ] New Equipment with Control Apparatus
- [ ] New Control Apparatus on Existing Equipment
- [ ] Five Year Renewal of Certificate No. (s) ____
- [ ] Other *(Explain)* ____
- [ ] Modification to Existing Equipment
- [ ] Modification to Existing Control Apparatus
- [ ] Painting Tank White

SECTION C

STACK INFORMATION (EQUIVALENT STACK INFORMATION)

1. Company Designation of Stack (s): Bldg 273 Boiler
2. Previous Certificate Numbers (if any): N/A
3. a. Number of Sources Venting to this Stack: 1 (Complete a separate VEM-004 for each source)
   b. Number of Stacks Venting Source Operation (s): ~~Distance to property boundary is 600 Ft~~
4. Distance to the nearest Property Line (ft.): 10"
5. Stack Diameter (inches): 35 Ft
6. Discharge Height Above Ground (ft.): 450
7. Exit Temperature of Stack Gases (°F): ____
8. Volume of Gas Discharged at Stack Conditions (A.C.F.M.): 295
9. Discharge Directions: [ ] Horizontal [x] Up [ ] Down

The information supplied on applications VEM-003 and VEM-004, including the data in supplements, is to the best of my knowledge true and correct.

Signature: [signature] Act. Director 10-30-86 (Date)

O'BRENE RICHARDSON, COL, CE, DEH (Name (print or type))

Director of Engineering and Hous (Title)

This application will not be processed unless proper fee is submitted. FOR ASSISTANCE CALL (609) 292-6716

FOR DEPARTMENT USE ONLY

N.J.I.D. [ ][ ][ ][ ][ ]-STACK [ ][ ]-[0][0][0] LOG NO. [1]-[86]-[31812] CT. NO. [ ][ ][ ][ ][ ]

EAS
William Stephens
E.S.P. 11-6-86

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR POLLUTION CONTROL

APPLICATION FOR
PERMIT TO CONSTRUCT, INSTALL OR ALTER CONTROL APPARATUS OR EQUIPMENT
AND
CERTIFICATE TO OPERATE CONTROL APPARATUS OR EQUIPMENT

Source Emissions And Source Data Form
(Complete this form for each source and submit with application Form VEM-003)

1-03-005-03

SECTION E — SOURCE INFORMATION

1. Source Description: Weil McLain · BL 688 Hot Water Boiler

2. Operating Schedule

24	8760	3 Dec 1986
Hours/Day	Hours/Year	Operation Starting Date

3. % Annual Production Throughput By Quarter

52.1	5	5	37.9
Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.

4. Volume Of Gas Discharged From This Source (ACFM): 295 Source Discharge Temperature (^{0}F): 450^0

SECTION F — CONTROL APPARATUS ON SOURCE

	Capital Cost (Dollars)	Annual Operating Cost (Dollars)	No. of Sources Connected
Primary			
Secondary			
Tertiary			

SECTION G — AIR CONTAMINANTS FROM SOURCE

CONTAMINANT NAME		Emissions w/o Control (lbs./hr.)	Emissions with Control (lbs./hr.)	How Determined
Particulate	106516	.0236		AP-42
Sulfur Oxide	8766	.33984		AP-42
Carbon Monoxide	1819	.059		AP-42
Hydrocarbon	5809	.0065608		AP-42
Nitrogen Oxide	6425	.236		AP-42

TO INSURE PROPER COORDINATION BETWEEN VEM-003 AND VEM-004 FORMS, INSERT IDENTICAL COMPANY NAME AND DESIGNATION OF STACK FROM VEM-003, SIDE 1.

Full Business Name: Pedricktown Support Center (Sievers-Sandburg USA

Company Designation of Stack (s): Building 273

(over)

A. MANUFACTURING AND MATERIALS HANDL...

1. Process Description _____

2. Total Amount Materials Processed ☐ Batch _____ lb/batch, _____ hr/batch ☐ Continuous _____ lb/hr

3. Raw Materials	% By Wt.	Raw Materials	

B. FUEL BURNING EQUIPMENT

1. Gross Heat Input (10^6 BTU/HR) 1.652 11.8 gph

2. Type Heat Exchange ☐ Direct ☒ Indirect ☐ Internal Combustion Engine

	PRIMARY FUEL	SECONDARY FUEL
3. a. Type of Fuel:	No. 2 Fuel Oil	
b. Heating Value (Btu/lb):	140,000	
4. Method of Firing:	Forced Draft	
5. % Sulfur in Fuel (Dry):	.2	
6. % Ash Content of Fuel (Dry):	N/A	
7. Amount Burned/Yr.	9,000	

Units: Solid Fuel (Tons) Liquid Fuel (10^3 Gal.) Gaseous Fuel (10^6 Ft.^{3})

C. INCINERATION

1. Type of Unit _____

2. Constituents of Waste (s) _____

3. Waste Code ☐0 ☐1 ☐2 ☐3 ☐4 ☐5. ☐6

4. Amount Burned (lbs./hr.) _____ Type of Auxil. Fuel (If Any) _____

D. STORAGE FACILITY

1. Tank Contents _____

2. Type of Tank or Bin _____ Height or Length (Ft.) _____

3. Capacity _____ (10^3 Ft.^{3}) ☐ (10^3 Gal.) ☐ Equivalent or Actual Diameter (Ft.) _____

THE REMAINING QUESTIONS ARE TO BE ANSWERED ONLY FOR LIQUID STORAGE

4. Vapor Pressure at 70°F (PSIA) _____ Storage Temp. If Not Ambient (°F) _____

5. Filling Rate (Gal/Min) _____ Annual Throughput (10^3 Gal/Yr) _____

6. Method of Fill ☐ Top ☐ Bottom ☐ Submerged ☐ Other (Explain Below)

7. Color of Tank ☐ White ☐ Other Exposed to Suns Rays ☐ Yes ☐ No

8. Insulation Data for Insulated Tanks (Volatile Organic Substances)

Type _____, Thickness (Inches) _____, Thermal Conductivity (BTU/HR/FT^2/°F) _____

SECTION II

For Department Use Only

☐☐☐☐☐ - ☐☐☐ - ☐☐☐

Form VEM-003
85

Side 1

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

RECEIVED
APR 22 10 11 AM '87
NJ DEP
BUREAU OF ENVIRONMENTAL QUALITY

BUREAU OF AIR POLLUTION CONTROL

APPLICATION FOR
PERMIT TO CONSTRUCT, INSTALL OR ALTER CONTROL APPARATUS OR EQUIPMENT
AND
CERTIFICATE TO OPERATE CONTROL APPARATUS OR EQUIPMENT

TO: New Jersey Department of Environmental Protection
Bureau of Air Pollution Control
CN 027, Trenton, NJ 08625

Read Instructions Before Completing Application

SECTION A

1. Full Business Name: U.S. ARMY TRAINING CENTER AND FORT DIX
2. Mailing Address: ATZD-EHN (No.) Texas Ave (Street) Fort Dix (City) New Jersey (State) 08640-5501 (Zip Code)
3. Division and/or Plant Name: Pedricktown Support Facility (Sievers-Sandburg USARC)
4. Plant Location: Route 130 (No.) Pedricktown (Street) NJ (City) 08067 (State) Salem (Zip Code) (County)
5. Location of Equipment on Premises (bldg., dept., area, etc.): Building 404
6. Nature of Business: U.S. Army Reserve Center
7. Estimated Starting Date of Construction: N/A
8. Date Equipment to be put in use: Grandfathered
9. Plant Contact: Stanley Heinert (Name (print or type)) (Title) (609) 299-3252 (Telephone No.)

SECTION B

REASON FOR APPLICATION *(Check One)*

- ☐ New Equipment without Control Apparatus
- ☐ New Equipment with Control Apparatus
- ☐ New Control Apparatus on Existing Equipment
- ☐ Five Year Renewal of Certificate No.(s)
- ☒ Other *(Explain)*: Grandfathered
- ☐ Modification to Existing Equipment
- ☐ Modification to Existing Control Apparatus
- ☐ Painting Tank White

SECTION C

STACK INFORMATION (EQUIVALENT STACK INFORMATION)

1. Company Designation of Stack(s): 404-A
2. Previous Certificate Numbers (if any): N/A
3. a. Number of Sources Venting to this Stack: 1 (Complete a separate VEM-004 for each source)
   b. Number of Stacks Venting Source Operation(s): 1
4. Distance to the nearest Property Line (ft.): From Bldg. 404 to property boundary is 600 feet.
5. Stack Diameter (inches): 20 inches
6. Discharge Height Above Ground (ft.): 40 feet
7. Exit Temperature of Stack Gases (°F): 450
8. Volume of Gas Discharged at Stack Conditions (A.C.F.M.): 594
9. Discharge Directions: ☐ Horizontal ☒ Up ☐ Down

The information supplied on applications VEM-003 and VEM-004, including the data in supplements, is to the best of my knowledge true and correct.

Signature _____ Date _____

Name (print or type) _____ Title _____

This application will not be processed unless proper fee is submitted.

FOR ASSISTANCE CALL (609) 292-6716

FOR DEPARTMENT USE ONLY

N.J.I.D. _____ STACK _____ 0 0 0 LOG NO. _____ CT. NO. _____

FEE _____ EVAL. _____

Form VEM-004
1/79

Side 1

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR POLLUTION CONTROL

APPLICATION FOR
PERMIT TO CONSTRUCT, INSTALL OR ALTER CONTROL APPARATUS OR EQUIPMENT
AND
CERTIFICATE TO OPERATE CONTROL APPARATUS OR EQUIPMENT

Source Emissions and Source Data Form
(Complete this form for each source and submit with application Form VEM-003)

SECTION E

SOURCE INFORMATION

1. Source Description: Weil-McLain H.W. Boiler

2. Operating Schedule: 24 Hours/Day; 8760 Hours/Year; Grandfathered Operation Starting Date

3. % Annual Production Throughput By Quarter: 58 Jan.-Mar.; 8 Apr.-June; 1 July-Sept.; 33 Oct.-Dec.

4. Volume Of Gas Discharged From This Source (ACFM): 594; Source Discharge Temperature (°F): 450°

SECTION F

CONTROL APPARATUS ON SOURCE

	Capital Cost (Dollars)	Annual Operating Cost (Dollars)	No. of Sources Connected
Primary			
Secondary			
Tertiary			

SECTION G

AIR CONTAMINANTS FROM SOURCE

CONTAMINANT NAME	Emissions w/o Control (lbs./hr.)	Emissions with Control (lbs./hr.)	How Determined
Sulfur Oxide	.684288		AP-42
Carbon Monoxide	.1188		AP-42
Hydrocarbon	1.321056		AP-42
Nitrogen Oxide	.4752		AP-42

TO INSURE PROPER COORDINATION BETWEEN VEM-003 and VEM-004 FORMS, INSERT IDENTICAL COMPANY NAME AND DESIGNATION OF STACK FROM VEM-003, SIDE 1.

Full Business Name: Pedricktown Support Center (Sievers-Sandburg USARC)

Company Designation of Stack(s): Building 404 - A

SECTION II

A. MANUFACTURING AND MATERIALS HANDLING

1. Process Description _____

2. Total Amount Materials Processed ☐ Batch _____ lb/batch. _____ hr/batch ☐ Continuous _____ lb/hr

3. Raw Materials	% By Wt.	Raw Materials	% By Wt.

B. FUEL BURNING EQUIPMENT

1. Gross Heat Input (10^6BTU/HR) 3.3 23.76 gph

2. Type Heat Exchange ☐ Direct ☒ Indirect ☐ Internal Combustion Engine

	PRIMARY FUEL	SECONDARY FUEL
3. a. Type of Fuel:	No. 2 Oil	
b. Heating Value (Btu/lb):	140,000	
4. Method of Firing:	~~Forced Draft~~ AIR ATOM.	
5. % Sulfur in Fuel (Dry):	0.2	
6. % Ash Content of Fuel (Dry):	N/A .01	
7. Amount Burned/Yr.:	25,000	

Units: Solid Fuel (Tons) Liquid Fuel (10^3Gal.) Gaseous Fuel (10^6Ft.^{3})

C. INCINERATION

1. Type of Unit _____

2. Constituents of Waste(s) _____

3. Waste Code ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

4. Amount Burned (lbs./hr.) _____ Type of Auxil. Fuel (if any) _____

D. STORAGE FACILITY

1. Tank Contents _____

2. Type of Tank or Bin _____ Height or Length (Ft.) _____

3. Capacity _____ (10^3Ft.^{3}) ☐ (10^3Gal.) ☐ Equivalent or Actual Diameter (Ft.) _____

THE REMAINING QUESTIONS ARE TO BE ANSWERED ONLY FOR LIQUID STORAGE

4. Vapor Pressure at 70°F (PSIA) _____ Storage Temp. If Not Ambient (°F) _____

5. Filling Rate (Gal/Min) _____ Annual Throughput (10^3Gal/Yr) _____

6. Method of Fill: ☐ Top ☐ Bottom ☐ Submerged ☐ Other (Explain Below)

7. Color of Tank: ☐ White ☐ Other Exposed to Suns Rays ☐ Yes ☐ No

8. Insulation Data for Insulated Tanks (Volatile Organic Substances)

Type _____. Thickness (Inches) _____. Thermal Conductivity (Btu/hr/ft^2/°F) _____

FOR DEPARTMENT USE ONLY

☐☐☐☐☐ - ☐☐☐ - ☐☐☐

B5

orm VEM-001
/85

NEW JE Y DEPARTMENT OF ENVIRONMENTAL P. ECTION
DIVISION OF ENVIRONMENTAL QUALITY
AIR POLLUTION ENFORCEMENT DATA SYSTEM

PLANT IDENTIFICATION INPUT FORM

KEY - TO BE DUPLICATED ON RECORD B

[A] (1)

TRANSACTION CODE [N] (2) N=NEW U=UPDATE D=DELETE R=REACTIVATE

D.E.P. PLANT ID [ ] (3–7)

LEGAL NAME OF CORPORATION (8–47): US ARMY TRAINING CENTER & FORT DIX

TYPE OF OWNERSHIP (48): F

DIVISION AND/OR PLANT NAME (49–88): PEDRICKTOWN SUPPORT FAC. (SIEVERS-SANDBURG)

MAILING ADDRESS (89–113): ATZD-EHN TEXAS AVE

(114–128): FORT DIX

STATE (129): NJ

ZIP CODE (131–135): 08640

PLANT LOCATION (136–160): RT 130

CITY (161–175): PEDRICKTOWN

(AREA CODE) TELEPHONE NO. (176–185): 609 299 3252

SAROAD COUNTY (186–189): 4900

SAROAD MUNICIPALITY (190–193): 3951

SIC CODE (194–197): 9711

PLANT ELEVATION (198–201): 0100

UTM CO-ORD. HORIZ. (202–205): 4610.7

VERTICAL (206–210): 4399.3

RECEIVED 1985

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[3] (1)

SOURCE CATEGORY (8): 2

SOURCE SIZE (9): 2

OVERALL PLANT COMPLIANCE (10): 4

INSPECTION MONTH (13): 02

CYCLE (15): 7

PLANT CONTACT (16–30): STANLEY HEINERT

NESHAPS CODE (31): [ ]

NSPS CODE (32): [ ]

PSD (33): [ ]

EOP (34): [ ]

TVOS (35): [ ]

DATE: 12-22-86

PREPARED BY: 042 & 035 PHONE NO. _____

APPENDIX B - Site Photographs

Photographs - Pedricktown Support Facility

Key

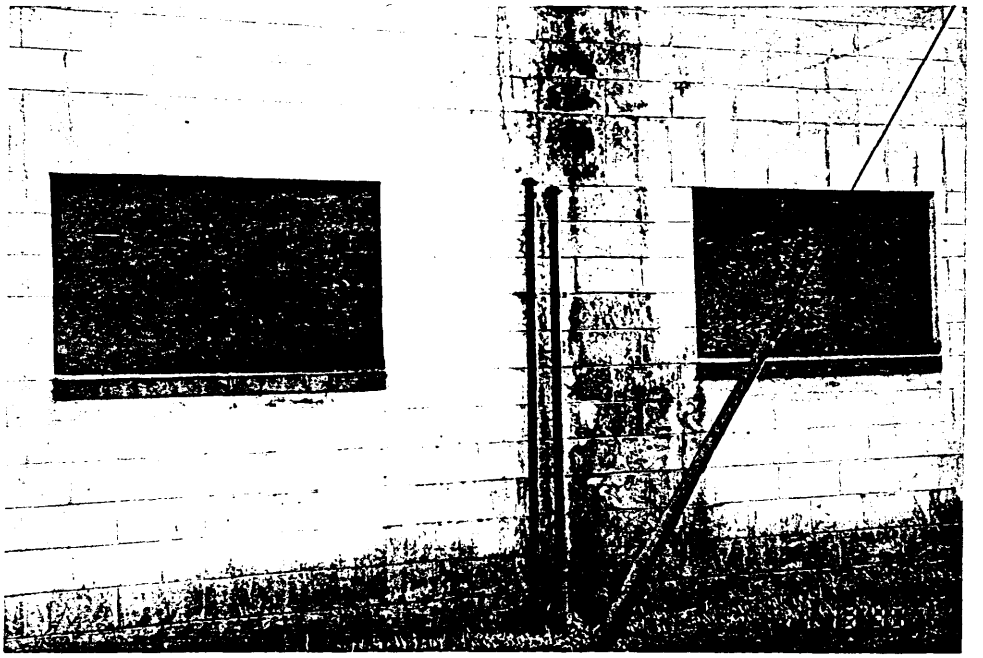
1	Vents from abandoned underground oil tank adjacent to former barracks (Building 371).
2	Sewage treatment plant (Building 530).
3	Building 413 and gasoline pump island in foreground; Nike Missile Command Center (Building 432) in background.
4	Former pump island located in front of Building 413.
5	Drum storage inside Building 413.
6	Underground waste oil tank behind Building 413.
7	Diesel pump island adjacent to Building 413; Nike Missile Command Center in background.
8	Underground fuel oil tank enclosure behind motor pool (Building 404); crane is parked over motor pool wash rack.
9	Motor pool wash rack drain/grease trap.
10	Wash water from motor pool battery service bay.
11	Waste storage area outside of battery service bay.
12	Waste storage outside of battery service bay.
13	Former coal storage bins (Structure 471) are used for shipping container storage.
14	Several of the drums stored in the coal bin are filled with waste fluids (most are empty and are used for Army Reserve freight loading exercises).
15	Drum storage and sawed-off waste oil drum adjacent to Buildings 485 and 494.
16	Oil stained soil adjacent to Buildings 485 and 494.
17	Building 485 boiler stack.
18	Fill pipe to underground oil tank outside of Nike Missile Command Center.
19	Containment around underground oil tank outside of Building 173.
20	Close-up of fill pipe containment outside of Building 173.

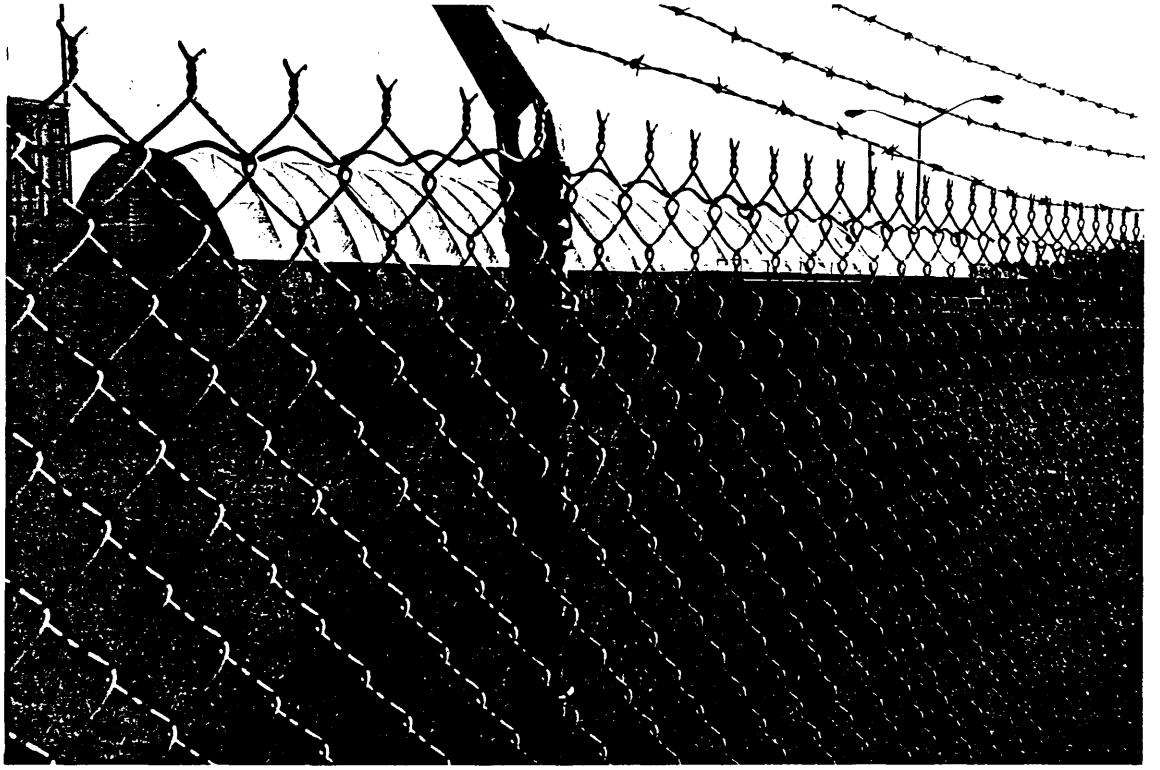
Photographs - Pedricktown Support Facility

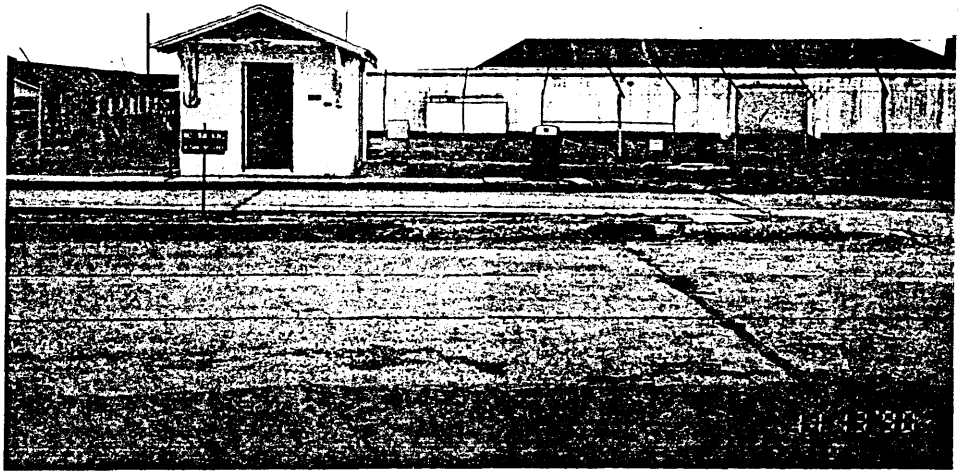
(continued)

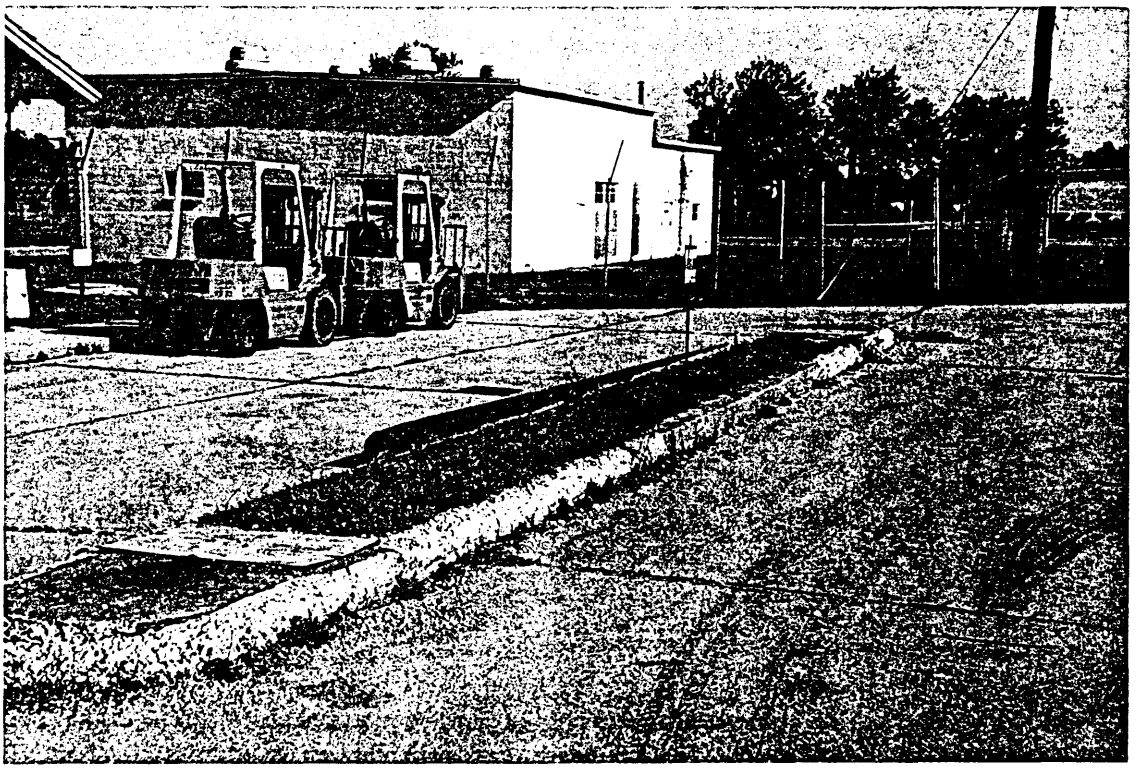
Key

21	Electrical transformers outside of Building 173.
22	Excavating soil gas collector hole.
23	Soil gas collector.
24	Placing soil gas collector.

1. 

2. 

3. 

4. 

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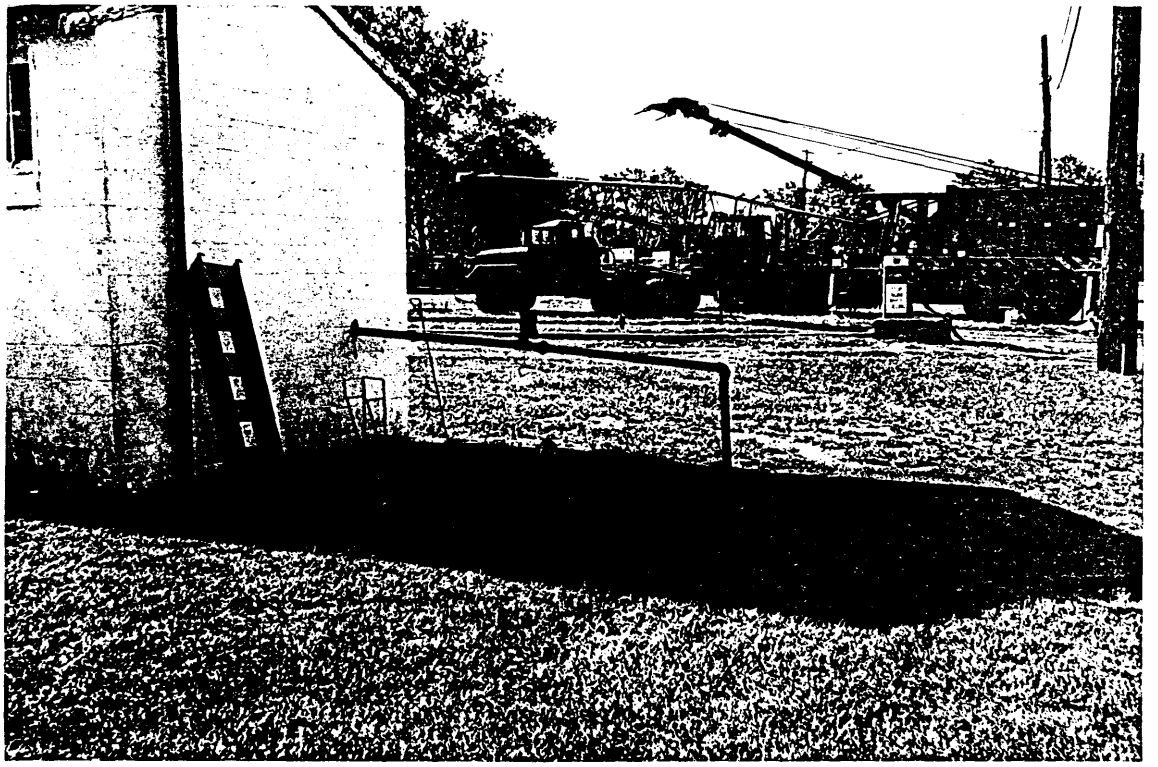

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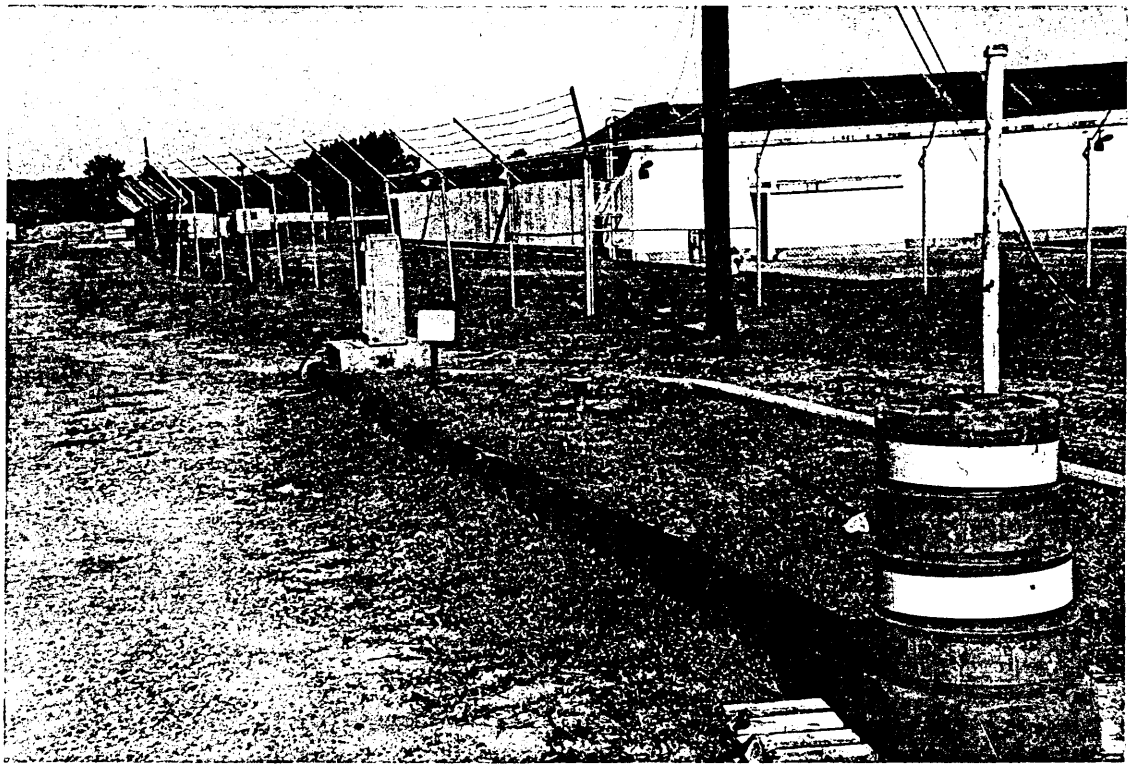

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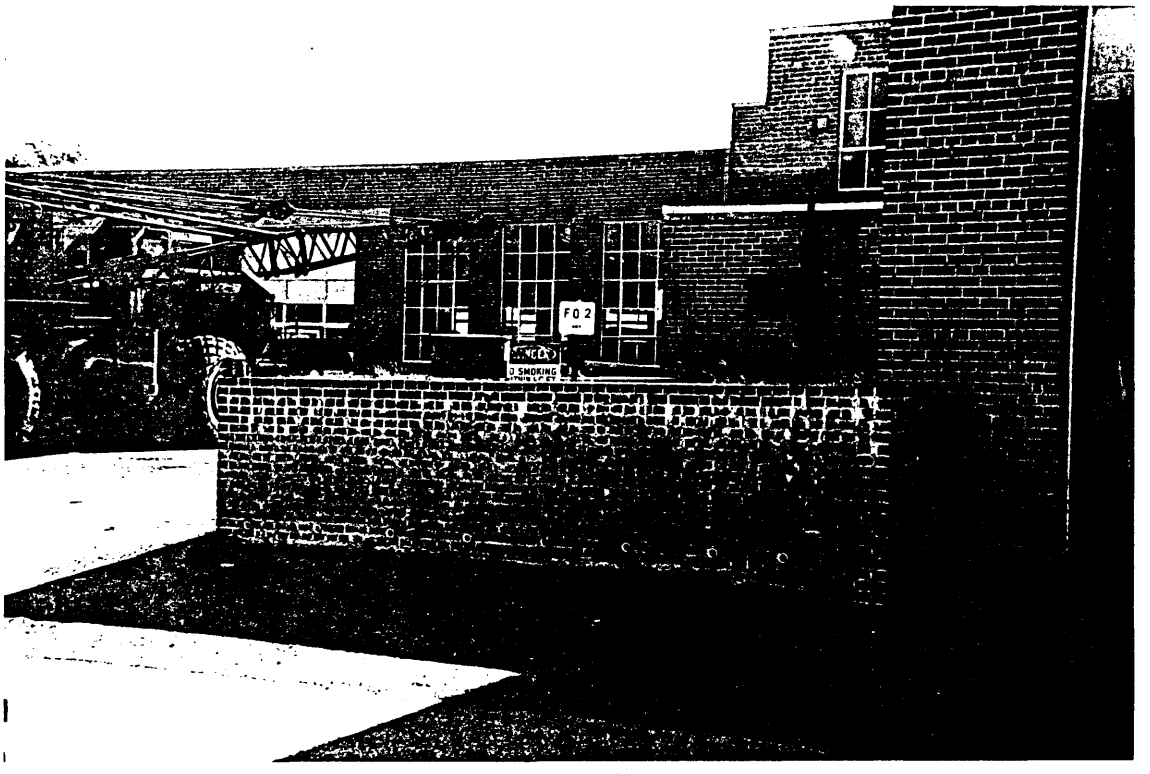

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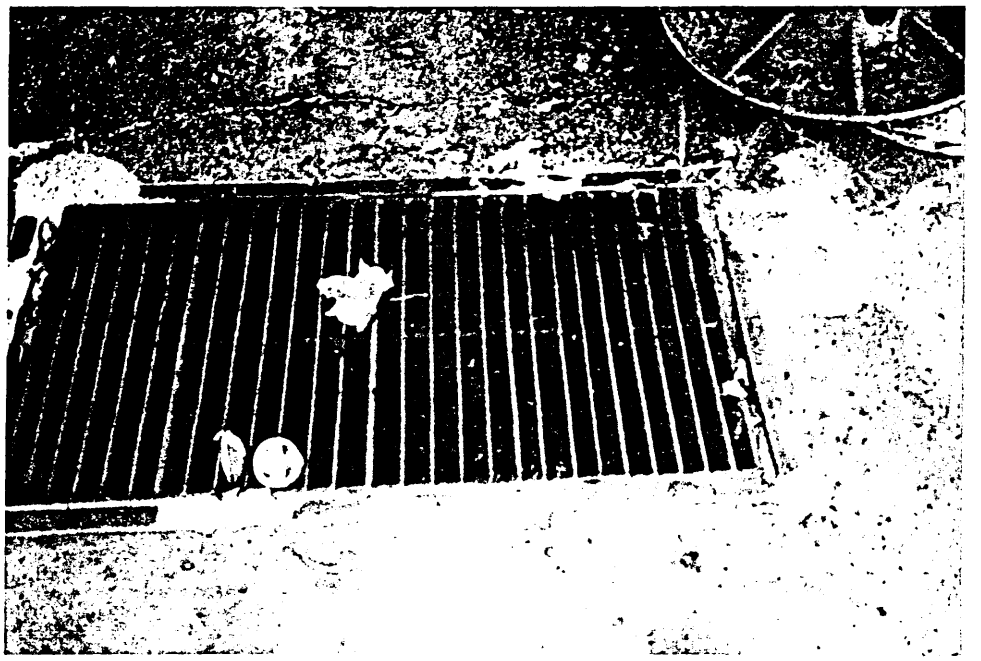

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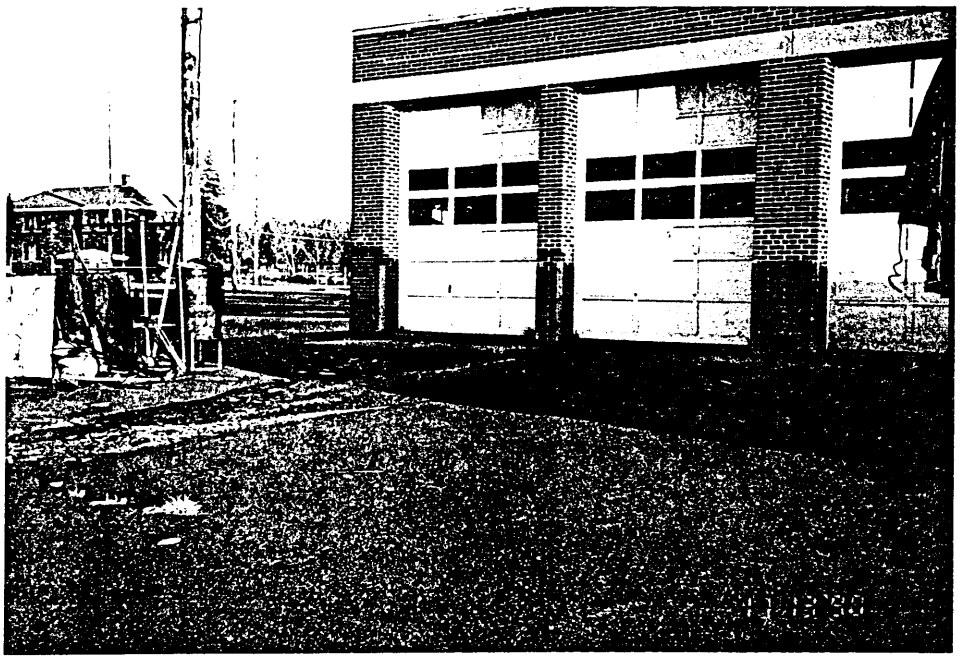
11. 

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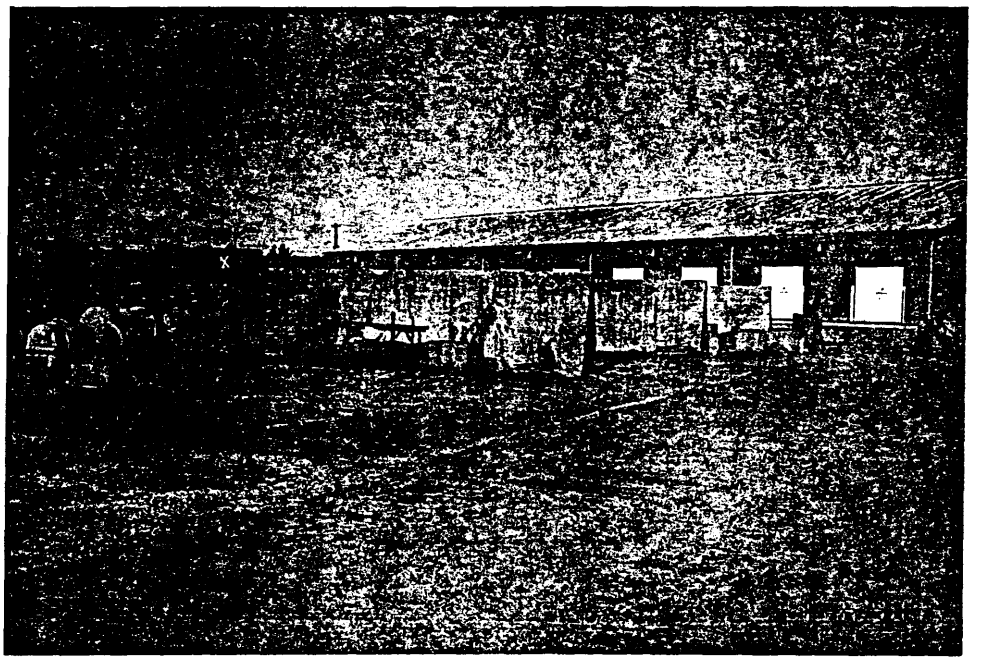
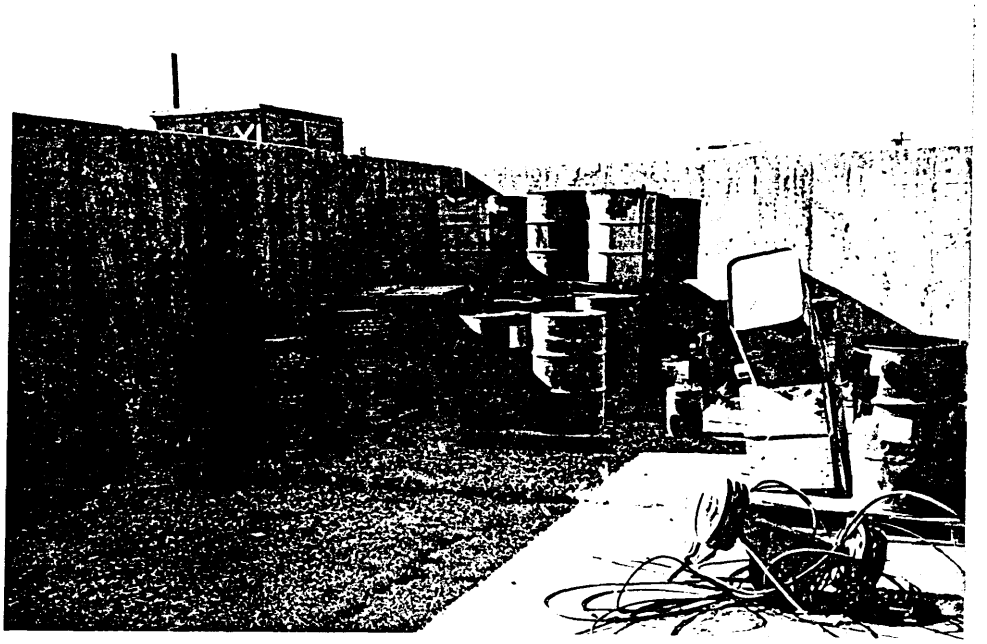
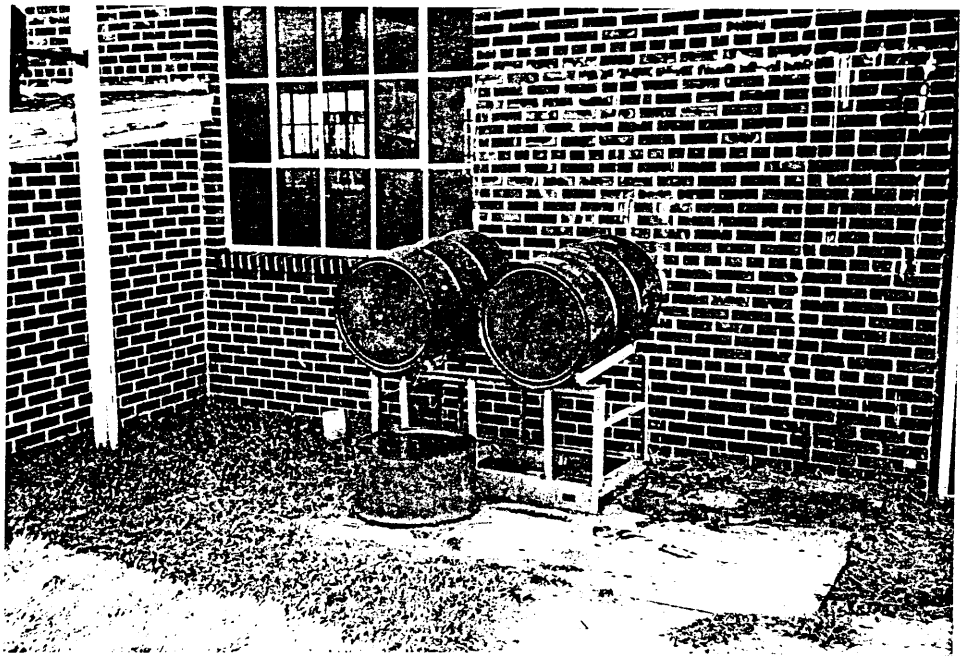
13. 

14. 

15. 

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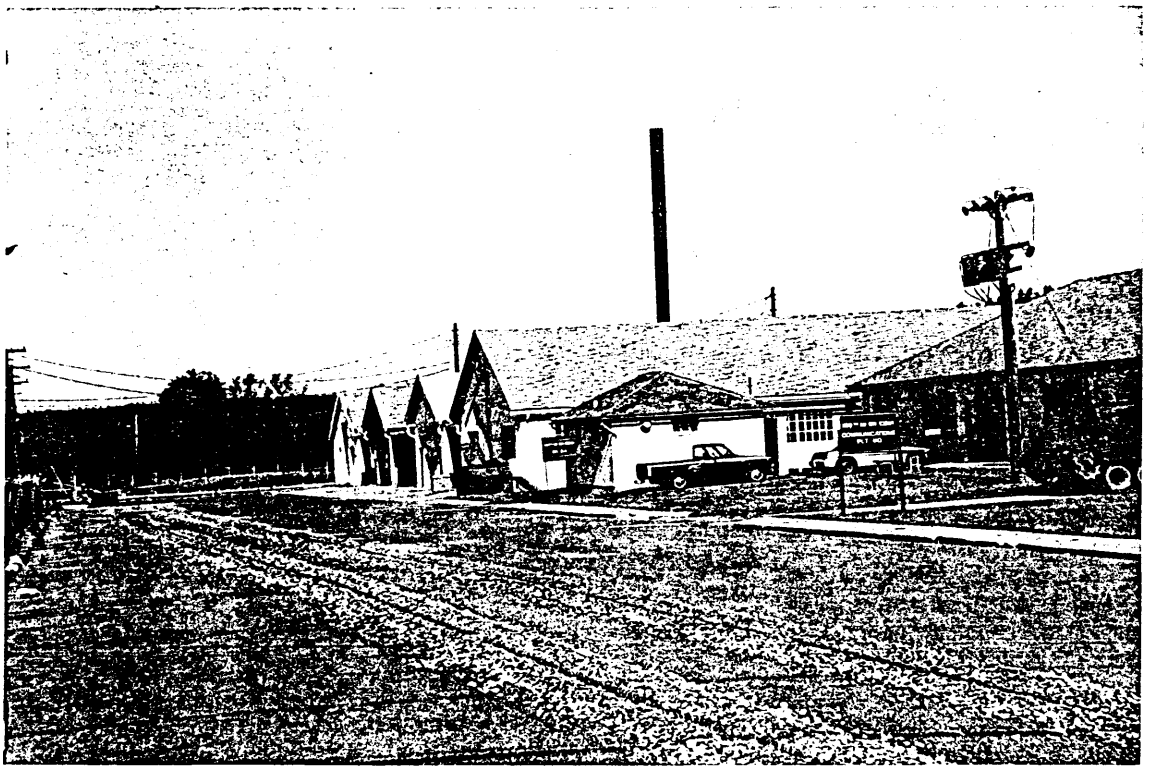

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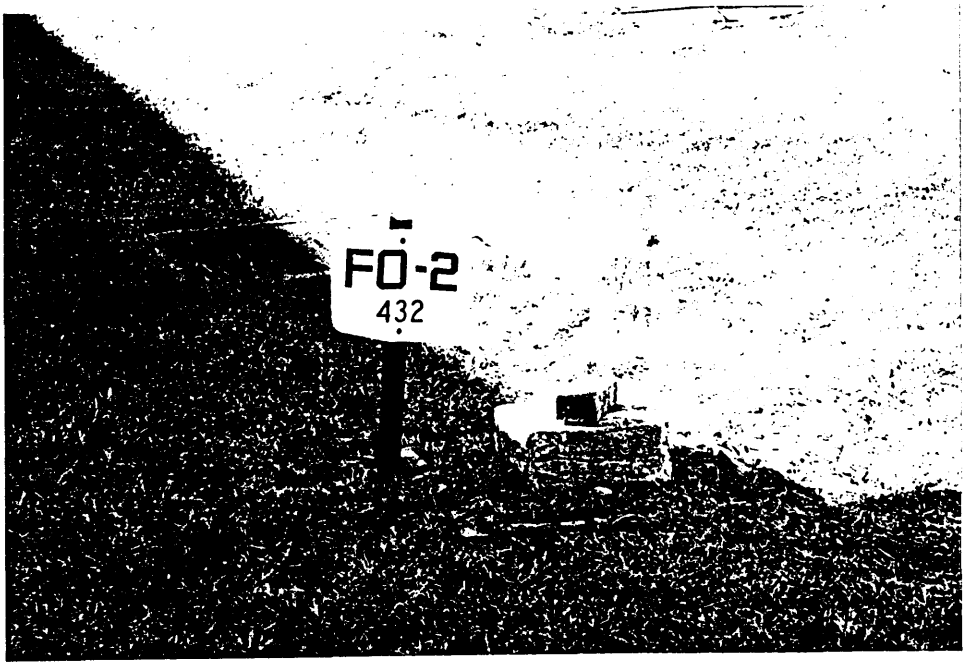
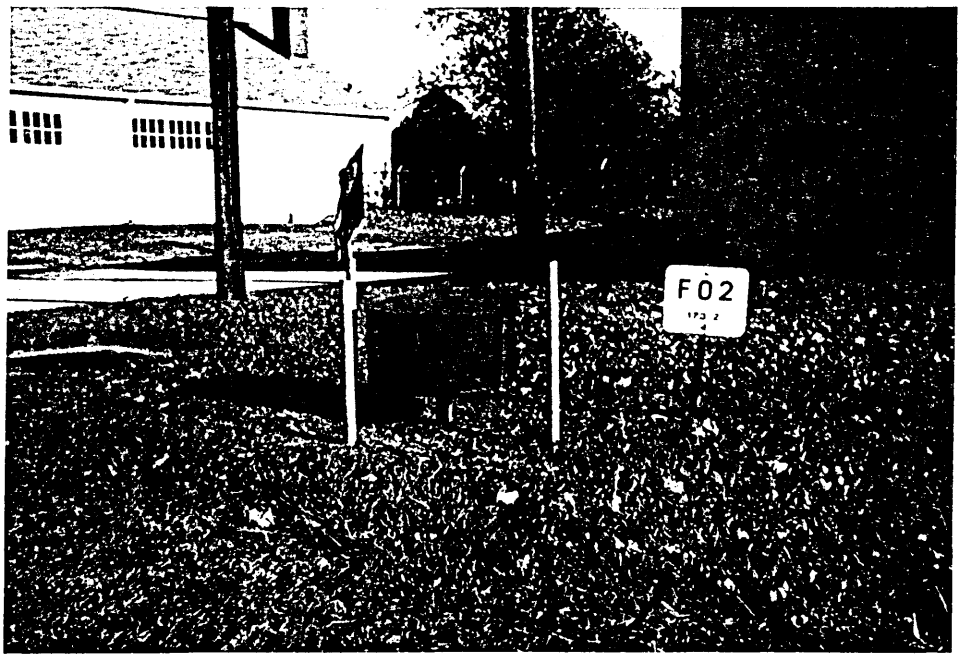
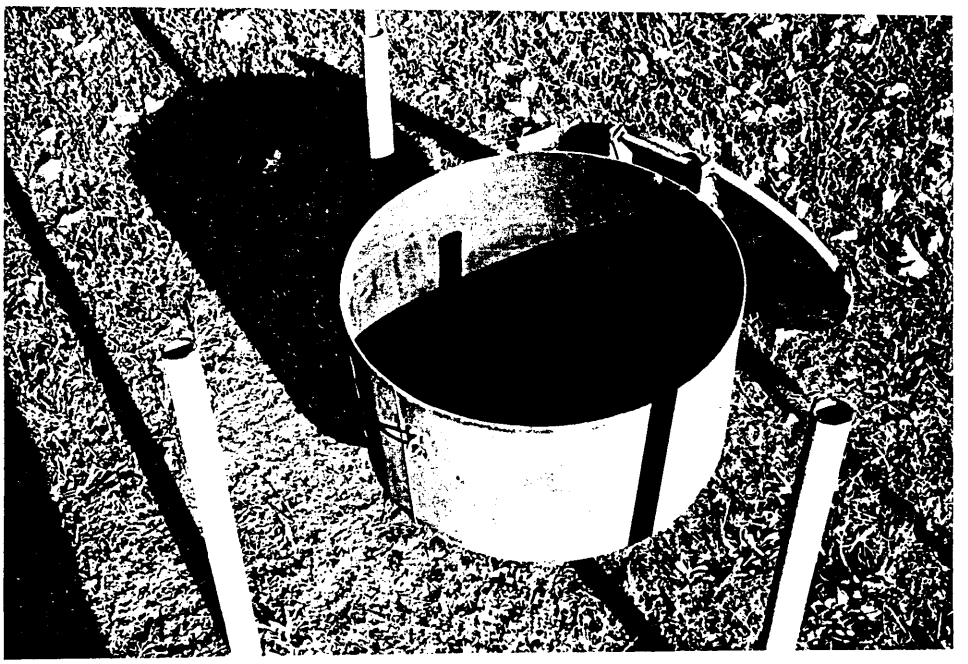
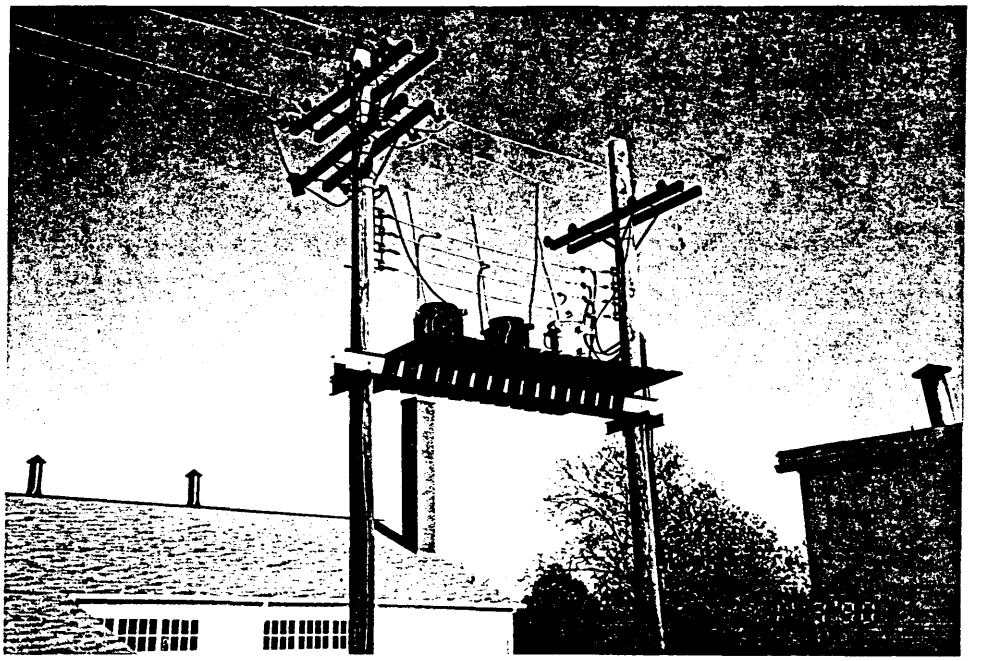


19. 

20. 



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24.

APPENDIX C - Ecological Support Data

Let's protect our earth

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks and Forestry
Office of Natural Lands Management
CN 404, Trenton, New Jersey 08625
(609) 984-1339
FAX (609) 984-1427

December 11, 1990

Laurie J. Christian
RMC Environmental Services, Inc.
3450 Schuylkill Road
Spring City, Pennsylvania 19475

Re: Pedricktown Support Area
(RMC Project No. 3838-04)

Dear Ms. Christian:

Thank you for your data request regarding rare species information for the above referenced project site in Oldmans Twp., Salem County.

The Natural Heritage Data Base does not have any records for rare plants, animals or natural communities on or within one mile of the site. Enclosed is a list of rare vertebrates of Salem County together with a description of their habitats. If suitable habitat is present at the project site, these species would have potential to be present. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend you contact the Division of Fish, Game and Wildlife Endangered and Nongame Species Program.

PLEASE SEE THE ATTACHED 'CAUTIONS AND RESTRICTIONS ON NHP DATA'.

Thank you for consulting the Natural Heritage Program. The fee to cover the cost of processing this data request is $20.00. Payment should be made payable to Treasurer, State of New Jersey and mailed to Office of Natural Lands Management, DEP Div. of Parks and Forestry, CN404, Trenton, NJ 08625-0404. To ensure that your payment is properly credited, please provide a copy of this letter with your remittance. Feel free to contact us again regarding any future data requests.

Sincerely,

Elena A. Williams

Elena A. Williams
Senior Planner
Natural Heritage Program

cc: JoAnn Frier-Murza
Thomas Hampton

CAUTIONS AND RESTRICTIONS ON NATURAL HERITAGE DATA

The quantity and quality of data collected by the Natural Heritage Program is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some natural areas in New Jersey have never been thoroughly surveyed. As a result, new locations for plant and animal species are continuously added to the data base. Since data acquisition is a dynamic, ongoing process, the Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of New Jersey. Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The attached data is provided as one source of information to assist others in the preservation of natural diversity.

This office cannot provide a letter of interpretation or a statement addressing the classification of wetlands as defined by the Freshwater Wetlands Act. Requests for such determination should be sent to the DEP Division of Coastal Resources, Bureau of Freshwater Wetlands, CN 402, Trenton, NJ 08625.

This cautions and restrictions notice must be included whenever information provided by the Natural Heritage Database is published.

5\22\87

NEW JERSEY NATURAL HERITAGE PROGRAM
POTENTIAL THREATENED AND ENDANGERED VERTEBRATE SPECIES
IN SALEM COUNTY

AMERICAN BITTERN	FEDERAL STATUS:	COUNTY
BOTAURUS LENTIGINOSUS	STATE STATUS: LT	OCCURRENCE: ?

HABITAT COMMENTS
Fresh water bogs, swamps, wet fields, cattail and bulrush marshes, brackish and saltwater marshes and meadows.

BALD EAGLE	FEDERAL STATUS: LELT	COUNTY
HALIAEETUS LEUCOCEPHALUS	STATE STATUS: LE	OCCURRENCE: W*

HABITAT COMMENTS
Primarily near seacoasts, rivers, and large lakes.

BARRED OWL	FEDERAL STATUS:	COUNTY
STRIX VARIA	STATE STATUS: LT	OCCURRENCE: Y

HABITAT COMMENTS
Dense woodland and forest (conif. or hardwood), swamps, wooded river valleys, cabbage palm-live oak hammocks, especially where bordering streams, marshes, and meadows.

BOBOLINK	FEDERAL STATUS:	COUNTY
DOLICHONYX ORYZIVORUS	STATE STATUS: LT	OCCURRENCE: ?

HABITAT COMMENTS
Tall grass areas, flooded meadows, prairie, deep cultivated grains, alfalfa and clover fields. In migration and winter also in rice fields, marshes, and open woody areas.

BOG TURTLE	FEDERAL STATUS: C2	COUNTY
CLEMMYS MUHLENBERGII	STATE STATUS: LE	OCCURRENCE: Y

HABITAT COMMENTS
Slow, shallow rivulets of sphagnum bogs, swamps, and marshy meadows; sea level to 1200 m in Appalachians. Commonly basks on tussocks in morning in spring and early summer. Hibernates in subterreanean rivulet or seepage area.

COOPER'S HAWK	FEDERAL STATUS:	COUNTY
ACCIPITER COOPERII	STATE STATUS: LE	OCCURRENCE: W*

HABITAT COMMENTS
Primarily mature forest, either broadleaf or coniferous, mostly the former; also open woodland and forest edge.

GRASSHOPPER SPARROW AMMODRAMUS SAVANNARUM	FEDERAL STATUS: STATE STATUS: LT	COUNTY OCCURRENCE: B

HABITAT COMMENTS
Prairie, old fields, open grasslands, cultivated fields, savanna.

GREAT BLUE HERON ARDEA HERODIAS	FEDERAL STATUS: STATE STATUS: LT	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
Freshwater and brackish marshes, along lakes, rivers, bays, lagoons, ocean beaches, mangroves, fields, and meadows.

NORTHERN HARRIER CIRCUS CYANEUS	FEDERAL STATUS: STATE STATUS: LE	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
Marshes, meadows, grasslands, and cultivated fields. Perches on ground or on stumps or posts.

OSPREY PANDION HALIAETUS	FEDERAL STATUS: STATE STATUS: LT	COUNTY OCCURRENCE: B

HABITAT COMMENTS
Primarily along rivers, lakes, and seacoasts, occurring widely in migration, often crossing land between bodies of water.

PEREGRINE FALCON FALCO PEREGRINUS	FEDERAL STATUS: LE STATE STATUS: LE	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
"A variety of open situations from tundra, moorlands, steppe and seacoasts, especially where there are suitable nesting cliffs, to high mountains, more open forested regions, and even human population centers...".

PIED-BILLED GREBE PODILYMBUS PODICEPS	FEDERAL STATUS: STATE STATUS: LE	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
Lakes, ponds, sluggish streams, and marshes; in migration and in winter also in brackish bays and estuaries.

PINE BARRENS TREEFROG HYLA ANDERSONII	FEDERAL STATUS: C2 STATE STATUS: LE	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
Streams, ponds, cranberry bogs, and other wetland habitats. Post-breeding habitat the surrounding woodlands.

RED-SHOULDERED HAWK BUTEO LINEATUS	FEDERAL STATUS: STATE STATUS: LT	COUNTY OCCURRENCE: W*

HABITAT COMMENTS
Moist and riverine forest, and in e. N. Am. in wooded swamps, foraging in forest edge and open woodland.

SAVANNAH SPARROW PASSERCULUS SANDWICHENSIS	FEDERAL STATUS: STATE STATUS: LT	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
"Open areas, especially grasslands, tundra, meadows, bogs, farmlands, grassy areas with scattered bushes, and marshes, including salt marshes in the BELDINGI and ROSTRATUS groups (Subtropical and Temperate zones)".

SEDGE WREN CISTOTHORUS PLATENSIS	FEDERAL STATUS: STATE STATUS: LE	COUNTY OCCURRENCE: ?

HABITAT COMMENTS
Grasslands and savanna, especially where wet or boggy, sedge marshes, locally in dry cultivated grainfields. In migration and winter also in brushy grasslands.

SHORT-EARED OWL ASIO FLAMMEUS	FEDERAL STATUS: STATE STATUS: LE/S	COUNTY OCCURRENCE: W*

HABITAT COMMENTS
Open country, including prairie, meadows, tundra, moorlands, marshes, savanna, dunes, fields, and open woodland. Roosts by day on ground or on low open perches.

TIGER SALAMANDER AMBYSTOMA TIGRINUM	FEDERAL STATUS: STATE STATUS: LE	COUNTY OCCURRENCE: Y

HABITAT COMMENTS
Found in virtually any habitat, providing there is a body of water nearby suitable for breeding. Terrestrial adults primarily subterranean.

UPLAND SANDPIPER BARTRAMIA LONGICAUDA	FEDERAL STATUS: STATE STATUS: LE	COUNTY OCCURRENCE: B

HABITAT COMMENTS
Grasslands, especially prairies, dry meadows, pastures, and (in Alaska) scattered woodlands at timberline; very rarely in migration along shores and mudflats.

5\22\87

VESPER SPARROW	FEDERAL STATUS:	COUNTY
POOECETES GRAMINEUS	STATE STATUS: LE	OCCURRENCE: Y

HABITAT COMMENTS
"Plains, prairie, dry shrublands, savanna, weedy pastures, fields, sagebrush, arid scrub and woodland clearings".

DEFINITION OF ACRONYMS

FEDERAL STATUS

LE=listed endangered.
LT=listed threatened.
PE=proposed endangered.
PT=proposed threatened.
C2=candidate for listing.

STATE STATUS

LE=listed as endangered. (short-eared owl winter pop. listed as stable:S)
LT=listed as threatened.

COUNTY OCCURRENCE

Y=present year-round, breeds.
N=present year-round, not recorded breeding.
B=present during the summer, breeds.
W=present during the winter.
T=present as a transient.
?=present status undetermined.
*=indicates that the county is within the species known breeding range.

EXPLANATION OF CODES ON NATURAL HERITAGE LIST

1. FEDERAL STATUS CODES

U.S.FISH AND WILDLIFE CATEGORIES OF ENDANGERED AND THREATENED PLANTS AND ANIMALS

The following definitions are extracted from the September 27, 1985 U.S. Fish and Wildlife Service notice in the Federal Register:

LE--Taxa formally listed as endangered.

LT--Taxa formally listed as threatened.

PE--Taxa proposed to be formally listed as endangered.

PT--Taxa proposed to be formally listed as threatened.

S --Synonyms.

C1--Taxa for which the Service currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species.

C2 --Taxa for which information now in possession of the Service indicates that proposing to list them as endangered or threatened species possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules.

C3 --Taxa that are no longer being considered for listing as threatened or endangered species. Such taxa are further coded to indicate three subcategories, depending on the reason(s) for removal from consideration.

> 3A--Taxa for which the Service has persuasive evidence of extinction.
>
> 3B--Names that, on the basis of current taxonomic understanding, usually as represented in published revisions and monographs, do not represent taxa meeting the Act's definition of "species".
>
> 3C--Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

The following definition is extracted from the January 1, 1989 U.S. Fish and Wildlife Service notice in the Federal Register:

E(S/A)-- Endangered (similarity of appearance species)

T(S/A)-- Threatened (similarity of appearance species)

2. STATE STATUS CODES

These refer to State listed endangered plant species and endangered and nongame animals:

D	= declining nongame species
EX	= extirpated nongame species
I	= introduced nongame species
IN	= increasing nongame species
E	= endangered plant or animal species
T	= threatened nongame species
P	= peripheral nongame species
S	= stable nongame species
U	= undetermined nongame species

Status for animals separated by a slash(/) indicate a duel status. First status refers to the state breeding population, and the second status refers to the migratory or winter population.

3. REGIONAL STATUS CODES

Within the State Pinelands Region, an additional list of 54 endangered or threatened plant species has been established. Locations for many of these species are tracked by the Natural Heritage Database. These species are flagged in the regional status column with the code 'LP'.

4. EXPLANATION OF NATURAL HERITAGE PRIORITY ELEMENT RANKS

The Nature Conservancy has developed a rarity ranking system* for use in identifying elements (rare species and natural communities) of natural diversity most endangered with extinction. Each element is ranked according to it's rarity both in the state and globally. These ranks are used to prioritize conservation work so that the rarest most endangered elements receive attention first.

GLOBAL ELEMENT RANKS

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout it's range; in terms of occurrences, in the range of 21 to 100.

G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

*This ranking system is adapted from that which appears in 'The Nature Conservancy, 1988. Model Heritage Operations Manual. The Nature Conservancy. Arlington VA'.

GH = Of historical occurrence throughout its range i.e., formerly part of the established biota, with the expectation that it may be rediscovered.

GU = Possibly in peril range-wide but status uncertain; need more information.

GX = Believed to be extinct throughout range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered.

G? = Species has not yet been ranked.

STATE ELEMENT RANKS

S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres). Elements so ranked are often restricted to very specialized conditions or habitats and/or restricted to an extremely small geographical area of the state. Also included are elements which were formerly more abundant, but now through habitat destruction or some other critical factor of its biology have been demonstrably reduced in abundance. In essence, these are elements that even with intensive searching sizable additional occurrences are unlikely to be discovered.

S2 = Imperiled in state because of rarity (6 to 20 occurrences). Historically many of these elements may have been more frequent but are now known from very few extant occurrences. Habitat destruction being the primary cause of their rarity. Diligent searching may yield additional occurrences.

S3 = Rare in state with 21 to 100 occurrences (plant species in this category have only 21 to 50 occurrences). Includes elements which are widely distributed in the state but with small populations/acreages or elements with restricted distribution, but locally abundant. Not yet imperiled in state but may soon be if current trends continue. Searching often yields additional occurrences.

S4 = Apparently secure in state, with many occurrences.

S5 = Demonstrably secure in state and essentially ineradicable under present conditions.

SA = Accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded; examples include european strays or western birds on the East Coast and visa-versa.

SE = A species clearly exotic in New Jersey which includes those species not native to North America as well as any other species deliberately or accidentally introduced into the state and are therefore not a conservation priority (viable introduced occurrences of G1 or G2 elements may be exceptions).

SH = Despite some searching of both historic occurrences and suitable habitat, no extant occurrences are known. Not all historic occurrences have been checked, and unsearched potential habitat remains. Until all leads are reasonably exhausted, elements ranked SH are considered possibly extant. While the last observed dates for most elements ranked SH are 50 or more years old, elements observed much more recently are also included when the only known occurrences have been destroyed.

SN = Regularly occurring, usually migratory and typically nonbreeding species for which no significant or effective habitat conservation measures can be taken in the state; this category includes migratory birds, bats, sea turtles, and cetaceans which do not breed in the state but pass through twice a year or may remain in the winter (or, in a few cases, the summer); included also are certain lepidoptera which regularly migrate to a state where they reproduce, but then completely die out every year with no return migration. Species in this category are so widely and unreliably distributed during migration or in winter that no small set of sites could be set aside with the hope of significantly furthering their conservation. Other nonbreeding, high globally-ranked species (such as the bald eagle, whooping crane or some seal species) which regularly spend some portion of the year at definite localities (and therefore have a valid conservation need in the state) are not

ranked SN but rather S1, S2, etc.

SR = Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report. Some of these are very recent discoveries for which NJNHP has not yet received first-hand information; others are old, obscure reports that are hard to dismiss because the habitat is now destroyed.

SRF = Reported falsely (in error) from New Jersey but this error persisting in the literature.

SU = Believed to be in peril but status uncertain. More information is needed to rank accurately.

SX = Apparently extirpated from state. All historic occurrences checked and a thorough search of potential habitat completed. The localities for many of these elements have been destroyed or greatly altered.

SXC = Species is presumed extirpated from the state but native populations collected from wild exist in cultivation.

Note: Ranks followed by '.1' indicate plant taxa documented from a single New Jersey location. A 'T' appearing in either the G Rank or S Rank, indicates that the infraspecific taxa is being ranked differently than the species. A 'Q' in the rank indicates That there is taxonomic uncertainty about the taxa being ranked (i.e., taxa is being accepted as full species in this list but may be treated as a subspecies taxa by others). To express uncertainty, the most likely rank is assigned and a question mark added (e.g., G2?). A range is indicated by combining two ranks (e.g., G1G2, S1S3).

5. IDENTIFICATION

This code refers to whether the identification of the species/community has been checked by a reliable individual and is indicative of significant habitat. Codes are as follows:

Y = Identification has been verified and is indicative of significant habitat.

BLANK = Identification has not been verified but there is no reason to believe it is not indicative of significant habitat.

? = Either it has not been determined if the record is indicative of significant habitat, or the identification of the species/community may be confusing or disputed.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF PARKS & RECREATION
89 KINGS HIGHWAY
P.O. BOX 1401
DOVER, DELAWARE 19903

December 11, 1990

Ms. Laurie J. Christian
Biologist
RMC Environmental Services, Inc.
3450 Schuylkill Road
Spring City, PA 19475

Dear Ms. Christian:

After reviewing the site map that you provided of the Pedricktown Support Facility (Sievers-Sandberg USARC) the Delaware Natural Heritage Inventory located three sites of Bidens bidentoides (Bur-marigold) on the western bank of the Delaware River. As you may know B. bidentoides is currently listed by the U.S. Fish and Wildlife Service as a 3C. In addition, there is one site of Eriocaulon Parkeri (Parker's Pipewort) listed C2 by the U.S. Fish and Wildlife Service.

The location of these sites is outside of the one mile radius as provided in your site map. However, the potential exists that this species may occur on the east side of the Delaware River.

If I can be of any additional assistance, please do not hestiate to contact me.

Sincerely,

Leslie D. Trew
Coordinator
Delaware Natural Heritage Inventory

LDT:dab

APPENDIX D - NERI Soil Gas Study

NORTHEAST RESEARCH INSTITUTE, INC.

January 18, 1991

Mr. Art Pyron
RMC Environmental Services, Inc.
3450 Schuylkill Road
Spring City, Pennsylvania 19475

Telephone (215) 948-4700
FAX (215) 948-4752

Dear Mr. Pyron:

Enclosed please find the Final Report of the Petrex soil gas survey conducted at the Fredrickton Support Facility in Raritan, New Jersey.

Please feel free to contact me if you have any questions or comments regarding future Petrex sampling of the soil gas at the Raritan site.

Sincerely,

Mark H. Hatheway

Mark H. Hatheway
Senior Geologist

Enc.
(/kk)
FR1215E

309 Farmington Avenue, Suite A-100 Farmington, Connecticut 06032-1943
Telephone (203) 677-9666 FAX (203) 677-7008

F I N A L R E P O R T

ON THE FINDINGS OF THE PETREX SOIL GAS SURVEY PERFORMED AT THE FREDRICKTON SUPPORT FACILITY IN RARITAN, NEW JERSEY

CONDUCTED FOR:
RMC ENVIRONMENTAL SERVICES, INC.

Prepared By:

Mark H. Hatheway
Senior Geologist

Date: 1/18/91

Northeast Research Institute, Inc.
309 Farmington Avenue, Suite A-100
Farmington, Connecticut 06032-1943
Telephone (203) 677-9666
FAX (203) 677-7008

January 18, 1991

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

The Petrex soil gas survey conducted by RMC Environmental Services, Inc. at the Fredrickton Support Facility in Raritan, New Jersey detected both chlorinated and petroleum hydrocarbons at the P-1 and P-2 areas.

There are two areas of elevated response at the P-1 area; just north of Building 464 and just west of Building 432. These responses are relatively small and localized and do not appear to be associated with any widespread contamination.

At the P-2 area, however, there is a broad band of response in the northwestern quarter of the survey area. This area is undefined to the west and north and appears to be more closely associated with the chlorinated hydrocarbons.

2.0 INTRODUCTION

RMC recently conducted a Petrex soil gas survey at the Fredrickton Support Facility in Raritan, New Jersey. Since RMC performed all of the field sampling, Northeast Research Institute, Inc. (NERI) has limited knowledge of the site. Therefore, the focus of this report discusses the detected compounds and their distribution as they appear on the attached Plates.

3.0 SURVEY DESIGN/FIELD METHODS

On November 6-7, 1990, RMC personnel established the grid network at the area designated P-1 (around Buildings 422 and 432). The grid consisted of 66 locations on 25 to 50 foot intervals. A Petrex sampler was not installed at location 37. See Plate 1, Appendix A for the sample number locations.

On November 8, 1990, RMC personnel established the grid network at the area designated P-2 (around Buildings 506, 530, and 531). The grid consisted for 33 locations on 50 foot intervals. A Petrex sampler was not installed at location P2-14A. A summary of the field notes and sample renumbering may be found in Appendix B.

The samplers were retrieved on November 27-28, 1990 after a 20 day exposure period. The samplers were shipped on December 3, 1990 and were received at NERI's Lakewood, Colorado laboratories on December 4, 1990. The samplers were analyzed on December 11, 1990.

4.0 TIME CALIBRATION SAMPLES

RMC installed 3 Petrex samplers at locations 23, 35, 42, 80, and 89. After 6 and 12 days exposure, respectively, RMC retrieved one of the three samplers from each location for analysis to determine the loading rate of VOCs to the collector at this site. The results of the six day exposure samplers showed moderate levels of detection. There was no greatly significant change in the data generated from the 12 day exposure samplers. Thus it was determined to allow a 20 day exposure for the survey samplers.

5.0 FIELD QA/QC/DUPLICATES

Three samplers were submitted as blanks. There were no significant detections in the data. Eleven samplers (10%) were submitted as duplicates. The results show good duplication of the data for 72% of the pairs. This level of duplication is consistent with data obtained from previous surveys and in-house experiments.

6.0 SURVEY RESULTS

The data generated by the Petrex soil gas survey are summarized on the following Plates:

Plate 1: Sample Number Locations
Plate 2: Combined Dichloroethene (DCE), Trichloroethane (TCA) and Trichlorofluoromentane (Freon 11)
Plate 3: Combined Trichloroethene (TCE) and Tetrachloroethene (PCE)
Plate 4: Combined Dichlorobenzene (DCB) and Trichlorobenzene (TCB)
Plate 5: Combined Aromatics and Naphthalenes

The responses for DCE, TCA, and Freon 11 were combined because they have coincident peaks and were detected at similar locations. The responses for TCE and PCE were combined because they were detected at similar locations. DCB and TCB were also detected at similar locations.

The aromatics, C_6-C_{10}, were combined with the naphthalenes because the two groups were detected at similar locations.

Examples of these data are found in Appendix C. On overview of the Petrex Methodology is found in Appendix D.

7.0 MAP EVALUATION

Plate 2

Plate 2 shows the distribution of combined DCE, TCA, and Freon 11, mapped in ion counts. In the P-1 area, there are five elevated detections. The highest is just west of Building 432, with a westerly trend. The other four are scattered, single point detections along the southern side of the survey area.

The P-2 area shows a coherent band of detections, extending from Building 506 and trending west. There is a single point detection in the southeast corner of the survey area at location 71.

Plate 3

The summed response for TCE and PCE, mapped in ion counts, is shown on Plate 3. The P-1 area shows three small areas of elevated response. Two of these responses are located at the southeast corner of the survey area at locations 24 and 26 and at locations 30 and 31. The other location is at sample number 59.

There is a moderate level response just west of Building 432 at locations 38 and 39.

The P-2 area shows a broad area of elevated response throughout the northwestern quarter of the survey area.

Plate 4

DCB and TCB are shown on Plate 4, mapped in ion counts. Two small elevated areas are shown at locations 38, 39, and 50. No significant detections are shown for the P-2 area.

Plate 5

The sum of the light aromatics plus naphthalenes are shown on Plate 5. The two areas of elevated response at the P-1 area are just west of Building 432 at locations 38 and 39 and at locations 50 and 59, just north of Building 464. There are scattered moderate detections around the northeast quarter of the survey area.

The P-2 area shows moderate level detections at locations 70,71 and 75, 77, and 92, 96, and 97.

CONCLUSIONS/RECOMMENDATIONS

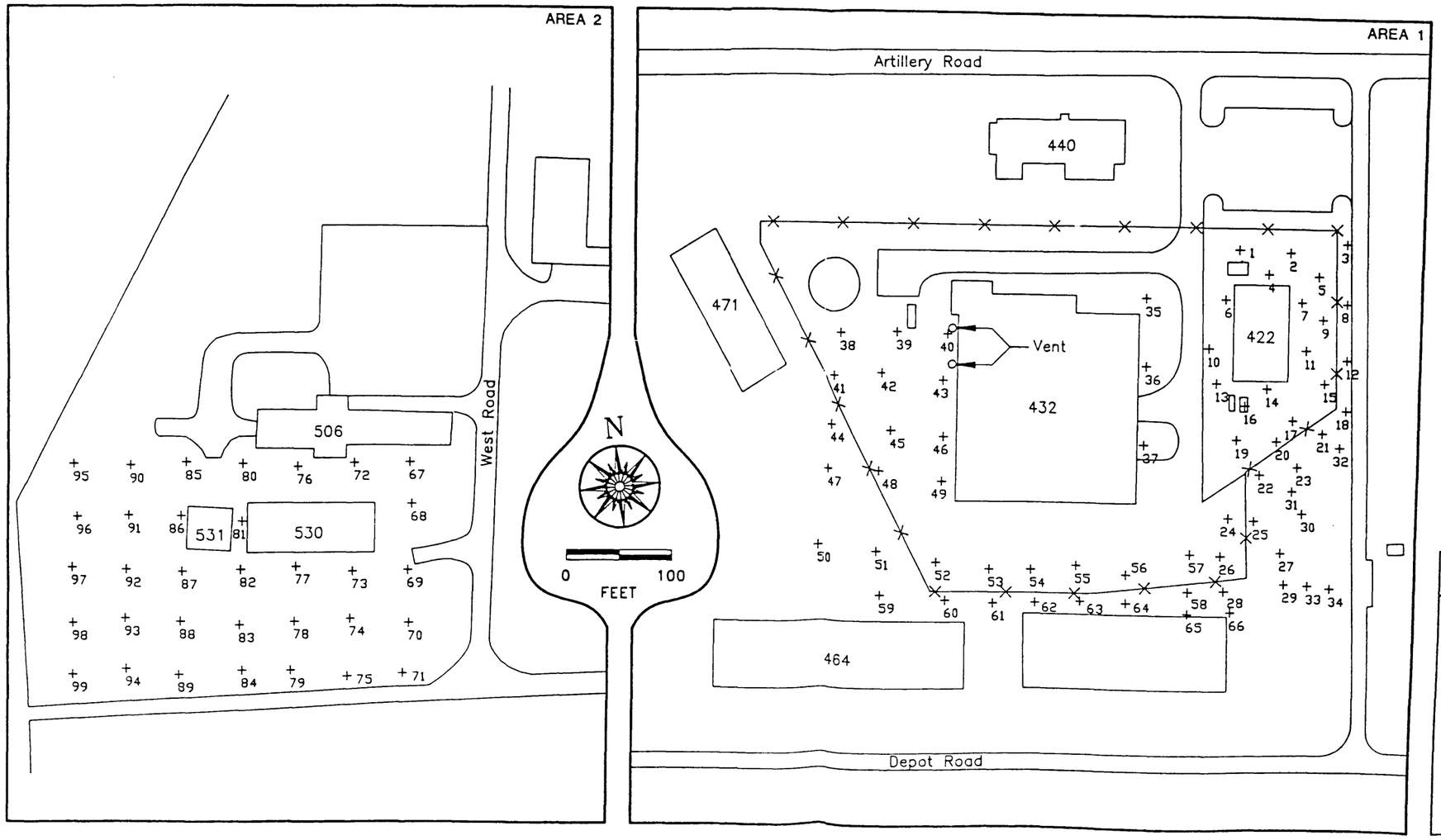
For the P-1 area there appears to be a small source or hot spot just west of Building 432 and just north of Building 464 for most of the reported compounds.

There does not appear to be widespread migration. However, if confirmational sampling is planned, locations 39 and 50 are recommended. The western areal extent of these detections is not fully defined and it is recommended that Petrex samplers be deployed in this direction.

At the P-2 area, there is a broad area of detection in the northwestern quarter of the survey areal. The northern and western limits are undefined. Therefore, it is recommended that the Petrex survey be expanded in both of these directions to determine the source and areal extent of these responses.

A P P E N D I X A:

RELATIVE FLUX MAPS, PLATES 1 - 5



NERI
NORTHEAST RESEARCH INSTITUTE, INC.
309 Farmington Avenue
Suite A-100
Farmington Connecticut 06032
(203) 677-9666
1215E

LEGEND

+ Petrex Sample Location

RMC Environmental Services

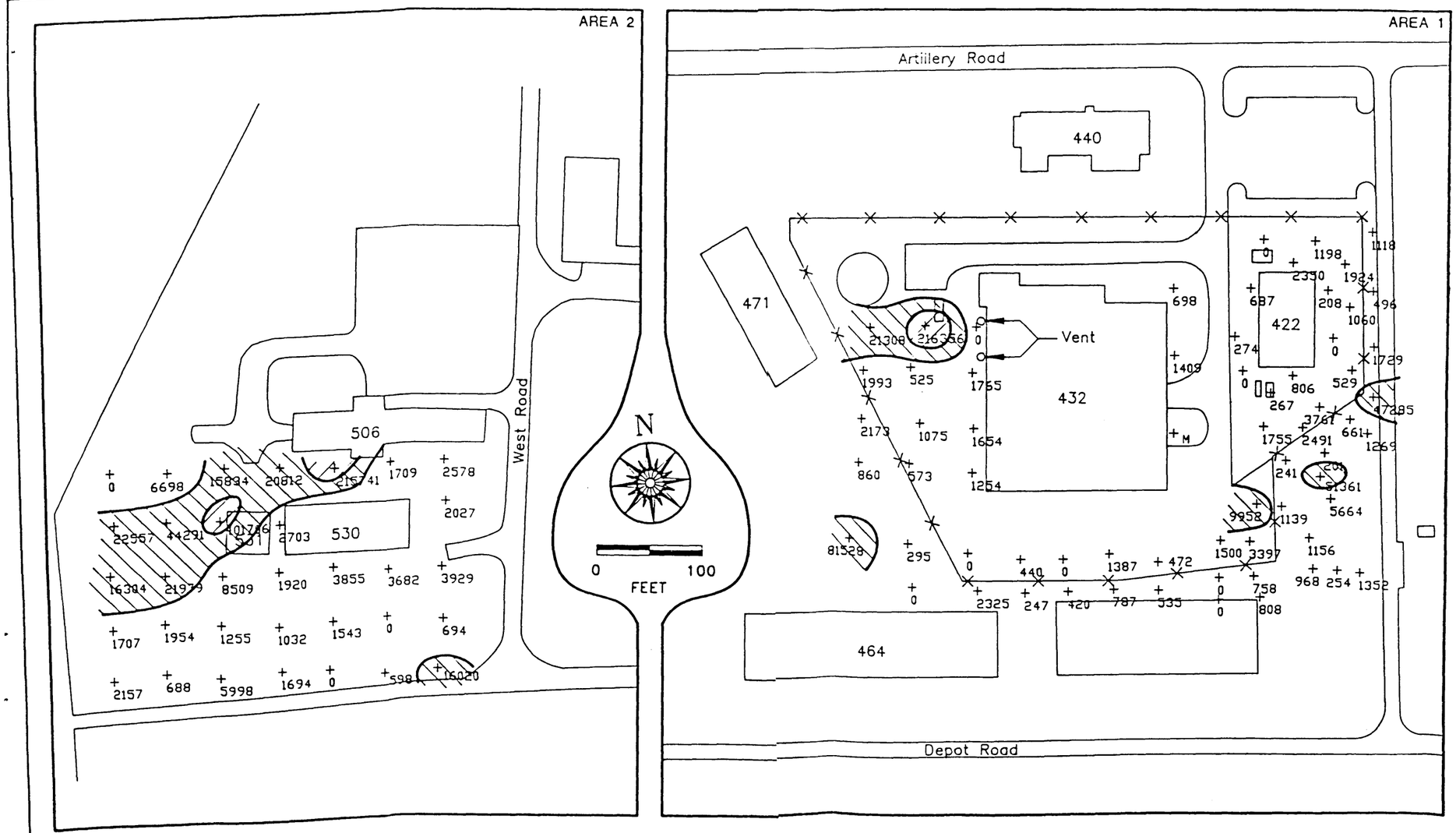
Sample Locations

Fredrickton Support Facility
Raritan, New Jersey

Plate 1

PETREX FINGERPRINT TECHNIQUE®

January 15, 1991



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Farmington Connecticut 06032
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1215E

LEGEND

Ion Counts:

≥ 100,000

10,000 – 99,999

\+ Petrex Sample Location

\+ M Missing Sample

RMC Environmental Services

Relative Flux

Combined DCE + TCA + Freon 11

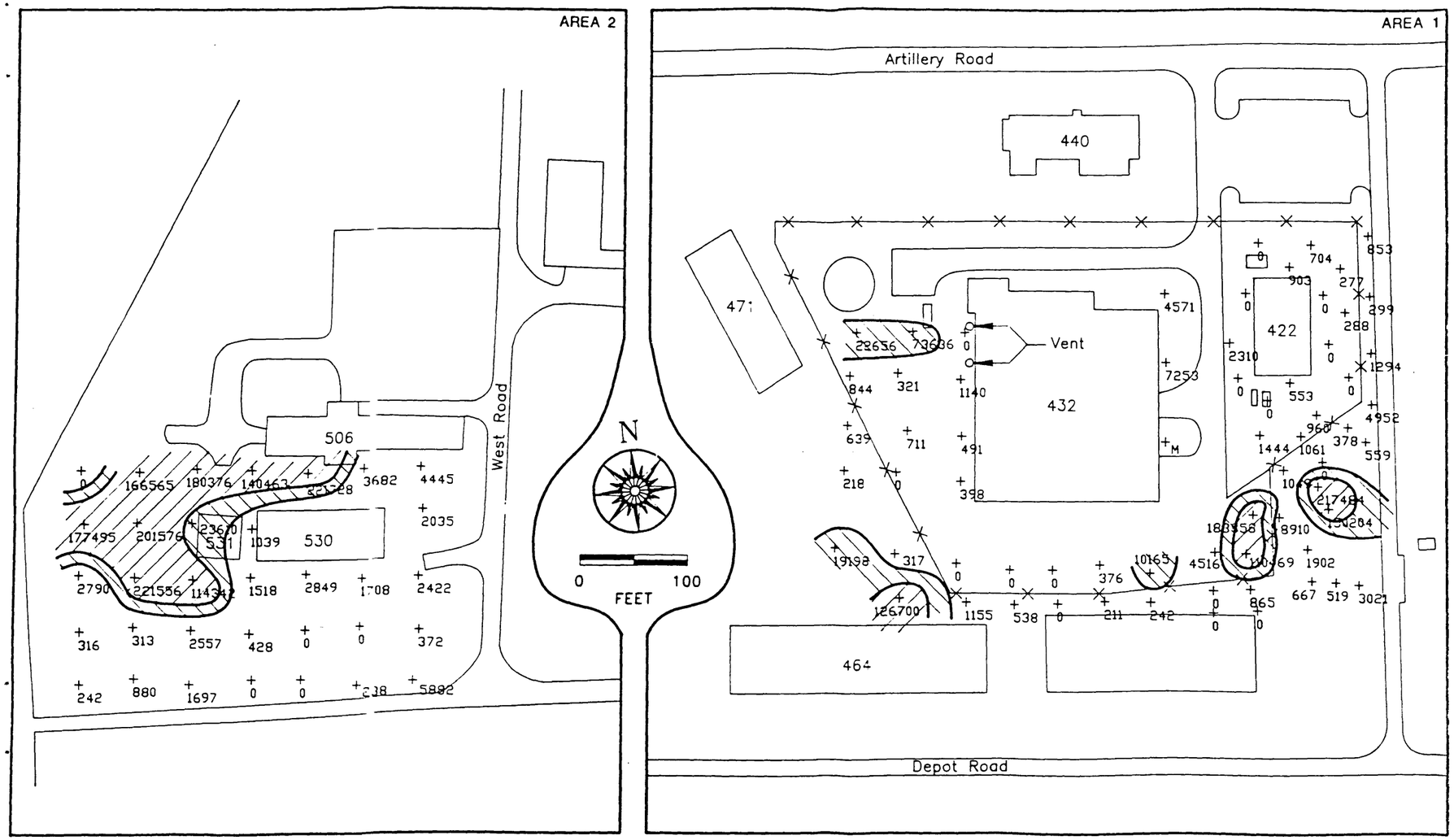
Fredrickton Support Facility

Raritan, New Jersey

Plate 2

PETREX FINGERPRINT TECHNIQUE®

January 15, 1991



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1215E

LEGEND

Ion Counts:

≥ 100,000

10,000 – 99,999

\+ Petrex Sample Location

+M Missing Sample

RMC Environmental Services

Relative Flux

Combined PCE + TCE

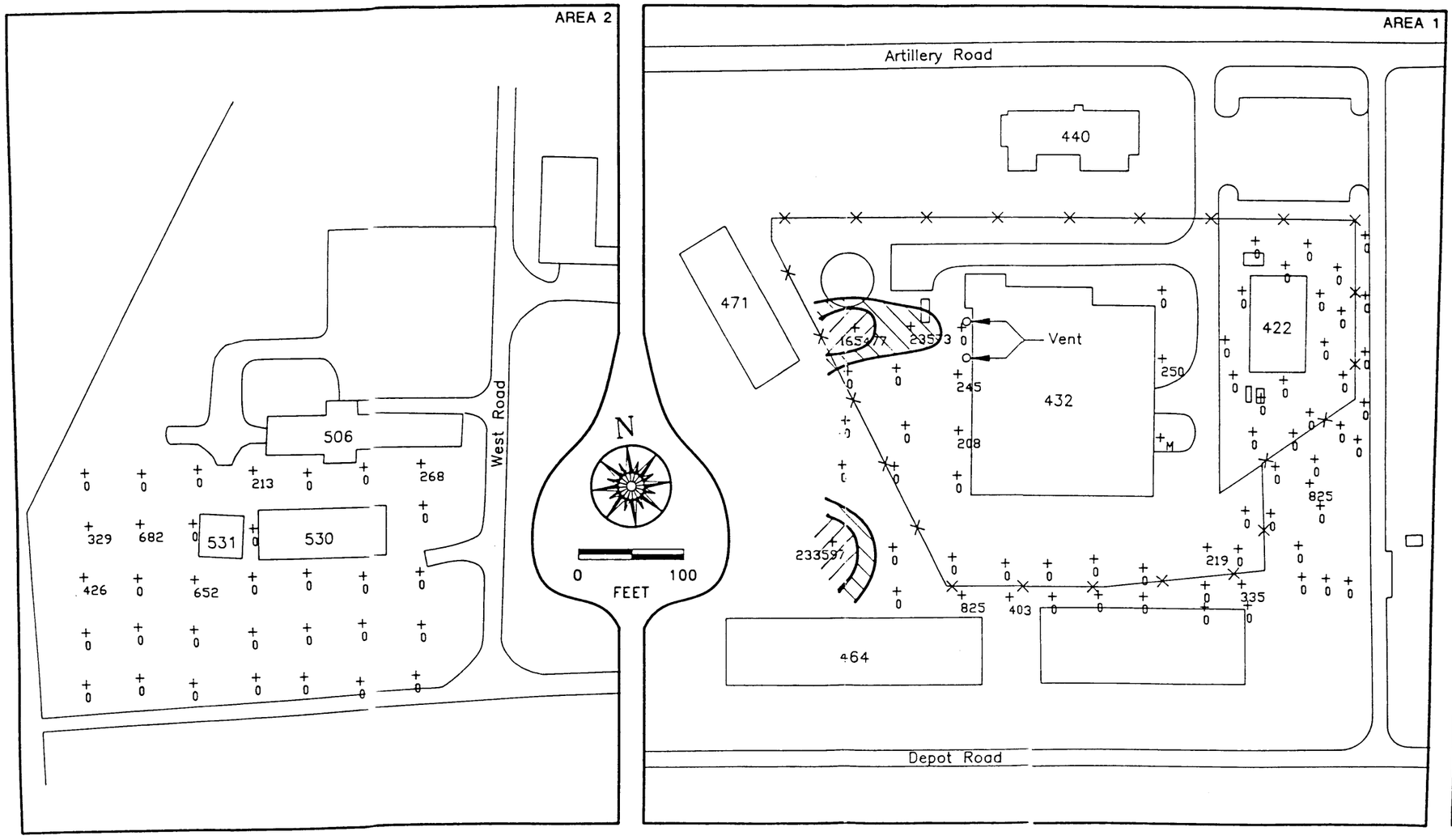
Fredrickton Support Facility

Raritan, New Jersey

Plate 3

PETREX FINGERPRINT TECHNIQUE®

January 15, 1991



NERI
NORTHEAST RESEARCH INSTITUTE, INC.
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Suite A-100
Farmington Connecticut 06032
(203) 677-9666
1215E

LEGEND

Ion Counts:

≥ 100,000

10,000 – 99,999

\+ Petrex Sample Location

$+_{M}$ Missing Sample

RMC Environmental Services

Relative Flux

Combined DCB + TCB

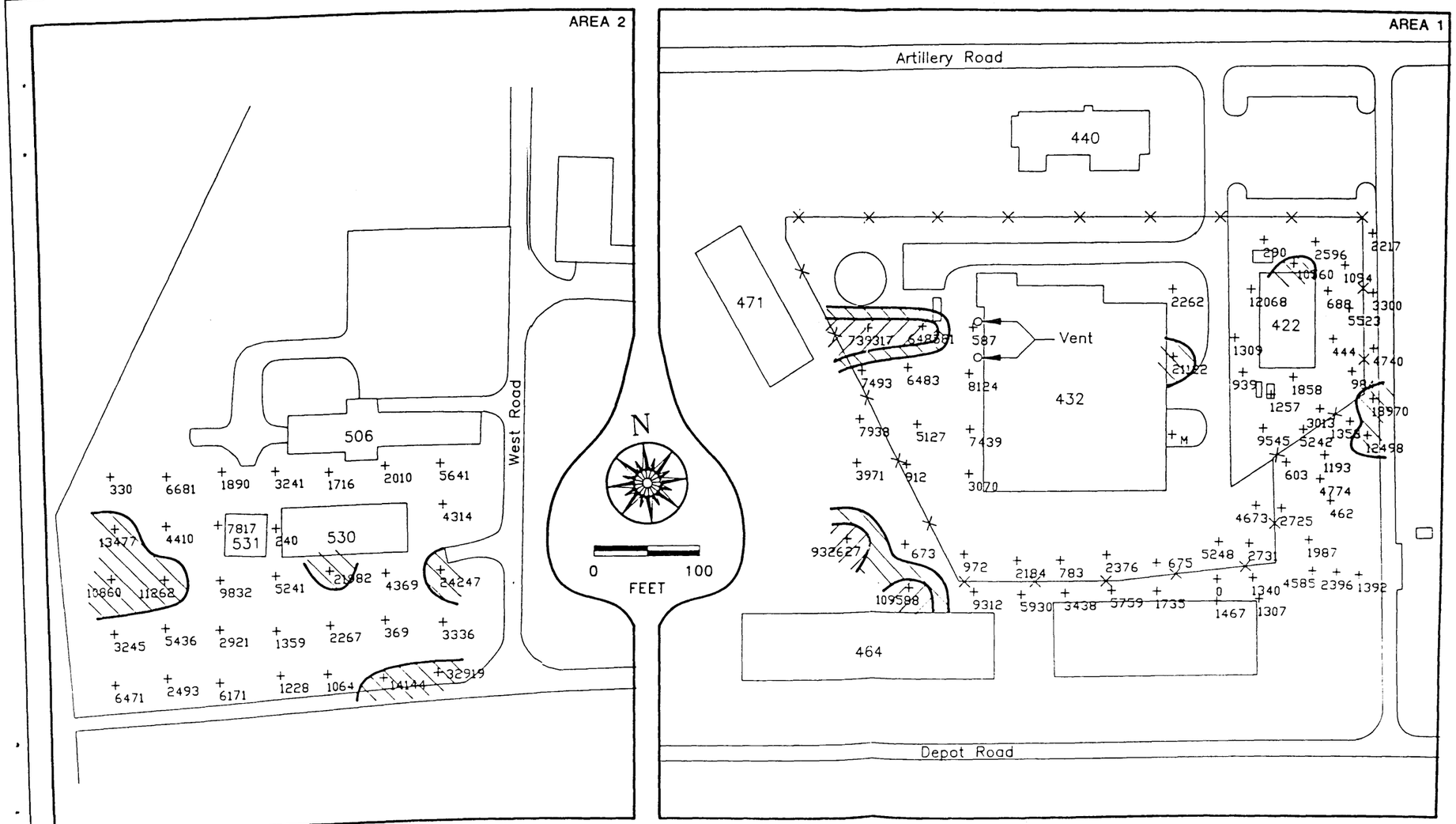
Fredrickton Support Facility

Raritan, New Jersey

Plate 4

PETREX FINGERPRINT TECHNIQUE®

January 15, 1991



NERI
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Farmington Connecticut 06032
(203) 677-9666
1215E

LEGEND

Ion Counts:

≥ 100,000

10,000 - 99,999

\+ Petrex Sample Location

\+ M Missing Sample

RMC Environmental Services

Relative Flux

Combined Aromatics + Naphthalenes

Fredrickton Support Facility

Raritan, New Jersey

Plate 5

PETREX FINGERPRINT TECHNIQUE®

January 15, 1991

A P P E N D I X B:

FIELD NOTES

DATE: 12-10-90

TO: Number 3838, TASK 01

RE: Summerization of PETREX Soil GAS Sample Collector Installation and Retrevial

GENERAL

As per design, PETREX Sample Collectors were INSTALLED and RETRIEVED from an ESTABLISHED sample grid NETWORK specific to Sample AREAS P1 and P2.

ACTIVITIES

11-6-90 11-7-90 ESTABLISH grid network AT AREA P1 with sample points SPACED 25' and 50' APART (fig 1). HAND AUGER 14" below existing grade; PLACE COLLECTOR in bore hole; BACKFILL with EXCAVATED SOIL(S). CONTROL points ESTABLISHED @ sample points P1-23, P1-35 and P1-42. A TOTAL of 66 bore holes were AUGERED ALL contained PETREX COLLECTOR(S) except P1-37 due to AN OVERSIGHT. SAMPLE LOCATION P1-37 was LEFT empty.

11-8-90 ESTABLISHED grid NETWORK AT AREA P2 with SAMPLE points SPACED 50' APART (fig 2). HAND AUGER 14" below existing grade; PLACE COLLECTOR in bore hole; BACKFILL with EXCAVATED SOIL(S). CONTROL points ESTABLISHED AT P2-14 and P2-23. A TOTAL of 53 bore holes were AUGERED ALL CONTAINED PETREX COLLECTOR(S). CONTROL POINT P2-14A was LEFT empty due TO AN OVERSIGHT.

11-13-90 COLLECTION of SAMPLE COLLECTORS designated "A" from Sample AREAS P1 and P2 CONTROL points.

11-14-90 PACK and Ship SAMPLE COLLECTORS designated "A" with A TRIP BLANK TO NORTHEAST RESEARCH INSTITUTE-WEST (NRI).

11-19-90 COLLECTION of SAMPLE COLLECTORS designated "B" from SAMPLE AREAS P1 and P2 control points

11-20-90 PACK and Ship SAMPLE COLLECTORS designated "B" with A TRIP BLANK TO CURTIS.

11-27-90 - 11-28-90 COLLECTION of SAMPLE COLLECTORS from P1 and P2 SAMPLE AREAS. EACH AREA had An AMBIANT BLANK and TRIP BLANK.

P1 AREA

SAMPLE COLLECTOR(S) P1-38 and P1-50 were broken while being RETRIEVED. The FILAMENT WIRES were PLACED in A PLASTIC zip lock BAGS with SCREW CAP and IDENTIFICATION

SAMPLE COLLECTOR(S) P1-18 did not HAVE A TEFLON SEAL in THE SCREW CAP.

P1 AREA

SAMPLE COLLECTOR(S) P2-12 WAS broken while being RETRIEVED. The FILAMENT WIRES were PLACED in AN OTHER TUBE.

SAMPLE COLLECTOR(S) P2-27, P2-28, and P2-32 were NOTICEABLY WET AT THE TIME of RETRIEVAL

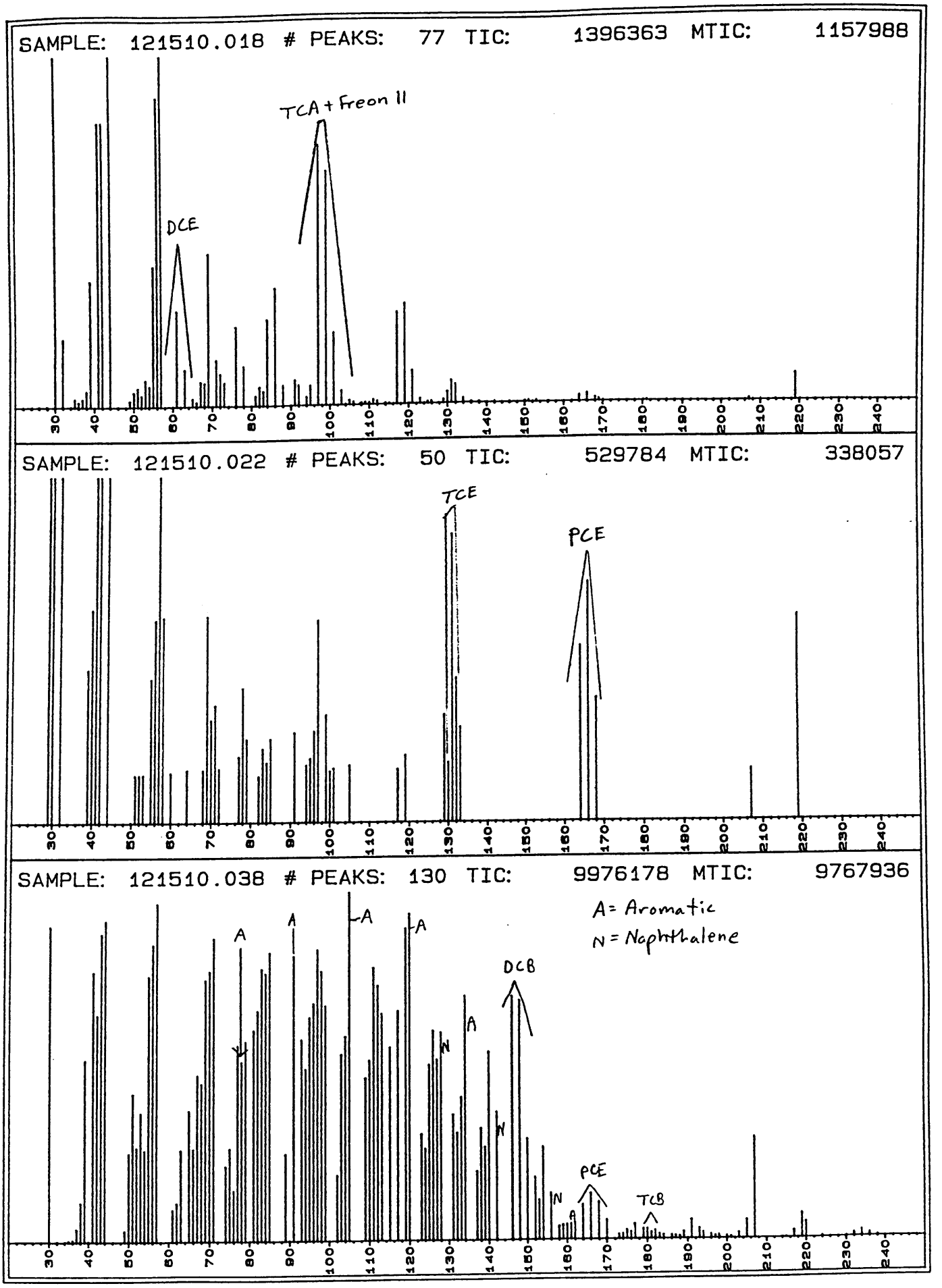
SAMPLE COLLECTOR(S) P2-33 WAS MOIST AT THE TIME of RETRIEVAL

11-30-90 - 12-3-90 PACK and Ship sample collectors from ALL SAMPLE points in the P1 and P2 AREAS TO include AN AMBIENT AIR BLANK and TRIP BLANK ASSOCIATED WITH EACH AREA RESPECTIVALLY TO CURTIS

their #	Our #
P2-1	67
P2-2	68
P2-3	69
P2-4	70
P2-5	71
P2-6	72
P2-7	73
P2-8	74
P2-9	75
P2-10	76
P2-11	77
P2-12	78
P2-13	79
P2-14	80
P2-15	81
P2-16	82
P2-17	83
P2-18	84
P2-19	85
P2-20	86
P2-21	87
P2-22	88
P2-23	89
P2-24	90
P2-25	91
P2-26	92
P2-27	93
P2-28	94
P2-29	95
P2-30	96
P2-31	97
P2-32	98
P2-33	99
P1-Blank	100
P2-Blank	101
Shipping Blank	102
P1-59	103

A P P E N D I X C:

EXEMPLARY MASS SPECTRA


SAMPLE: 121510.018 # PEAKS: 77 TIC: 1396363 MTIC: 1157988
TCA + Freon 11
DCE
SAMPLE: 121510.022 # PEAKS: 50 TIC: 529784 MTIC: 338057
TCE
PCE
SAMPLE: 121510.038 # PEAKS: 130 TIC: 9976178 MTIC: 9767936
A = Aromatic
N = Naphthalene
DCB
PCE
TCB

A P P E N D I X D

PETREX PROTOCOL

PETREX SOIL GAS PROTOCOL

INTRODUCTION

The Petrex Static Collection Technique provides a means by which trace quantities of subsurface derived organic contaminants can be detected and collected at the earth's surface. It is integrative, thereby eliminating the short-term variations associated with other gas/vapor detection methods. The Petrex Technique directly collects and records a broad range of organic compounds emanating from subsurface sources.

SOIL GAS COLLECTOR PREPARATION

Adsorption wires (after construction) are cleaned by heating to 358^{o}C in a high vacuum system.

Wires are packed under an inert atmosphere in airtight tubes.

One collector out of every thirty is checked for cleanliness by mass spectrometry. Based on the results, the group of thirty collectors is approved for release into the field.

SAMPLER SHIPMENT AND FIELD HANDLING

Five percent transportation blanks are included with each shipment. Transportation blanks (2.5% of total samplers) are stored unopened until analysis with the field samplers.

SOIL GAS COLLECTOR INSTALLATION

The collector consists of a ferromagnetic wire coated with an activated adsorbent. Each sample is typically placed in a shallow hole 20-30 cm deep, within a protective container. The hole is backfilled, and the location is marked. The collector is left in the ground for as long as 45 days, then retrieved and sealed in its container for transportation back to the laboratory for analysis.

MASS SPECTROMETER TUNING

An Extranuclear Quadrupole Mass Spectrometer equipped with a Curie-point pyrolysis/thermal desorption inlet is used for collector analysis. Mass assignment and resolution are manually adjusted using a Perfluorotributylamine (PFTBA) standard. A linear correction, based on the known spectrum of PFTBA, is calculated. This correction is applied to a second PFTBA spectrum. If correct mass (M/Z) values are obtained, the operator proceeds to the next tuning step. If not, Step 1 is repeated until correct masses are obtained.

Peak intensity ratios are set from the major peaks in the PFTBA spectrum using the following values:

Mass (M/Z)		Spectrum Intensities
69	=	100%
131	=	25% ± 5%
219	=	35% ± 5%

During tuning, the ion signal for mass (M/Z) 69 of PFTBA is measured at a preset sample pressure and detector voltage and compared to previous values at the same setting.

Electron energy is set to 70 electron volts and emission is set at 12 milliseconds. All other operating parameters, such as scans, scan range, and mass offset, are established in the computer program. These values may only be changed by the laboratory manager.

Tuning is performed at the beginning of a run so that an individual survey is analyzed at the same set of instrument conditions. The samples are analyzed in random order.

LABORATORY ANALYSIS

Periodic (approximately every 20 samples) machine background analyses are performed to assure that there is no carry-over between successive samples. If there are peaks which are not related to atmospheric gases, the supervisor is notified and the mass spectrometer is shut down and cleaned as necessary.

A written sample number record is kept during the analysis to prevent accidental cross numbering.

The mass spectrometer control program contains appropriate "flag statements" that prompt the operator with a warning if an input sample number has already been analyzed. The operator then checks the current number, along with the disk storage location of the previously entered number to identify the true numbering situation.

COMPOUND IDENTIFICATION

Compound identification is based on molecular weight, compound fragmentation, and isotope distribution, as applicable. Each VOC exhibits a unique mass spectral signature. NERI/Petrex maintains a large library of spectra for individual compounds, accessible by computer. In addition, the company maintains a large library of commonly used chemical mixtures; e.g., gasolines, diesels, industrial oils and solvents, coatings, plastics, etc. These are used to assist in both compound and mixture identifications.

Indicator peaks, indicative of the compound and away from interference by other compounds, are selected for data presentation and mapping.

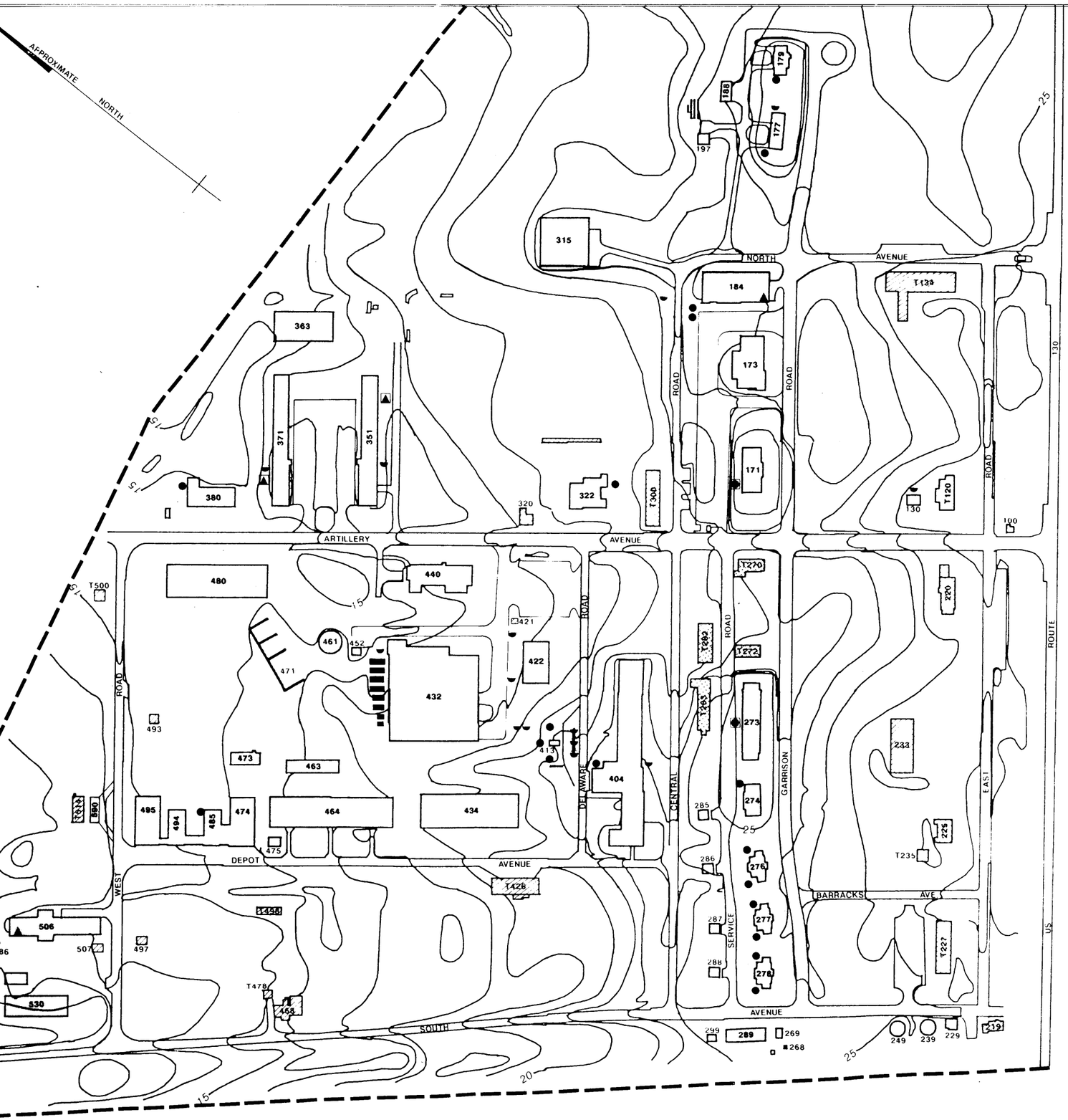
RELATIVE FLUX DETERMINATION AND MAPPING

The process of determining ion counts (fluxes) of indicator peaks for the specified compounds is totally computerized. Sample locations on a base map are digitized as X-Y coordinates and flux data for the given compounds are plotted at respective locations. All flux data are then extracted from the original data file for subsequent processing.

Mapping of the relative flux data occurs after contour intervals for each compound or component class are determined. In order to establish the contour intervals, factors such as flux distribution, physiochemical considerations, and component-source material relationship (if known) are taken into account for each compound or class, in each area, on an individual basis. Each map is then contoured by hand, or in special cases, computer. The resultant contour zones for each compound or component in each area are color-coded on a relative basis depending on whether or not the data is interpreted to be of high, moderate to high, moderate, etc., intensity. The response values found on each of the flux maps have been color-coded and contoured on this basis.

The data reported on each of the hydrocarbon components and combined chlorinated flux maps are the summed ion counts for the components comprising that particular compound class.

It should be noted that the reported ion counts are representative of a flux which is not a measure of concentration but represents the component's emanation rate at a particular sample location. At this time, there has been no absolute equation established from which subsurface contaminant levels may be calculated from surficial flux levels.



NOTES:

1. FIGURE BASED ON SITE SURVEY DRAWING NUMBER 18 02 02 CONDUCTED IN MARCH 1962 BY ARMY CORPS OF ENGINEERS

LEGEND

- PERIMETER OF PSF SITE
- = POSSIBLE UNDERGROUND TANKS (ABANDONED)
- = UNDERGROUND TANK (ACTIVE)
- = REPORTED BY U.S.A. AS UNDERGROUND TANK BUT PROBABLY LOCATED IN BASEMENT
- = ABANDONED UNDERGROUND WATER TANKS (PNEUMATIC TANK
- = ABOVEGROUND TANK (IN BASEMENT)
- = FORMER ABOVEGROUND TANK LOCATION
- = POSSIBLE ABOVEGROUND TANK(S) AT FORMER BUILDING LOCATIONS
- = FORMER BUILDING LOCATIONS

SCALE 0 FEET 250

RMC
SPRING CITY, PA
215-948-4700

FIGURE 2.0
TANK LOCATION MAP

PROJECT
PEDRICKTOWN SUPPORT FACILITY
OLDMAN'S TOWNSHIP, SALEM COUNTY, N.J.

PROJECT NO.
3838

DATE
1 24 91

APPROXIMATE NORTH

ARTILLERY AVENUE
NORTH AVENUE
DEPOT AVENUE
SOUTH AVENUE
BARRACKS AVE
WEST ROAD
ROAD
CENTRAL ROAD
DELAWARE ROAD
GARRISON ROAD
SERVICE ROAD
EAST ROAD
ROUTE 130
ROUTE US
GROUND MOUNTED
GROUND MOUNTED

179 188 177 197 315 184 T134 363 173 371 351 380 171 322 320 T200 T120 130 100 480 440 T500 T276 220 421 461 452 471 422 432 T282 T272 493 T283 273 233 473 463 413 404 T214 590 495 494 485 474 464 434 285 274 225 475 286 276 T235 T328 287 277 T227 506 497 507 288 278 T478 468 530 299 289 269 268 249 239 229 219

25 15 20

LEGEND

- PERIMETER OF PSF SITE
- ● - ONE POLE MOUNTED TRANSFORMER
- ●●● - THREE POLE-MOUNTED TRANSFORMERS
- ▨ - FORMER BUILDING LOCATIONS

NOTE: ALL TRANSFORMERS ARE POLE-MOUNTED UNLESS OTHERWISE NOTED.

NOTES:
1. FIGURE BASED ON SITE SURVEY DRAWING NUMBER 18 02 02 CONDUCTED IN MARCH 1962 BY ARMY CORPS OF ENGINEERS.

SCALE: 0 FEET 250

RMC ENVIRONMENTAL SERVICES
SPRING CITY, PA
215-948-4700

FIGURE 3.0
TRANSFORMER LOCATION MAP

PROJECT: PEDRICKTOWN SUPPORT FACILITY
OLDMAN'S TOWNSHIP, SALEM COUNTY, N.J.

PROJECT NO.: 3838

DATE: 1/24/91